Vancouver Energy Distribution Terminal

TESORO SAVAGE VANCOUVER ENERGY DISTRIBUTION TERMINAL

PRELIMINARY OIL SPILL CONTINGENCY PLAN

Prepared for:

TESORO SAVAGE PETROLEUM TERMINAL LLC
Tesoro Savage Vancouver Energy Distribution Terminal
5501 Northwest Lower River Road
Clark County
Vancouver, WA 98660

Date prepared: January 2014

PRELIMINARY OIL SPILL CONTINGENCY PLAN

Tesoro Savage Vancouver Energy Distribution Terminal

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1.0 INTRODUCTION

Figure 1.1 – Record of Changes Form

Changes to this Plan will be documented in the Record of Changes form (**Figure 1.1**). Plan review and modifications will be initiated and coordinated by the Supervisor of Contingency Planning. All planholders on the Distribution List will be notified in writing of any changes to this plan (**Figure 1.2**).

Change Number	Date of Change	Description of Change	Name and Signature

Figure 1.2 – Distribution List

Plan #	Name	Address
1,, 2	TSVEDT Manager c/o Jared Larabee Field Document	Tesoro Savage Vancouver Energy Distribution Terminal 5501 Northwest Lower River Road Vancouver, WA 98660
3	Kelly Flint Tesoro Savage Petroleum LLC	Tesoro Savage Petroleum Terminal LLC 6340 South 3000 East, Suite 600 Salt Lake City, UT 84121
4	Director, Contingency Planning and Emergency Response Eric Haugstad	Tesoro Corporation 19100 Ridgewood Parkway San Antonio, TX 78259
5e	Vice President, Environmental Marketing and Logistics Rob Donovan	3450 South 344th Way, Suite 100 Auburn, WA 98001
6	Manager, West Coast Terminals John Walker	3003 Navy Drive Stockton, CA 95206
7	Peter Hendricks	Tesoro Corporation 19100 Ridgewood Parkway San Antonio, TX 78259
8	Lead Contingency Planning Coordinator Craig Hyder	Tesoro Refining & Marketing Company LLC P.O. Box 700 Anacortes, WA 98221
9e, 10e, 11e	United States Environmental Protection Agency Region X	1200 Sixth Avenue Seattle, WA 98101
12, 13, 14e, 18e	Washington Department of Ecology	300 Desmond Drive Lacey, WA 98503 P.O. Box 47775, Olympia, WA 98504-7775
15	Oregon Department of Environmental Quality	Land Quality Division, 7th floor 811 SW Sixth Avenue Portland, OR 97204-1390
16, 17e	Commanding Officer U.S. Coast Guard Sector Puget Sound	Facility & Container Branch 1519 Alaskan Way South, Bldg. 4, 4th Floor Seattle, WA 98134

11=Hard Copies; 7=Electronic Copies

Note: This Preliminary Plan is intended for permitting purposes only. The distribution list is for indicative purposes only, and copies of the plan have not been submitted to the agencies noted above.

1.1 Purpose/Scope of Plan

This Preliminary Oil Spill Response Plan has been prepared for the Tesoro Savage Petroleum Terminal LLC's (Company) Tesoro Savage Vancouver Energy Distribution Terminal (TSVEDT or Facility) to satisfy Washington State statutes and the federal oil spill planning requirements of the U.S. Coast Guard (USCG) and Environmental Protection Agency (EPA) as set forth by the Oil Pollution Act of 1990.

This document is a PRELIMINARY version of the plan that will be prepared, implemented, and submitted as necessary to applicable state and federal agencies in accordance with applicable laws and regulations prior to the beginning of operations of the TSVEDT. This plan has been developed based on TSVEDT facility design completed at the time of writing. The Company will update this plan based on additional consultation conducted during the permitting effort for the TSVEDT and the final design of the Facility. This preliminary plan is intended to be indicative of the planning and response strategies to be implemented by the Company at the TSVEDT.

The purpose of this Oil Spill Response Plan (Plan) is to provide guidelines to respond to a spill that originates from the TSVEDT.

This Plan contains information designed to improve the responder's ability to select appropriate resources, cleanup methods, and to manage an effective response team.

The first three sections of this Plan are intended to be used as a field document to provide critical information for the initial emergency phase of a spill per Washington Administrative Code (WAC) 173-180-240(2).

The Facility is subject to a worst-case discharge of 380,000 barrels of crude oil from tank 0300-TK-001. This tank is located approximately 4,000 feet northeast of the Columbia River within Area 300 – Storage Area. Location of first block valve inside containment for tank 0300-TK-001 is demonstrated on the attached drawing.

The Facility transfers crude oil to vessels over the dock located at berths 13 and 14 inside the Port of Vancouver facility on the Columbia River. Only vessels will be loaded, with one vessel serviced at any given time.

TSVEDT vessel specifications are as follows:

Maximum vessel size:	Oil Tanker 900-foot LOA 158-foot beam 43-foot draft 125,751 metric tons

1.2 Regulatory Mandate

This Plan is designed to satisfy the requirements of the Oil Pollution Act of 1990 (OPA 90) and the State of Washington under WAC 173-182, and has been prepared in accordance and used in conjunction with:

- National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR 300)
- Oil and Hazardous Pollution Contingency Plan for EPA Region 10
- Northwest Area Contingency Plan
- Lower Columbia River, Washington Geographic Response Plan (GRP)

A Compliance Schedule that describes how the Company intends to meet the planning standards in WAC 173-182-310 through 173-182-450 is included in **Figure 1.4.**

1.3 Plan Updating Procedures

The Manager of Contingency Planning is responsible for reviewing, updating, and distributing this Plan. Plan review and updating will be done on an annual basis or more frequently if significant changes occur at the facility that may affect the facility's spill response capability. Key items that influence response capability and that should be reviewed and updated as necessary include:

- Inventories of company spill response equipment.
- Names and/or telephone numbers of the Oil Spill Response Organizations listed in Section 3.
- Names and/or telephone numbers of the Company's Oil Response Team personnel, including Qualified Individuals. (Plan holders with new or incorrect phone numbers should notify the Supervisor of Contingency Planning Manager immediately of changes).
- Oil storage, transfer, or handling procedures at the Facility.
- Response procedures as necessitated by potential deficiencies identified during training or exercises.
- Revised spill response procedures.
- Pertinent regulations.
- Any change to information relating to circumstances likely to affect full implementation for the Plan.

Plan revisions or amendments will be numbered sequentially and entered on the Record of Changes Form (**Figure 1.1**). The change numbers, date, and description of change (including plan section[s] affected by the review or amendment) and the name and signature of the person completing the review and amendment will also be entered on the form. These amendments will be implemented as soon as possible, but not later than the duration listed in Section 1.3.1. These changes are then to be distributed to all plan holders on Distribution List (refer to **Figure 1.2**). When review is completed without changes, the Washington Department of Ecology (Ecology) will be notified of completion of review.

The Lead Contingency Planning Coordinator will notify Ecology in the event of any significant changes in availability of oil spill response equipment within 24 hours. **Additionally, Ecology will be notified in writing within 30 days of changes that will have significant impact to response capability.**

The Plan will be centrally located in the Lead Contingency Planning Coordinator office and at the terminal office and will be accessible at any time for agency review.

1.3.1 Periodic Reviews and Evaluations

A review and evaluation will be annually performed to comply with regulatory requirements. As a result of the periodic review and evaluation, the Plan will be amended, if necessary, to include more current and effective response measures. The timeframe for revisions to reflect significant facility changes as described above are as follows:

- Annual review, within one month of the anniversary date of Captain of the Port (COTP) approval, to incorporate any changes in the listings of economically important or environmentally sensitive areas identified in the Northwest Area Contingency Plan (ACP) in effect six months prior to the Plan review.
- Five-year review for the portions of the Plan addressing Ecology, USCG marine transportation-related (MTR) facility requirements, or after significant change.
- Post discharge review to evaluate plan effectiveness.

Amendments to the Plan will be submitted to the appropriate agencies for information and approval.

1.3.2 Interface with Other Plans

This Plan interfaces with other federal, state, and local plans as outlined in **Figure 1.3.**

Figure 1.3 – Interface with Other Plans

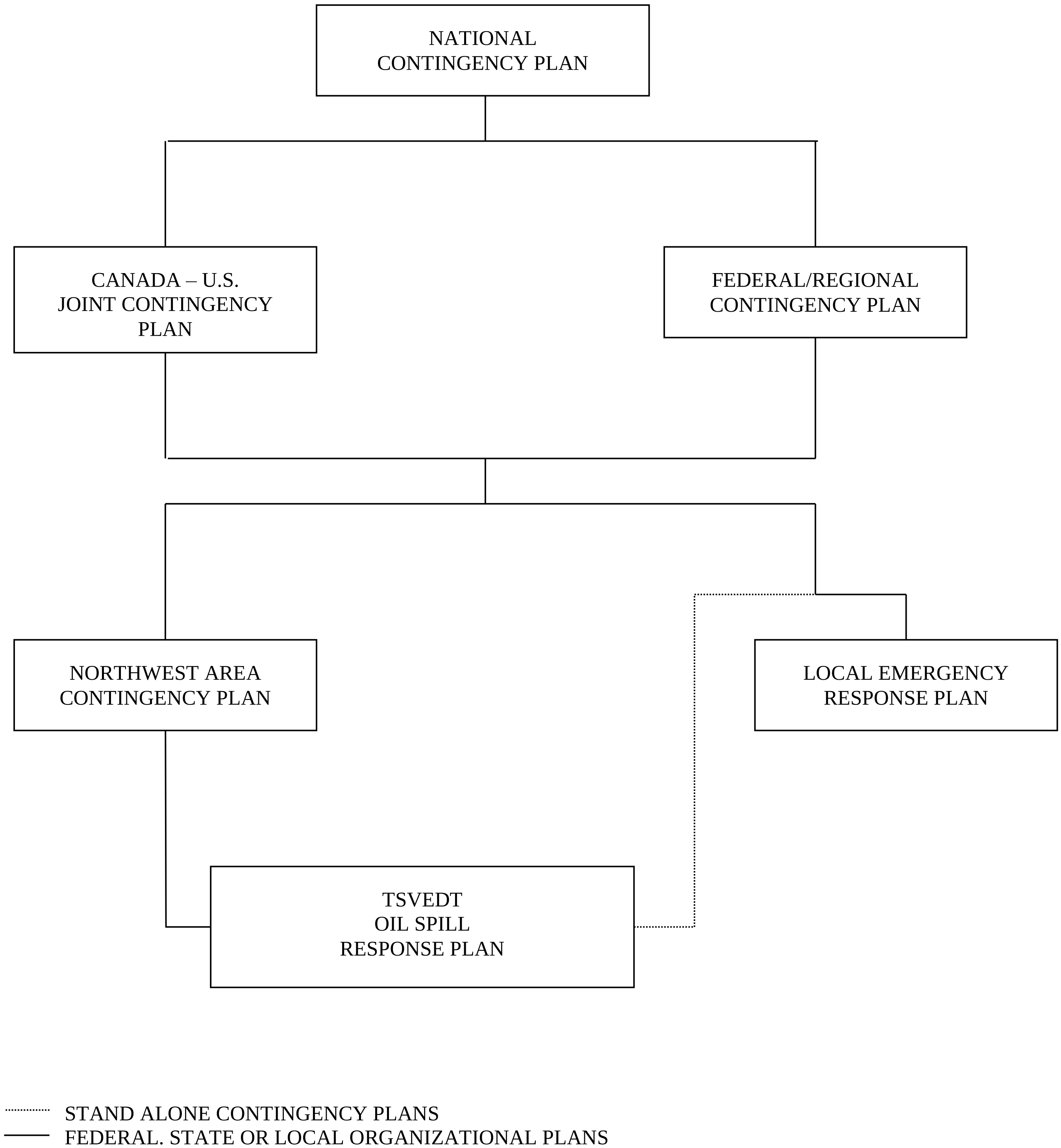

Figure 1.4 – Compliance Schedule

WAC 173-182-310	Planning Standards	Compliance Status	
WAC 173-182-315	Planning Standards for non-dedicated work boats and operators	Pending future plan approval (see Note 1)	Appendix B
WAC 173-182-320	Planning Standards for aerial surveillance	Pending future plan approval	Section 2
WAC 173-182-325	Planning Standards for dispersants	Pending future plan approval	Section 7
WAC 173-182-330	Planning Standards for in situ burning	Pending future plan approval	Section 7
WAC 173-182-335	Planning Standards for storage	Pending future plan approval	Section 7 and Appendix B
WAC 173-182-340	Determining effectiveness of recovery systems	Pending future plan approval	
WAC 173-182-345	Determining effective daily recovery capacity	Pending future plan approval	
WAC 173-182-350	Documenting compliance with the planning standards	Pending future plan approval	Appendix B
WAC 173-182-355	Transfer sites for covered vessels at locations where transfers occur, and for facilities with a vessel terminal	Pending future plan approval	Section 7 and Appendix B
WAC 173-182-360	General planning standards for covered vessel transit locations for all of Puget Sound	N/A	
WAC 173-182-365	Transmission pipelines and pipeline tank farms	N/A	
WAC 173-182-370	San Juan County planning standard	N/A	
WAC 173-182-375	Padilla Bay planning standard	N/A	
WAC 173-182-380	Commencement Bay-Quartermaster Harbor planning standard	N/A	
WAC 173-182-385	Nisqually planning standard	N/A	
WAC 173-182-390	Dungeness planning standard	N/A	
WAC 173-182-395	Neah Bay staging area	N/A	
WAC 173-182-400	Copalis, Flattery Rocks and Quillayute Needles planning standard	N/A	
WAC 173-182-405	Grays Harbor planning standard	N/A	
WAC 173-182-410	Willapa planning standard	N/A	
WAC 173-182-415	Cathlamet staging area	N/A	
WAC 173-182-420	Vancouver planning standard	Pending future plan approval	Section 7 and Appendix D
WAC 173-182-430	Tri-cities planning standard	N/A	
WAC 173-182-450	Planning standards for the Washington Coast	N/A	

Note 1: Compliance with the noted standards will be verified upon review of the final contingency plan submitted to the appropriate regulatory agencies, post Site Certification Approval by EFSEC.

1.4 Description of Geographic Area

The TSVEDT is located within the Port of Vancouver, in a facility that Tesoro Savage leases from the Port of Vancouver (see **Figures 1.5, 1.6, and 1.7**). The port area is zoned "heavy industrial". The dock facility is located at Columbia River Mile (RM) 103.5. A detailed description of the Terminal and Dock and surrounding geographic area is presented in Section 6 and **Appendix C**.

This Plan provides for the response to oil spills for which the company assumes responsibility that may occur within the geographic location boundaries. For planning purposes, the geographic area at risk from a worst-case discharge (unabated release over 72 hours during maximum current speeds) extends from approximately 5 miles upriver from the facility (RM 109) to the mouth of the Columbia River and approximately 100 miles in either direction (north or south) along the Washington and Oregon coastline (see **Figure 1.6**). The probable route of discharge off the facility property would follow natural drainage patterns to the south, past existing rail infrastructure, through the Terminal 4 stormwater pond located on Port of Vancouver property and into the Columbia River (see **Figure 1.8**).

Figure 1.5 – TSVEDT Facility Information Summary

Owner/Operator	Tesoro Savage Petroleum Terminal LLC 6340 South 3000 East, Suite 600 Salt Lake City, UT 84121 801-944-6600	
Facility Name/SIC Code	Tesoro Savage Vancouver Energy Distribution Terminal / 5171	
Name and Address of person to whom correspondence should be sent	Terminal Manager 5501 NW Lower River Rd Vancouver, WA 98660	
County	Clark	
Description of Facility	Includes a diked tank storage area with six welded steel vertical storage tanks with an aggregate storage capacity of 2,220,000 barrels; a covered rail unloading area for delivery of tank cars containing crude oil; three 24-inch transfer pipelines between the unloading area and the storage area; a 36-inch aboveground and buried pipeline between the storage area and dock; a marine vapor control unit; and an office/administrative area.	
Description of Operations	Crude oil is received via rail. Crude oil is stored at the terminal and distributed via vessel.	
Description of Tanks	Refer to **Figure C.2**	
Hours of Operating/Manning	Normal hours of operation are 24 hours a day, seven days a week. The Facility is continuously staffed.	
Facility Throughput	Varies according to season and market. Daily average is 360,000 barrels per day.	
Products Handled	Crude oil	
Physical Address	Tesoro Savage Vancouver Energy Distribution Terminal 5501 NW Lower River Road Vancouver, WA 98660	
Mailing Address	Tesoro Savage Vancouver Energy Distribution Terminal 5501 NW Lower River Road Vancouver, WA 98660	
Location	Latitude: 45° 39’ 6” N, / Longitude: 122° 43’ 52”W	
Telephone/FAX	TBD	
Primary Qualified Individual*	**TBD**	**TBD**
Alternate Qualified Individual*	**TBD**	
Date of Storage Startup	2015 (Anticipated)	
Wellhead Protection Area	No	
Basis for Significant and Substantial Harm	The Facility is located in the Port of Vancouver directly adjacent to other industrial facilities and within one and a half miles of residential neighborhoods. There are approximately 2,300 employees at the Port of Vancouver; approximately 400 people may be working at their job sites at any given time. The Port is zoned heavy industrial and is not considered an environmentally sensitive area.	
EPA Worst Case Discharge (gallons)	15,540,000	
Dates(s) and Type(s) of Substantial Expansion:	2015 – terminal constructed	
Date Prepared	October 2013	

*For further information on Qualified Individual’s training and qualifications, refer to **SECTION 4.6** and **APPENDIX A.2** in this plan.

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.

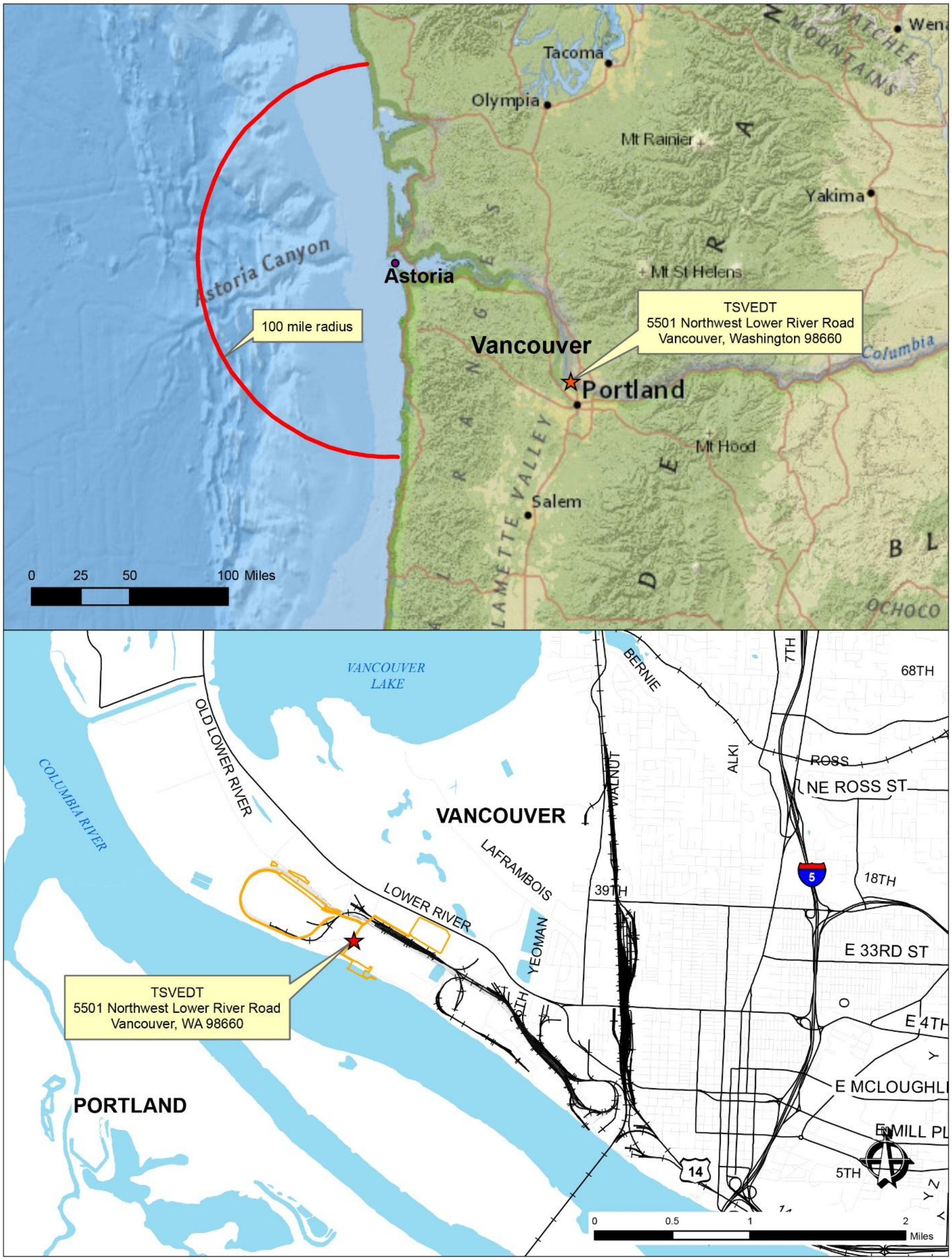

Figure 1.6 – TSVEDT Facility Location Area Map

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Figure 1.7 – TSVEDT Facility Diagram

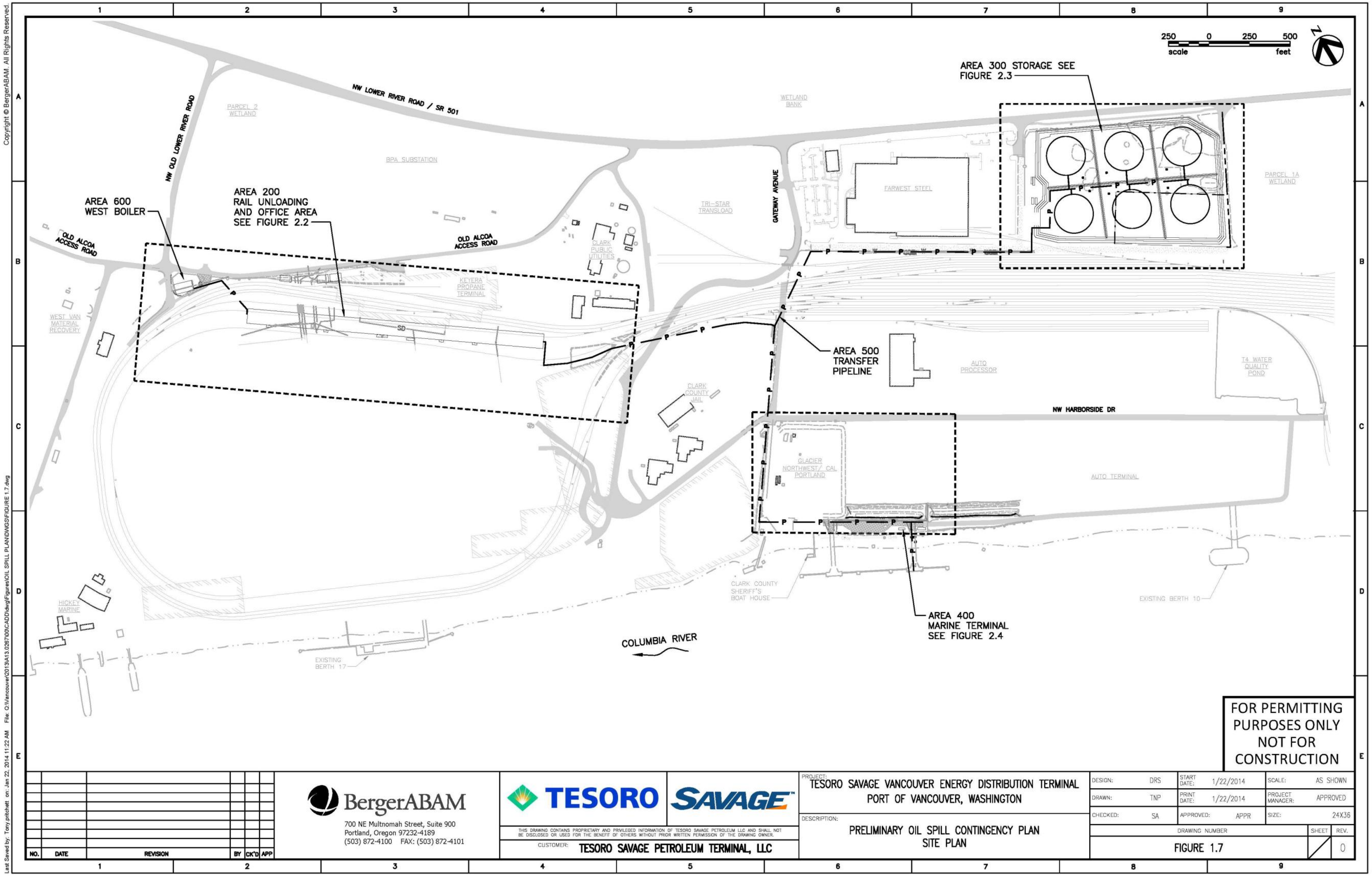

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Figure 1.8 – TSVEDT Facility Drainage Plan

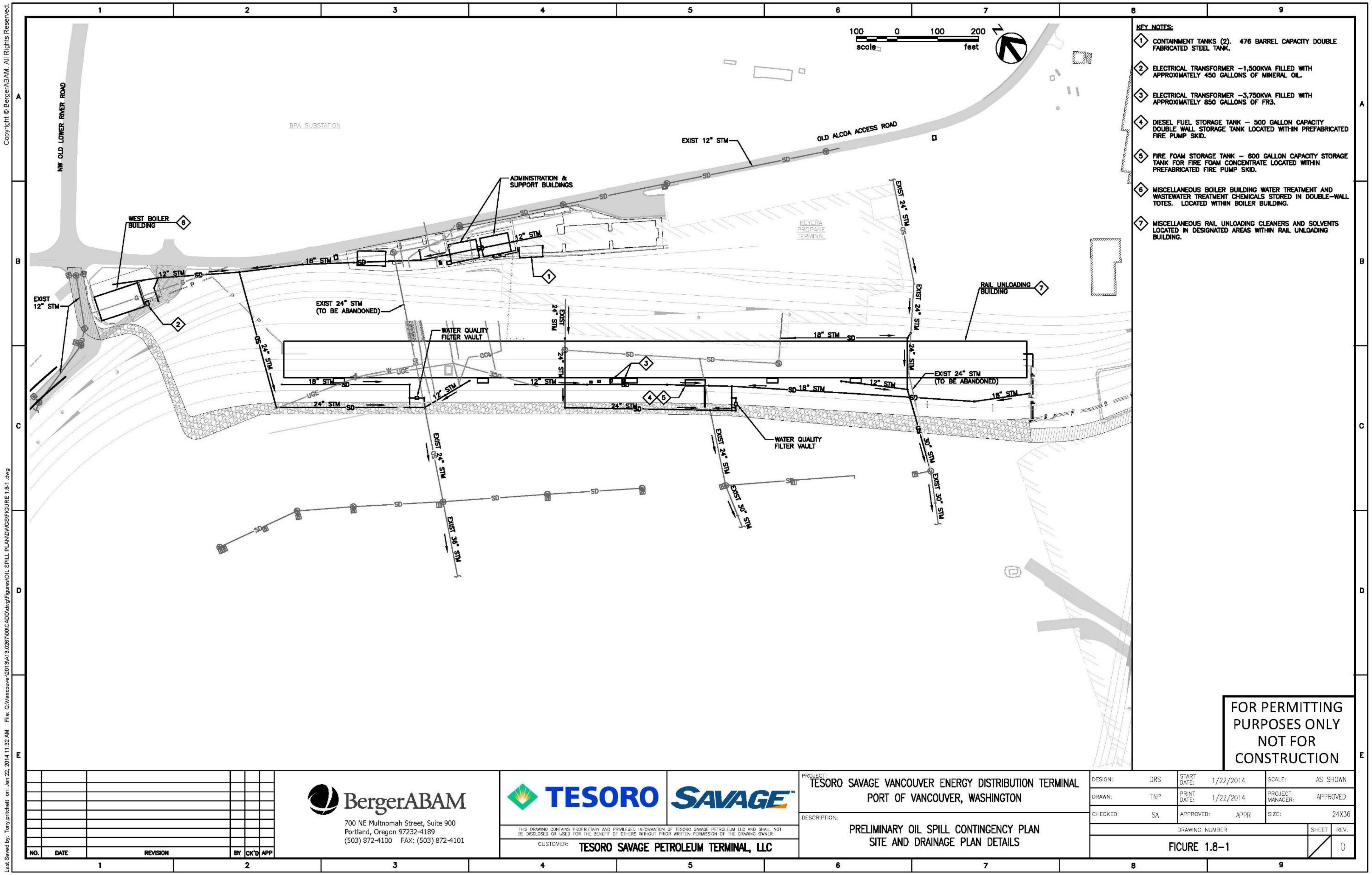

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Figure 1.8 – TSVEDT Facility Drainage Plan (Continued)

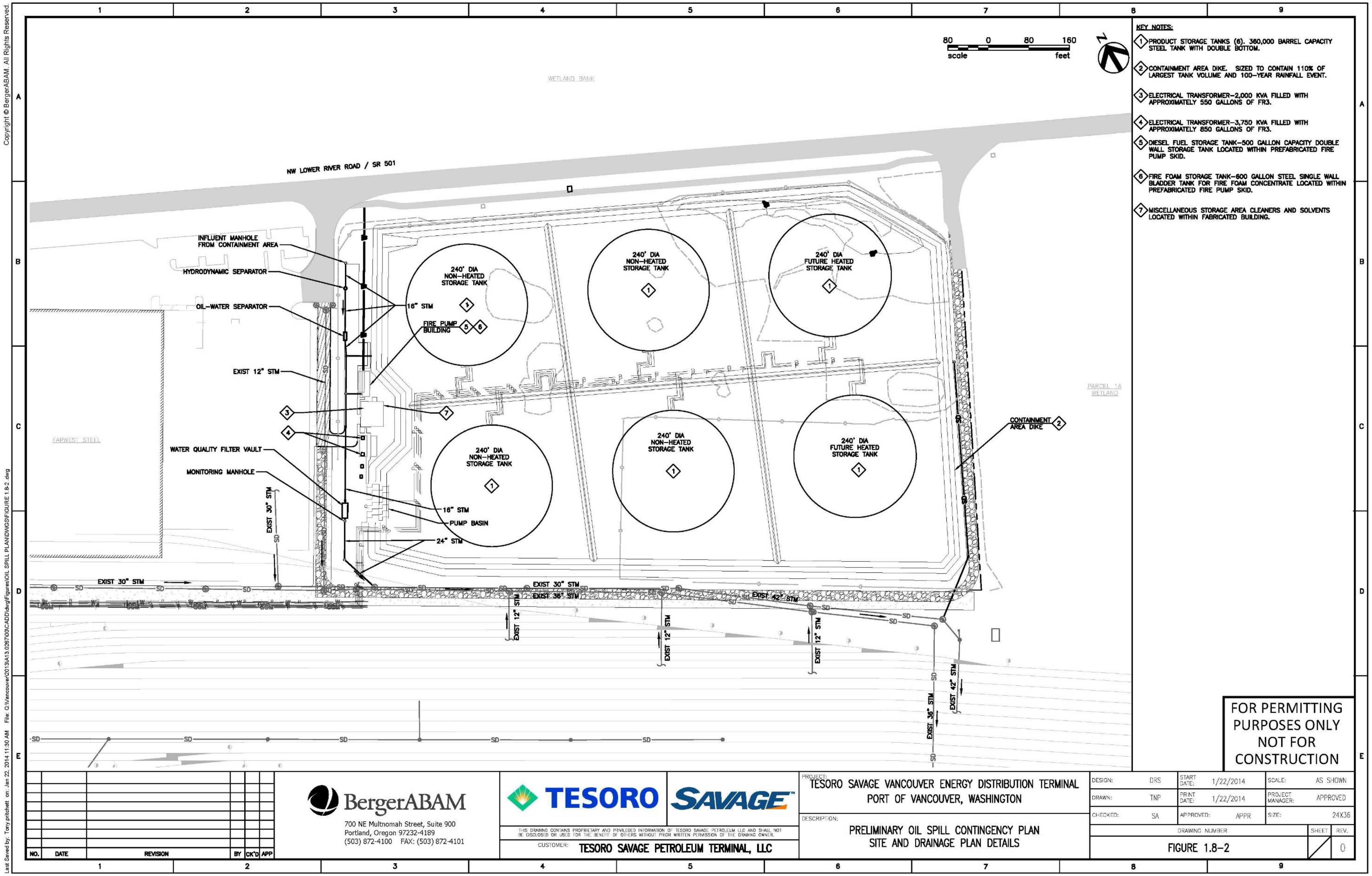

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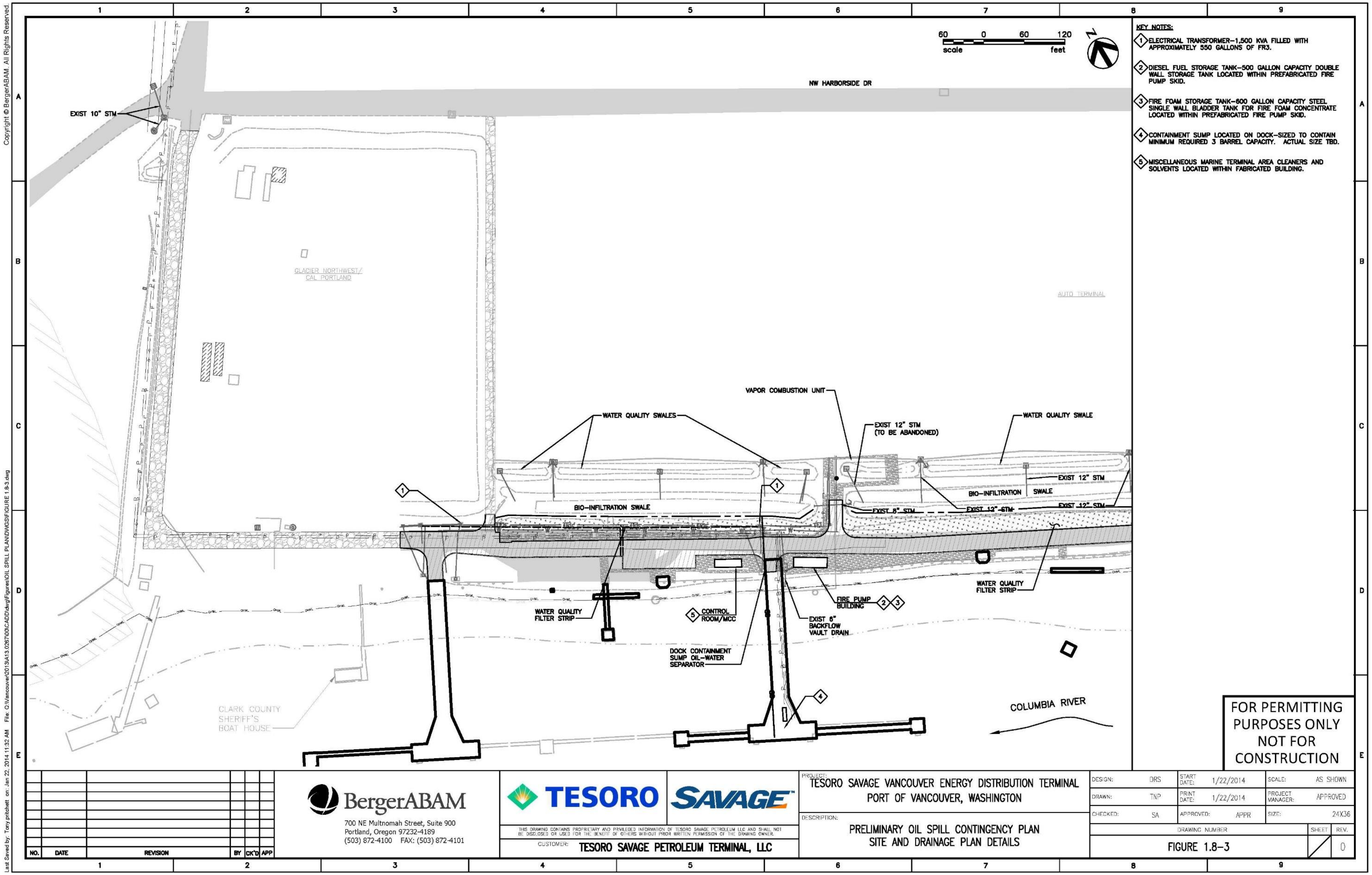
Figure 1.8 – TSVEDT Facility Drainage Plan (Continued)



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2.0 INITIAL RESPONSE ACTIONS

Figure 2.1 – Initial Response Action Checklist

Terminal Operator/Spill Observer

____ Make an immediate and rapid assessment to determine:
If anyone has been injured
If situation poses hazards to other personnel or the public (i.e., fire, explosion, fumes, etc.)
Source of the spill
Type of material spilled and approximate size

____ Take immediate steps to stop the flow.

____ Ensure safety of personnel. If someone requires medical attention or there is an emergency, dial 911.

____ Alert the Terminal Manager and other Terminal personnel (see **Figure 3.3**). The Terminal Manager will be the initial Incident Commander.

____ Evacuate personnel as necessary (refer to **Figures 2.3 and 2.4**).

____ Shut down and control the source of the spill, if safe to do so. Assess the potential hazards for explosion and airborne toxins.

____ If safe to do so, direct facility responders to shut down potential ignition sources.

____ Monitor the area for potential explosion and fire hazards. If fire is present enable fire alarm and water system.

____ Ready the area for firefighting.

____ Use whatever resources are available to limit the spread of the spill.

____ Establish safety zone around the spill.

All TSVEDT employees have the authority to activate the TSVEDT Spill Response Team, activate spill response action contractions, and act as the Incident Commander if a designated Incident Commander, Deputy Commander, or a more Senior TSVEDT Manager is not available.

Figure 2.1 – Initial Response Action Checklist (Continued

Terminal Manager (Initial Incident Commander)

____ Receive initial report from TSVEDT Operator. Assume role as Initial Incident Commander

____ Determine the degree of spill response that will be required. Assessment should include:

- Product and volume spilled
- Spill trajectory
- Response personnel and equipment needs

____ Notify the Tesoro Refining and Marketing Company, Tesoro Savage Petroleum Terminal LLC and request that they alert the Spill Management Team (see **Figure 3.3**).

____ If appropriate, activate the following response teams: TSVEDT, Tesoro Refining and Marketing, and Marine Spill Response Corporation (MSRC) response teams (see **Figure 3.3**).

____ Notify the Port of Vancouver. Local, State, and/or Federal Agencies as appropriate (see **Figure 3.4**). A Spill Report Form is provided in **Figure 3.2**.

____ Notify TSVEDT and Tesoro Qualified Individuals (Need to contact only one).

____	TBD	Work ....TBD Home....TBD Cellular....TBD
____	TBD	Work ....TBD Cellular....TBD Home....TBD
____	TBD	Work ....TBD Home....TBD Cellular....TBD
____	TBD	Work ....TBD Home ....TBD Cellular....TBD
____	TBD	Work ....TBD Home ....TBD Cellular....TBD

Figure 2.1 – Initial Response Action Checklist (Continued)

____ Notify TSVEDT Senior Management of spill (see Notifications **Figure 3.3**).

____ Establish Command Post

- Primary--Tesoro Savage Petroleum Terminal LLC TSVEDT Terminal Office.
- Alternate--Hilton Hotel Vancouver

____ Act as initial Site Safety Officer.

____ Notify down river water users as appropriate (see **Figure 3.3**).

____ Ensure that initial response actions, notifications and safety assessment are documented. Use forms provided in **Figures 3.2.**

Figure 2.2 – Initial Response Flowchart

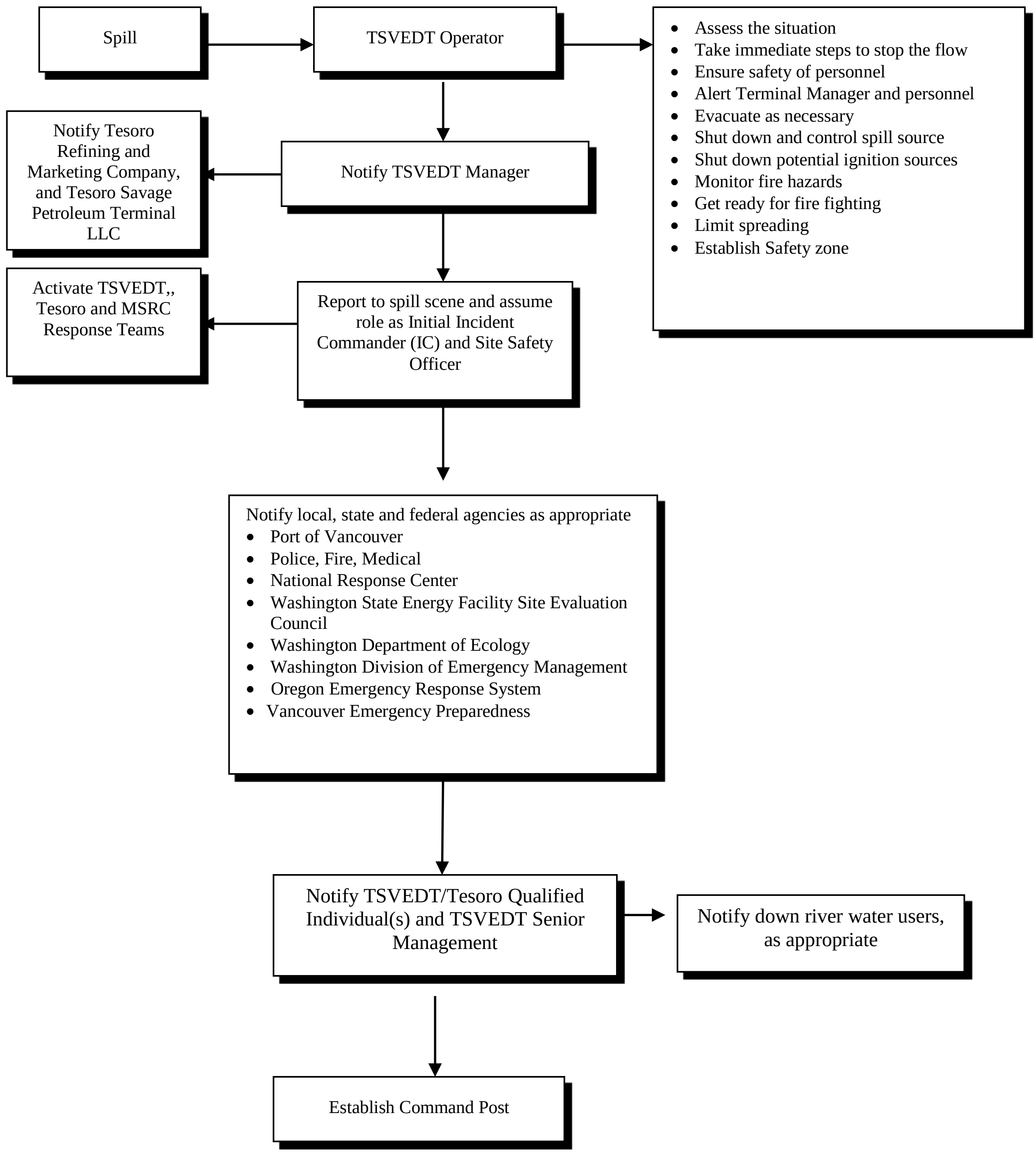

Figure 2.3 – Emergency Evacuation

FACTOR	DESCRIPTION
Stored Material Location	• Location in oil storage area. • Identified in Facility Diagram (**Figure 1.7**).
Spilled Material Hazards	• Primary hazard is fire/explosion.
Spill Flow Direction	• Adjacent, terrain is flat with defined drainage patterns to the north and south. • Spilled product will accumulate in low lying areas directly adjacent to terminal.
Prevailing Wind Direction and Speed	• Prevailing winds are normally from the west. • Because wind direction varies with weather conditions, consideration for evacuation routing will depend in part on wind direction.
Water Currents, Tides, or Wave Conditions	• Area currents range between 0.25 to 0.5 knots. • Tidal currents may alter, depending on distance off shore and tidal cycle stage and run north and south along the shoreline.
Emergency Personnel Arrival Route	• Emergency personnel and equipment would be dispatched by land or boat. • By land, facility is accessible via NW Gateway Avenue/NW Harborside Avenue and NW Lower River Road). • By water, the facility is accessible via the Columbia River/Port of Vancouver.
Evacuation Routes	• Exit terminal from front gate or dock. • Assemble up wind from Terminal at the east or west end of the terminal. • Criteria for determining safest evacuation routes from Facility may include: wind direction, potential exposure to toxics and carcinogens, intense heat, potential for explosion or fire, and blockage of planned route by fire, debris, or released liquid.
Alternative Evacuation Routes	• Alternative evacuation route for employees on the dock may be required to evacuate through Berth 10 to the east (Subaru Dock), or the Clark County Sherriff's Boat House, to the west, if fallen power lines are observed at the base of the dock. • Employees can also evacuate through the Cal Portland Facility
Injured Personnel Transportation	• Emergency vehicles can be mobilized to the Facility (Dial 911).
Alarm/Notification System Location	• Terminal uses internationally recognized signs for emergencies.
Centralized Check-In Area	• Evacuate to identified regroup areas, including, but not limited to, the NW corner of the intersection of NW Old Lower River Road and Old Alcoa Access Road, the inside of the Terminal 5 rail loop, or the NW corner of the intersection of Harborside Drive and Gateway Avenue. • Terminal Manager is responsible for headcount.
Mitigation Command Center Location	• Initial Command Center is located at Facility. • Mobile command posts may be established.
Facility Shelter Location	• The office is the only area which could provide adequate heated shelter within the facility.
Community Evacuation Plans	• NW Lower River Road (Hwy 501) is a community evacuation route. • Contact City of Vancouver police and fire departments for assistance with determining evacuation limits and making necessary public and private notifications.

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Figure 2.4 – TSVEDT Facility Evacuation Plan

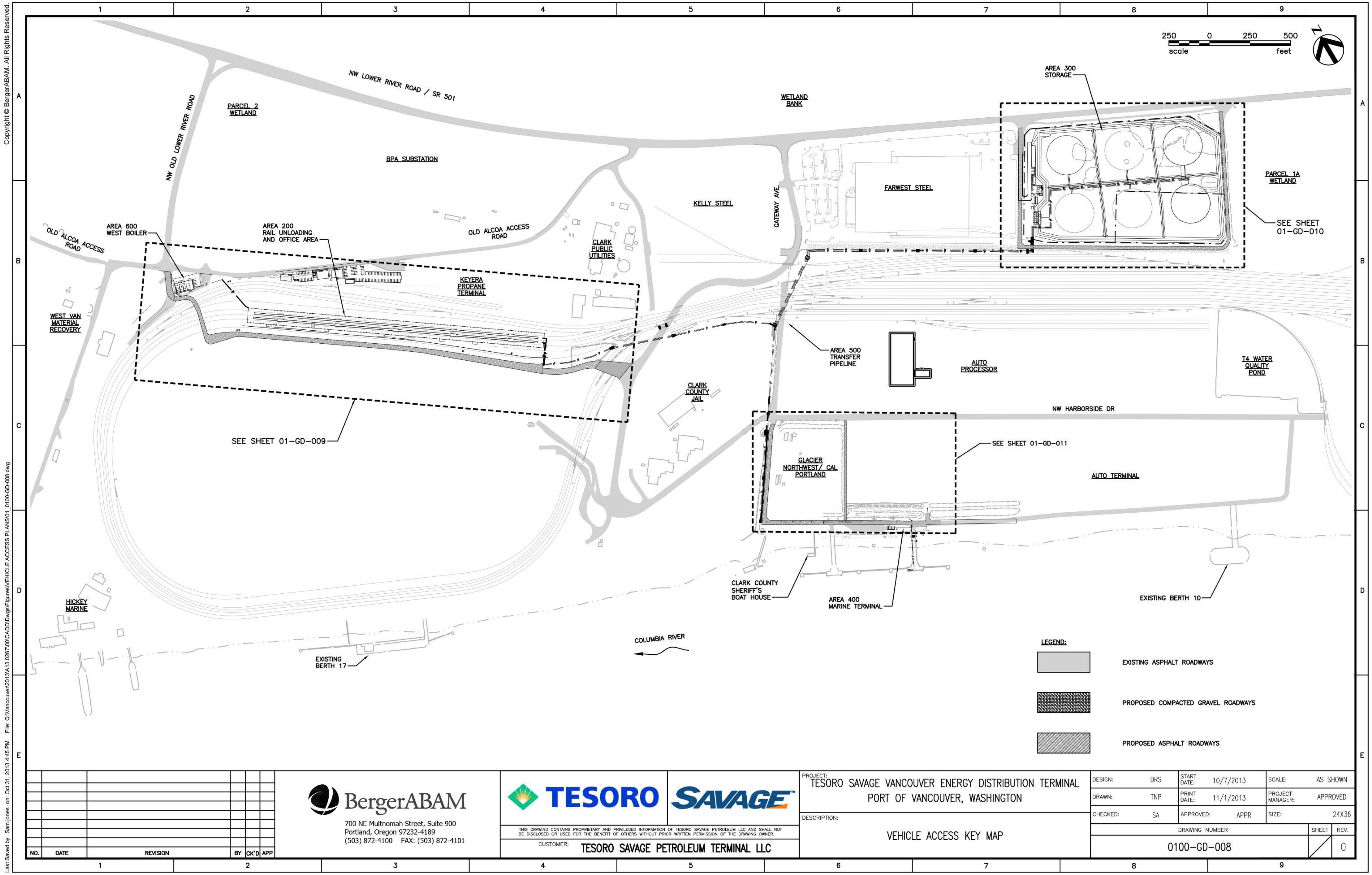

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Figure 2.4 – TSVEDT Facility Evacuation Plan (Continued)

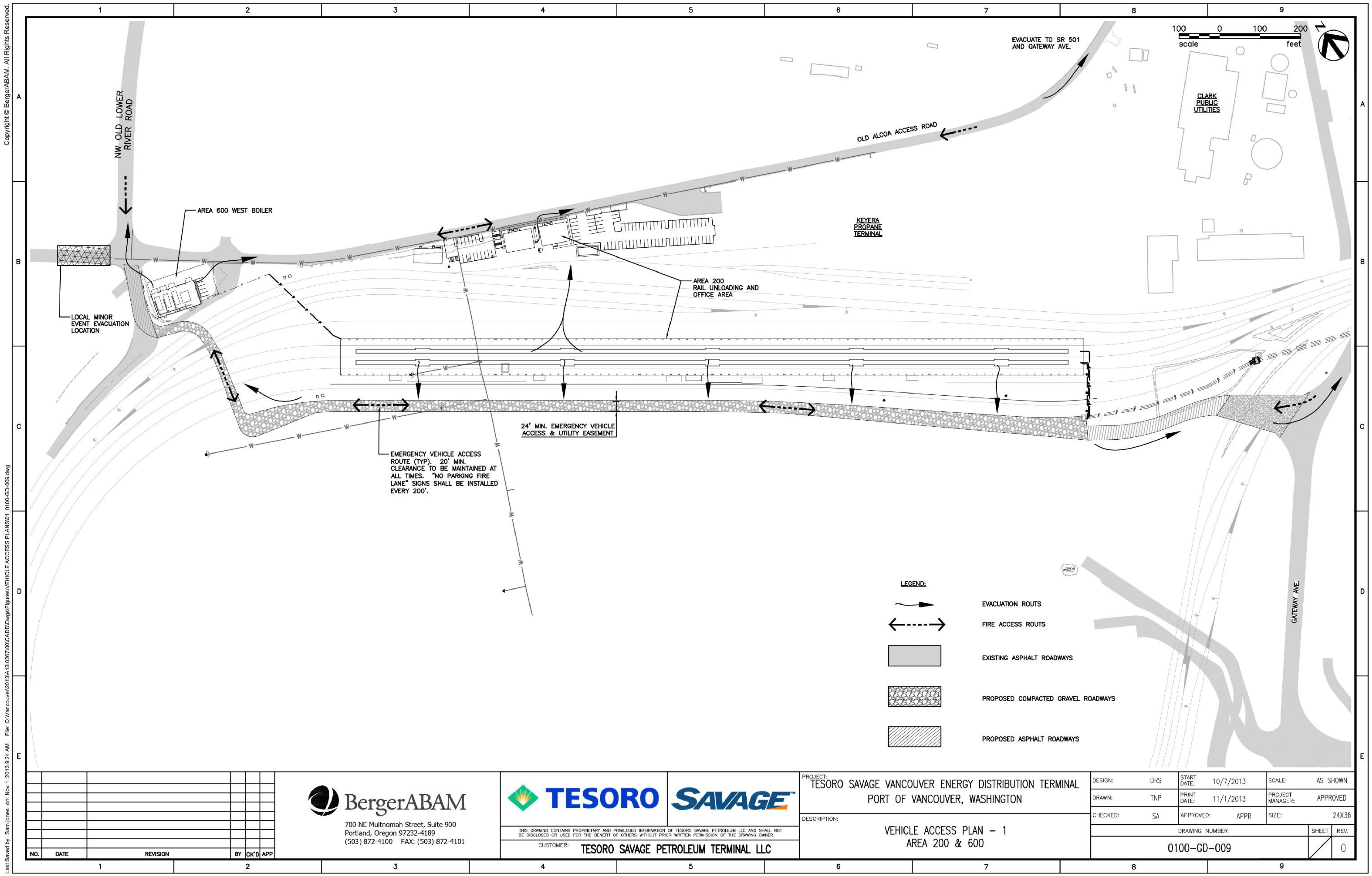

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Figure 2.4 – TSVEDT Facility Evacuation Plan (Continued)

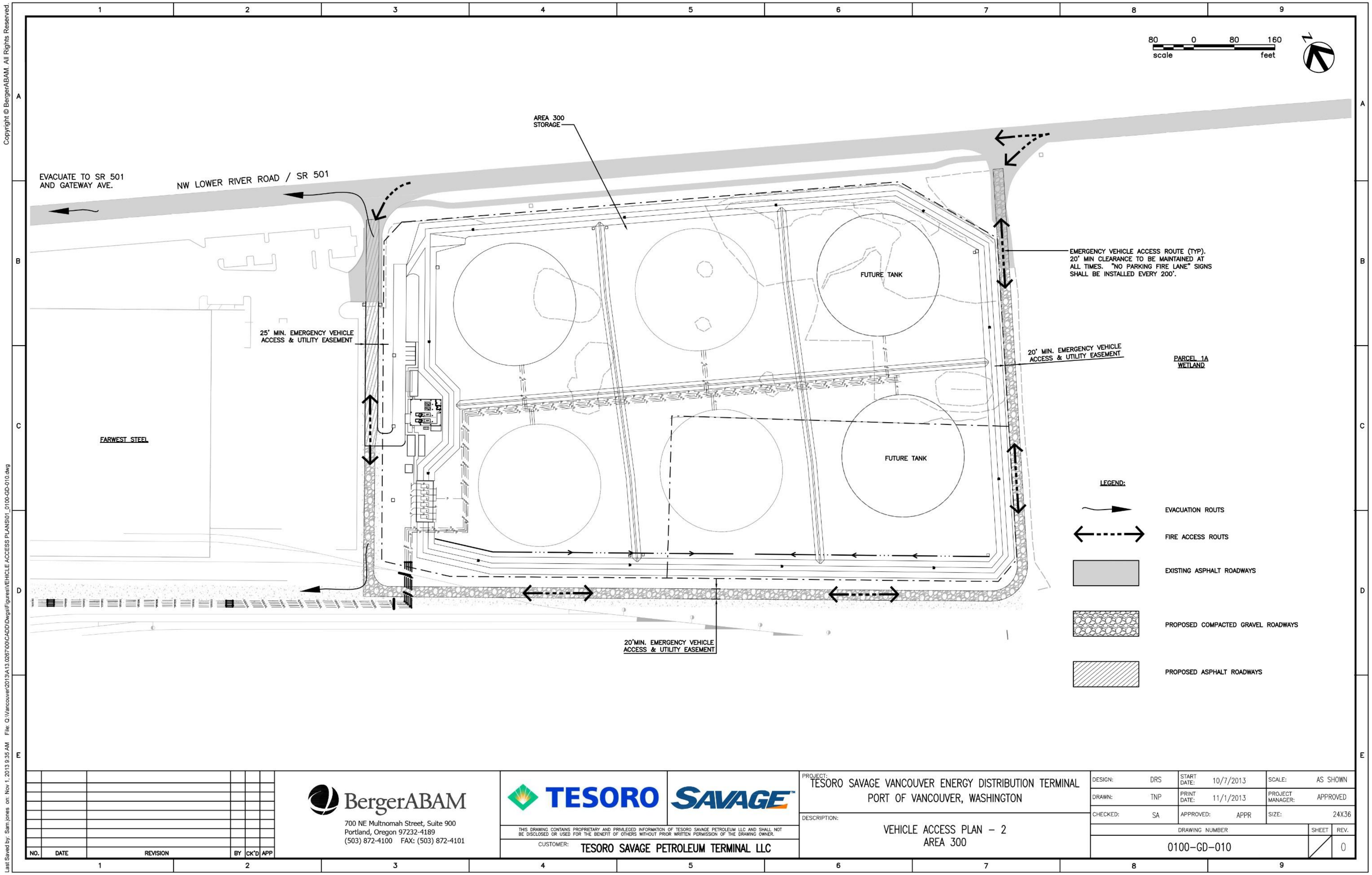

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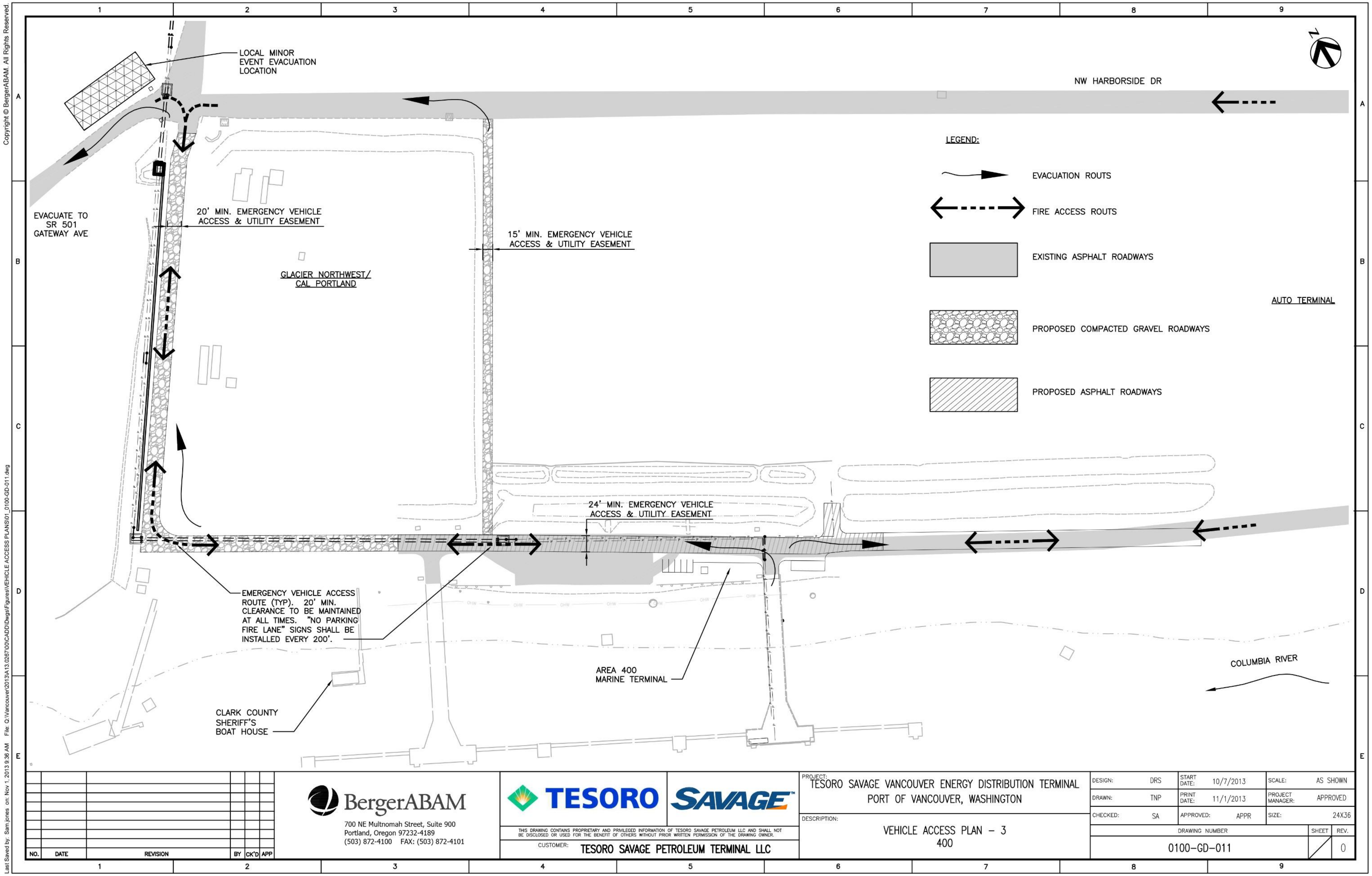
Figure 2.4 – TSVEDT Facility Evacuation Plan (Continued)



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2.1 Source Control and Mitigation

This section provides general guidance for spill mitigation. Each 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. **Figure 2.5** describes these mitigation procedures.

Prior to any vessel transfer booking systems will be deployed as follows:

- Ensure fence boom is correctly placed between the vessel location and the shoreline.
- Deploy floating booms after a vessel is at the berth and connect with the fence boom on the downstream

Figure 2.5 – Spill Mitigation Procedures*

TYPE	MITIGATION PROCEDURE
Any identified failure	1. Activate emergency shutdown system (ESO) to close all landside valves and stop transfer pumps.
Failure of Manifold, Mechanical Loading Arm, Transfer Equipment, or Hoses at Dock	2. Notify vessel and terminal to stop all product transfers. 3. Advise vessel and terminal to close all line and ship manifold discharge valves. 4. Shut down all transfer pumps and close all dockside valves. 5. Eliminate sources of ignition. 6. If hose ruptured, drain hose in a manner that minimizes spillage into water. If other than hose ruptured, determine source of leak and control the source. 7. Initiate spill response.
Tank Overfill/Failure	1. Stop transfer of product into tank. 2. Eliminate sources of ignition. 3. Consider transferring the product from the overflowing tank into an adjacent tank to stop overflow. 4. Isolate tank by closing all valves. 5. Secure area to protect pedestrian and vehicle traffic and prevent the spreading of spilled oil. 6. Consider facility evacuation for gasoline and ethanol spills. 7. Initiate spill response
Piping Rupture/Leak	1. Shut down pumps and close pipeline block valves on both sides of the spill. 2. Determine if options are available to minimize line drainage. 3. Secure area to protect pedestrian and vehicle traffic and to prevent spreading of spilled oil. 4. Initiate spill response. 5. Contact pipeline repair specialist. See **Figure 3.3**.
Explosion/Fire	1. Alert terminal employees. 2. Request emergency assistance by dialing "911." 3. Secure area to protect pedestrian and vehicle traffic from danger. 4. Evacuate terminal as directed in the evacuation plan. 5. Notify adjacent facilities. See **Figure 3.3**. 6. Begin firefighting procedures
Equipment Failure Such as Pumping or Relief Valve	1. Shut down and close adjacent valves. 2. Eliminate sources of ignition. 3. Secure area to protect pedestrian and vehicle traffic and to prevent spreading of oil. 4. Initiate spill response.

TYPE	MITIGATION PROCEDURE
Tank Truck Overflow	1. Shut down transfer pump and close truck loading valves. 2. Eliminate sources of ignition. 3. Secure area to protect pedestrian and vehicle traffic and to prevent spreading of spilled oil. 4. Initiate spill response.

*Worse Case Discharge volume calculations are provided in **Appendix D**.

2.2 Spill Surveillance

Surveillance of an oil spill should begin as soon as possible following discovery to enable the Incident Commander and other response personnel the ability to assess spill size, movement, and potential impact locations(s). Immediately following discovery of a spill, one or more tracking buoys will be launched in order to effectively track the leading edge of the spill. Tracking buoys are stored at the dock office.

Surveillance is also required during spill response operations in order to gauge effectiveness of response operations, to assist in locating skimmers, and to continually assess size, movement, and impact of spill.

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.

2.2.1 Aerial Surveillance

Spill surveillance is best accomplished through the use of helicopters or small planes because it is difficult to adequately observe oil on the water surface from a boat, dock, or shoreline. 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. Certain helicopters contracted through MSRC use infrared sensors for nighttime spill surveillance

It is expected that MSRC will give the Company permission to list them in this Plan as having the capability to be on-scene within six hour of spill awareness and to provide aerial oil spill removal operations for three, 10-hour periods during the initial 72 hours of discharge. They have fixed-wing aircraft available for surveillance and have access to helicopters from Hillsboro Helicopters through contract. Contact information for helicopter and aircraft companies can be found in **Figure 3.3(B)**.

2.2.2 On-Water Surveillance

Surface vessels are used to confirm the presence of any suspected oil slicks, IF SAFE TO DO SO. If possible, direct the vessels from the aircraft and photograph the vessels from the air to show their position and size relative to the slick.

In the event of reduced visibility, such as dense fog or cloud cover, boats may have to be used to patrol the area and document the location and movements of the spill. However, this method may not be safe if the spill involves a highly flammable product.

Tracking buoys are used to track the leading edge of an oil spill during nighttime or adverse weather conditions. Two tracking buoys are stored in the boat house on the dock.

Each tracking buoy is equipped with a strobe light, and fresh batteries are located in the storage area. The buoys are marked as Tesoro oil spill response equipment and are not to be removed from the water by unauthorized persons. Within 30 minutes of discovery of an oil spill, at least one tracking buoy must be checked, energized, and placed at the leading edge of the spill. Time of deployment should be logged and visual observation of the buoy should be maintained until such time that aerial or other means of surveillance are established.

2.2.3 Documentation of Surveillance

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.

An Oil Spill Surveillance Form is included in **Figure 2.6**. A Glossary of Standard Oil Spill Surveillance Forms are included in **Figure 2.7**.

Figure 2.6 – Oil Spill Surveillance Form

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 ____________ Time _____________ Case name _____________________

Observer's name _______________ Observer's affiliations ________________________

Current stage of tide (flood, ebb, slack) __________________

On-scene weather (wind, sea state, visibility)

TIDES: HIGH(s) ______ ______ MAX CURRENT: _____ _____
LOW(s) ______ ______ (W/VELOCITY FLOOD) _____ _____

DAYLIGHT: SUNRISE ______ SLACK ______ ______
SUNSET ______ WATER ______ ______

WIND: SPEED ______ DIRECTION _______

CURRENT CONDITIONS:

____

____

FORECAST (NEXT OPERATIONAL PERIOD):

____

____

Platform (helicopter, fixed-wing aircraft, boat)______________________________________

Flight path/trackline ____

Altitude where observation taken (feet) ____________________________________

Location of oil's source (if known) ____

Areas not observed (e.g., foggy locations, restricted air spaces, shallow water areas

____

____

Figure 2.6 – Oil Spill Surveillance Form (Continued)

Oil Observations

Slick location(s) ____

Latitude ___________ Longitude _______________ (central point)

Slick dimension(s) ____

Orientation of slick(s) ____

Description of oil distribution (e.g., as windrows, streamers, pancakes, or patches)

____

____

Color and appearance (e.g., rainbow, dull or silver sheen, black, or brown in color, or mousse)

____

Percent coverage _______________

Is oil recoverable (Y/N)? _________________

(examples or recoverable oil types include black oil, mousse, and heavy dull– or dark – colored sheens)

Considerations

1. During surveillance flights, travel beyond known impacted areas to check for oil beyond these areas.
2. Include the name and phone number of the person making the observations.
3. Clearly describe the locations where oil is observed, as well as the areas where no oil has been seen.

Other Observations

Response Operations

Skimmer deployment (general locations where skimmers are working).

Are they working in the heaviest concentration of oil? Describe.

____

____

____

Figure 2.6 – Oil Spill Surveillance Form (Continued)

Boom deployment

Describe general locations of boom(s). ____

Does the boom contain oil? ____________Is oil entraining under the boom?_____________

Environmental Observations

Locations of any convergence line, rip tides, and sediment plumes

____

Locations of kelp beds, seagrass beds, and other features that could be mistaken for oil

____

General description of wildlife present in area (locations and approximate numbers of birds and marine mammals)

BIRDS ____

____

MARINE MAMMALS____

____

General Comments:

____

____

Figure 2.7 – Glossary of Standard Oil Spill Observation Terms

Black oil
A black or very dark brown layer of oil. Depending on the quantity spilled, oil tends to quickly spread out over the water surface to a thickness of about 1 millimeter (0.04 inches). However, from the air, it is impossible to tell how thick a black oil layer is.

Convergence line
A line on the water surface where floating objects and oil collect. A convergence can be in the interface between two different types of bodies of water, or it can be caused by a significant depth change, tidal changes, or other common phenomena. Convergences are common in the marine environment.

Dispersion
The breaking up of an oil slick into small droplets that are mixed into the water column by breaking waves and other sea surface turbulence.

Emulsification
The formation of a water-in-oil mixture. Different oils exhibit different tendencies to emulsify, and emulsification is more likely to occur under high energy conditions (strong winds and waves). An emulsified mixture of water in oil is commonly called “mousse”; its presence indicates a spill that has been on the water for some time. See also **mousse**.

Entrainment
The loss of oil from containment when it is pulled under a boom by a strong current. Entrainment typically occurs from booms deployed perpendicular to currents greater than 1 knot (0.5 meter per second).

Mousse
An emulsified mixture of water in oil. Mousse can range in color from dark brown to nearly red or tan, and typically has a thickened or pudding-like consistency compared with fresh oil. Incorporation of up to 75 percent water into the oil will cause the apparent volume of a given quantity of oil to increase by up to four times. See also emulsification.

Pancakes
Isolated, roughly circular patches of oil ranging in size from a few feet across to hundreds of yards (or meters) in diameter. Sheen may or may not be present.

Recoverable oil
Oil in a thick enough layer on the water to be recovered by conventional techniques and equipment. Only black or dark brown oil, mousse, and heavy sheens (which are dull brown in color) are generally considered to be thick enough to be effectively recovered by skimmers.

Sheen
A very thin layer of oil (less than 0.0001 inches or 0.003 millimeters in thickness) floating on the water surface. Sheen is the most commonly-observed form of oil during the later stages of a spill. Depending on thickness, sheens range in color from dull brown for the thickest sheens to rainbows, grays, silvers, and near-transparency in the case of the thinnest sheens.

Slick
Oil spilled on the water, which absorbs energy and dampens out surface waves, making the oil appear smoother or slicker than the surrounding water.

Streamers
A narrow line of oil, mousse, or sheen on the water surface, surrounded on both sides by clean water. Streamers result from the combined effects of wind, currents, and/or natural convergence zones. Often, heavier concentrations of mousse or sheen will be present in the center of a streamer, with progressively lighter sheen along the edges. Streamers are also called “fingers” or “ribbons”.

Tarballs
Weathered oil that has formed pliable balls or patches that float on the water. Tarballs can range in diameter from a few millimeters (much less than an inch) to a foot (0.3 meters). Depending on how weathered, or hardened, the outer layer of the tarball is, sheen may or may not be present.

Weathering
A combination of physical and environmental processes, such as evaporation, dissolution, dispersion, and emulsification, which act on spilled oil to change its physical properties and composition.

Windrows
Streaks of oil that line up in the direction of the wind. Windrows typically form early during a spill when the wind speed is at least 10 knots (5.1 meters per second). Sheen is the form of spilled oil that most frequently windrows.

2.2.4 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 manpower and equipment requirements; and
- Determine disposal and interim storage requirements.

Actual spill volumes are often unavailable or inaccurate so that field estimates are usually required. Some rapid methods to estimate spill size are as follows:

Catastrophic Failure

- If a spill occurs during transfer operations, the total spill volume can be estimated by multiplying 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).

  <u>Rule of Thumb on Line Volumes</u>

  Line size (inches)^2 = bbls/1,000 feet
  Inside diameter

  Note: 12-inch pipe and smaller is I.D. dimension, 14-inch pipe and larger is O.D. dimension.

  For example:

  6 inches = 36 bbls/1,000 feet of line
  16 inches (15-inch I.D.) = 225 bbls/1,000 feet

- A high percentage of spills are caused by internal or external corrosion or hole in hose. Spills resulting from a flange or hose leak will likely occur at a significantly lower rate.

For this purpose, the following calculations and techniques may be used:

$$\text{Vol (gal)} \sim 1800 \times A\ (\text{in}^2) \times T\ (\text{hrs}) \times (P)^{1/2}\ (\text{psig})$$

The approximate volume in gallons equals approximately 1,800 times the area of the hole (square inches) times the time of leakage (hours) times the square root of the pipe line operating pressure (psig).

This approximation is reasonable when the diameter of the hole is less than 1/4 of the pipes inside diameter, when the liquid is packed over the hole, and when frictional losses are considered negligible.

Another field technique:

- Divide the number 10,286 by the number of seconds it takes to fill a 5-gallon pail.

- A simpler rule of thumb would be to divide 10,000 by the number of seconds to collect 5 gallons for the approximate flow in barrels per day.

Estimated drip rates:

One drop/second	=	1 gallon per day
Thin stream breaking into drops	=	24 gallons per day
Small stream (about 1/8 inch)	=	84 gallons per day
Large stream (about 1/4 inch)	=	336 gallons per day

- For tank overfills, the total volume would be limited to the elapsed time multiplied by the pumping rate.
- In the event that a more accurate method is not available, an estimate of spill size can be made by visual assessment of the surface area and thickness. Refer to the following procedures:
  – Estimate the coverage dimensions of each part of the spill in feet or miles using whichever of the six appearances (**Figure 2.8**) that may be observed in the spill.
  – Multiply the dimensions in feet or in miles by the appropriate factor from the table. Add the individual parts of the spill areas together.
  – The combined result is the estimated volume of the spill in gallons or in barrels of oil.
  – Volumes that are calculated less than one barrel should be reported in gallons. Spills that are calculated less than a gallon should be reported as "less than one gallon" rather than a decimal amount.
  – In the event of a large spill that encompasses several miles, use the chart in **Figure 2.10** to estimate the spill volume.

Example:

A spill has created a "silvery" slick 0.25 mile wide by 2.0 miles long. From **Figure 2.8**, the amount of oil would be 50 gallons/square mile; and from **Figure 2.9**, the area would be 0.500 square miles. Therefore, 50 gallons/square mile X 0.500 square miles equals 25.0 gallons of oil spilled.

If the quantity cannot be accurately determined, then the best initial estimate discharged should be reported to the Federal and State On-Scene Coordinators. As more accurate estimates are confirmed, they should also be reported.

Figure 2.8 – Spill Estimation Factors

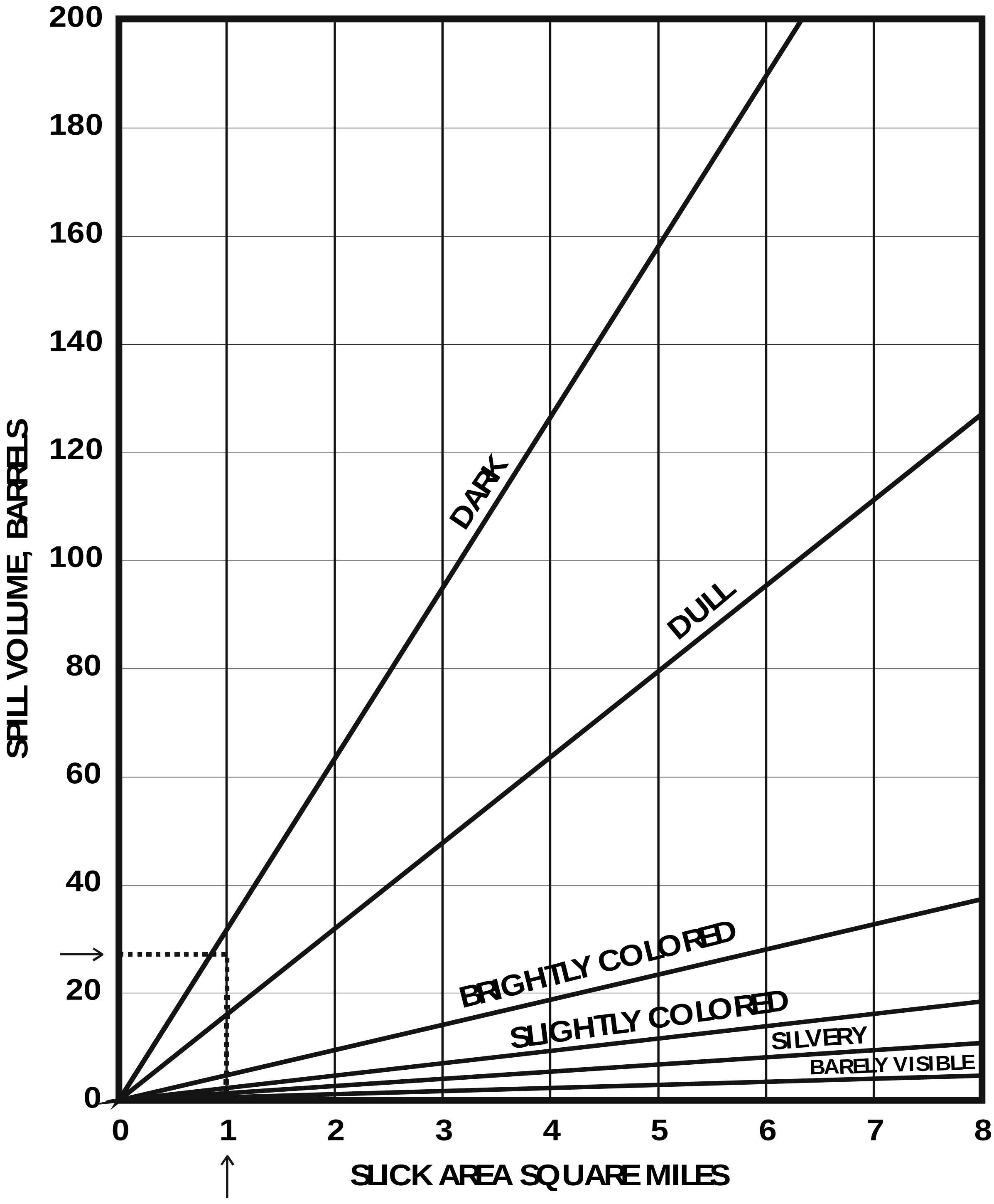
DEFINITIONS	GALLONS OF OIL PER SQUARE MILE
barely visible	25
silvery	50
slightly colored	100
brightly colored	200
dull	666
dark	1,332

Figure 2.9 – Visual Slick Size in Fraction of a Square Mile Chart

LENGTH																							
(FEET)												(MILES)											
WIDTH	**100**	**200**	**300**	**400**	**500**	**600**	**700**	**800**	**900**	**1000**	**1200**	**1/4**	**½**	**3/4**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
10																				0.011	0.013	0.015	0.017
20																	0.013	0.015	0.019	0.023	0.026	0.030	0.034
30																0.011	0.017	0.023	0.028	0.034	0.040	0.045	0.051
40																0.015	0.023	0.030	0.038	0.046	0.053	0.061	0.068
50															0.010	0.019	0.028	0.038	0.047	0.057	0.066	0.076	0.085
60					**LESS THAN 0.010 SQUARE MILES**										0.011	0.023	0.034	0.045	0.057	0.068	0.079	0.091	0.102
70														0.010	0.013	0.026	0.040	0.053	0.066	0.080	0.093	0.106	0.119
80														0.011	0.015	0.030	0.045	0.060	0.076	0.091	0.106	0.121	0.136
90														0.013	0.017	0.034	0.051	0.068	0.085	0.102	0.119	0.136	0.153
100													0.010	0.014	0.019	0.038	0.057	0.076	0.095	0.113	0.132	0.152	0.170
150													0.014	0.021	0.028	0.057	0.085	0.113	0.142	0.170	0.199	0.227	0.256
200												0.010	0.019	0.028	0.038	0.076	0.114	0.152	0.189	0.228	0.265	0.303	0.341
300									0.010	0.011	0.013	0.014	0.028	0.042	0.057	0.113	0.171	0.227	0.284	0.341	0.397	0.455	0.511
400							0.010	0.011	0.013	0.014	0.017	0.019	0.038	0.057	0.076	0.151	0.226	0.303	0.379	0.455	0.530	0.606	0.682
500					0.010	0.011	0.013	0.014	0.016	0.018	0.022	0.024	0.047	0.071	0.095	0.189	0.284	0.378	0.472	0.518	0.662	0.756	0.852
600				0.010	0.011	0.013	0.015	0.017	0.019	0.022	0.026	0.028	0.057	0.085	0.117	0.227	0.341	0.455	0.568	0.683	0.795	0.911	
1/4 MILE		0.010	0.014	0.019	0.024	0.028	0.033	0.038	0.043	0.047	0.056	0.066	0.125	0.187	0.250	0.500	0.750						
½ MILE	0.0100	0.019	0.028	0.038	0.047	0.057	0.066	0.076	0.085	0.095	0.114	0.125	0.250	0.375	0.500								
3/4 MILE	0.014	0.028	0.042	0.057	0.071	0.085	0.099	0.114	0.128	0.142	0.171	0.187	0.375	0.562	0.750		**GREATER THAN ONE (1) SQUARE MILE**						
1 MILE	0.019	0.038	0.057	0.076	0.095	0.117	0.133	0.152	0.171	0.189	0.227	0.250	0.500	0.750									
2 MILE	0.038	0.076	0.113	0.151	0.189	0.227	0.265	0.304	0.342	0.379	0.455	0.500											
3 MILE	0.057	0.114	0.171	0.228	0.284	0.341	0.398	0.455	0.512	0.568	0.673	0.750											
4 MILE	0.076	0.152	0.227	0.303	0.378	0.455	0.530	0.607	0.683	0.758	0.910												
5 MILE	0.095	0.189	0.284	0.379	0.472	0.568	0.662	0.759	0.854	0.948													

One square mile = 27.878 x 10^6 square feet

Figure 2.10 – Estimations of Spilled Oil Volumes from Slick Appearances (Large Volumes)



2.2.5 Monitoring and Predicting Spill Movement (Trajectories)

Factors Affecting Oil Movement

- Depends primarily on wind and surface currents near the spill.

- Surface currents will dominate oil movement unless the winds are strong.
- When winds are strong, the oil will move at approximately 3.4 percent of the wind speed in the same general direction.
- When currents and strong winds are absent, oil spreading will dictate oil movement.
- If only weak winds or surface currents are present, they will dominate oil movement.
- Examples of oil movement on water surfaces are shown in **Figure 2.12**.
- Current speeds and directions may be estimated by pacing off a 100-foot section of shoreline, throwing a stick or orange into the water up-current of the section and timing how long it takes the stick/orange to traverse the 100-foot area. The direction of stick/orange movement will also approximate the surface current direction combined with the effects from local winds, if present.

  The time required (in seconds) for the stick/orange to move 100 feet is divided into 100 to estimate current speed in feet per second (fps). The resulting fps is then multiplied by 0.5921 to convert the speed into knots. Selected conversions are provided below:

0.25 kt =	100 feet/240 seconds (0.42 fps)
0.5 kt =	100 feet/120 seconds (0.83 fps)
1.0 kt =	100 feet/60 seconds (1.67 fps)
1.5 kt =	100 feet/40 seconds (2.5 fps)

- Methods Available for Predicting Slick Movements
  - To determine the potential impacts of an oil spill and to aid in response operations, it is essential to predict the direction of oil movements.
  - The initial direction of the oil's movement should be determined visually.
  - Once the direction and speed of wind and current are known, a short-term projection can be made by performing a simple vector addition analysis.
  - For a large spill, more sophisticated predictions would be generated by the Scientific Support Coordinator using the National Oceanic and Atmospheric Administration (NOAA) Oil Spill Simulation Model (OSSM), or the Company will use the SpillNet Model.

    NOAA Oil Spill Simulation Model

    - The Federal On-Scene Coordinator (FOSC) would access trajectory information generated by the NOAA Oil Spill Simulation Model.
    - This information, supplemented by on-scene observations, would be analyzed and the approximate location of the oil during various time intervals would be projected onto a digitized map of the region.
    - Different simulations are possible as conditions at the spill site change.
    - These trajectory maps can then be telefaxed to the FOSC at the scene or be directly accessed through a computer terminal (with printer) which would be linked to the NOAA trajectory computer.
    - Refer to **Figure 2.11** for a form to provide trajectory coordinator with information to calculate trajectory models.

Figure 2.11 – Oil Spill Trajectory Form

INCIDENT INFORMATION

Company:____________________ Contact:_______________ Phone:_____________ Fax:_______________

Date/Time of Spill:____

Location of Source (*Latitude/Longitude):*____

Last Known Location of Spill (*Latitude/Longitude*):____________________________________

____

Type of Oil (*API, if known):*___________________________ Estimated Volume of Initial Release:___________

If continuing release, how much?_______________________ For how long? ____________________________

WEATHER CONDITIONS

Present Time:________________________________ Air Temperature:________________________________

Wind Direction:______________________________ Wind Speed:____________________________________

Wave Height:________________________________ Water Temperature:______________________________

Current Direction:____________________________ Current Speed:__________________________________

Weather Forecast: ____

____

Additional Information:____

____

Submit Results To:

Company: ____

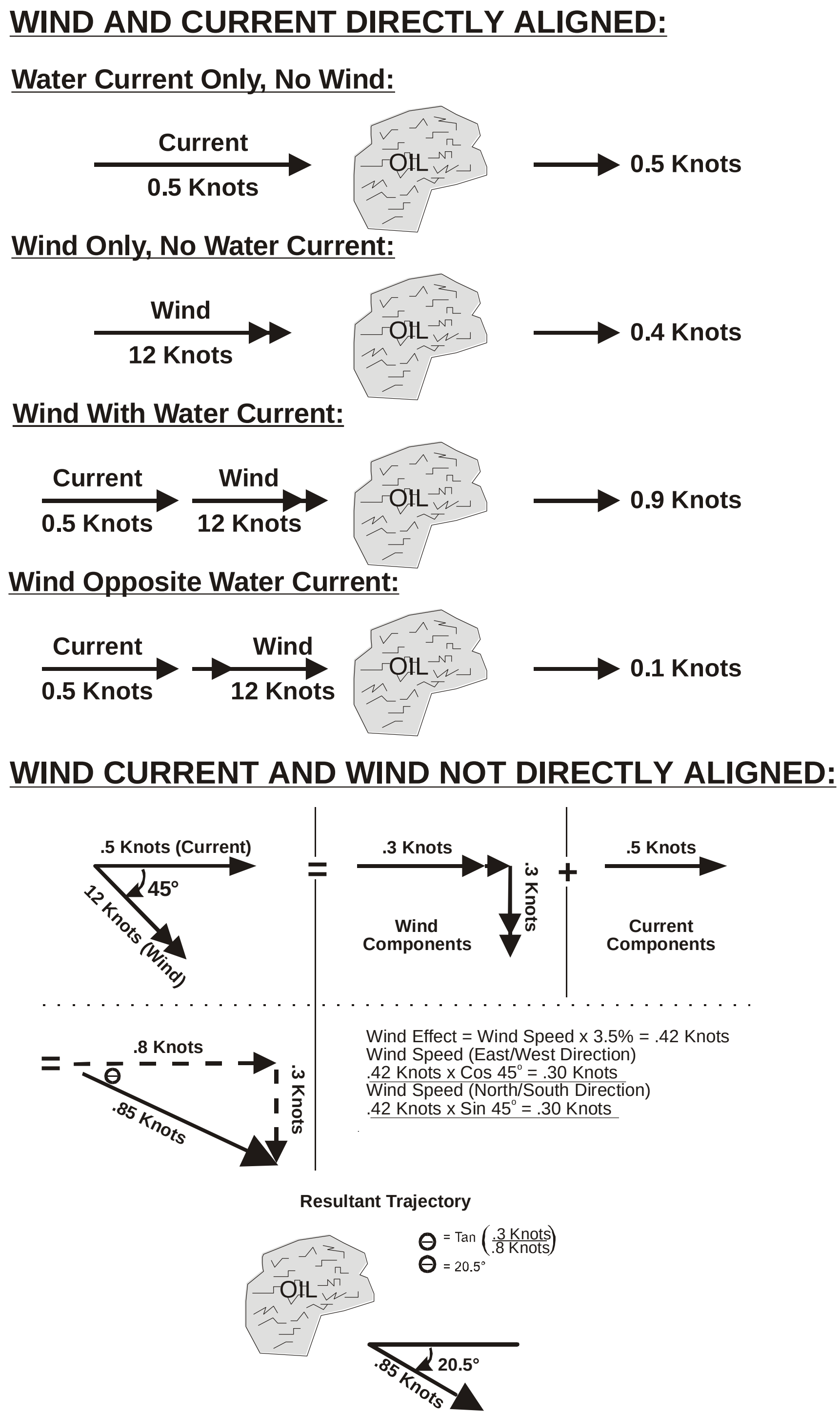
Name: ____

Fax Number: ____

Office Number: ____

Home Number: ____

Figure 2.12 – Examples of Oil Movement on Water Surfaces



company/!!!graphics/library/figures/oil movement.cdr

2.3 State Classification of Oil Spills

To ensure consistency in spill reporting and response criteria, the state of Washington has developed a spill classification system for marine waters, which is summarized below.

Use the spill surveillance and estimation procedures in **Section 2.2** to estimate spill volume.

WDOE CLASSIFICATION	SPILL VOLUME
Minor	
Coastal Inland	Less than 1,000 gallons Less than 100 gallons
Medium	
Coastal Inland	1,000 – 100,000 gallons 100 – 10,000 gallons
Major	
Coastal Inland	100,000 – 1,000,000 gallons 10,000 – 1,000,000 gallons
Catastrophic	
Coastal Inland	More than 1,000,000 gallons More than 1,000,000 gallons

2.4 Initial Containment Actions

Initial containment actions will rely on the use of pre-booming of all light product transfers and focus on using remaining on-site containment boom in the most effective manner to:

- Control the source and limit the spread of oil, thereby reducing the surface area and 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 by immediate identification and initiation of local GRPs.

Selection of the appropriate location and method will depend upon:

- Whether the spill occurs during an ebb or flood tide;
- Length of time spill occurs before being noticed;
- Amount of spill;
- Area of coverage
- Environmental factors such as wind speed and direction.
- Immediate notification of the Primary Response Contractor will provide early GRP protection and facilitate on water recovery within the first hour of occurrence.

2.4.1 Safety Considerations

- A Site Safety Plan form is located in **Section 5**. The designated on scene Safety Officer should use this form as a checklist while performing initial site safety assessment.

- Air monitoring must be conducted in all spills to water or land in order to determine airborne concentrations of hazardous vapors, potential oxygen deficient and explosive atmospheres, so that safety precautions can be taken. TSVEDT air monitoring equipment used to test breathing air in the vicinity of a spill includes a hand-held multi-gas monitor. These monitoring devices are located in the Terminal Office. Equipment testing and calibration are done daily and monthly.
- Careful consideration should be given to containment actions conducted during inclement weather or adverse conditions, such as high winds or rapid currents.
- Eliminate all ignition sources and keep boats as far as possible from the spill area.
- Be aware of hazards, such as fires, explosions, and exposure to toxic chemicals at lethal or sub lethal levels.
- Avoid contact with the spilled product and ensure that the area remains secure to boat and air traffic.
- Be aware of potential changes to position and movement of slick due to tidal action.
- The Terminal Manager, as the initial Incident Commander, will initially assume the role of Safety Officer and should enlist the help of the TSVEDT Manager of Safety.
- The Terminal Manager will be initially responsible to assure the safety of all people who may be impacted by the spill.
- The TSVEDT Safety Officer will be responsible for the preparation of the Safety and Security Plan, and will establish safety zones, as appropriate.
- All response contractor Safety Officers will be advisors to the TSVEDT Safety Officer on health and safety issues.
- The TSVEDT Safety Officer will direct teams of trained operators equipped with self-contained emergency air packs, organic vapor respirators, and explosion meters to determine and mark the area of any explosive cloud coming from the spill so that safe limits for response activities can be determined. This equipment is available from TSVEDT.
- The TSVEDT Safety Officer will develop a site safety plan and establish safety zones, as appropriate.

2.4.2 Response Guidelines – Crude

The preferred response is to contain and recover product, since it exhibits low volatility characteristics.

- Ensure primary boom is deployed before any material transfer operation begins
- Identify source and stop discharge, if possible.
- Deploy secondary facility containment boom, and skimmers if available, to attempt to isolate the slick and reduce the spread and potential impact area. Monitor the boom for effectiveness.
- If shorelines may be impacted, consider deploying exclusion boom to reduce the impact to shoreline.
- If there is still boom remaining, attempt to isolate pockets of oil where possible to facilitate more efficient recovery.

- If product escapes, deploy sorbents along the shoreline to capture product during tidal cycles. Monitor the sorbents periodically for effectiveness and replace as needed.
- Callout response contractors to assist in containment efforts and begin recovery operations.
- Advise neighboring operators of any threat to their property or personnel. List of neighboring facilities is provided in **Figure 3.3**.
- Determine the direction and expected duration of spill movement. Tide and current tables are contained in the front pocket of this plan.
- Request U.S. Coast Guard to establish Vessel Traffic Control in the area.
- Review the location of environmentally and economically sensitive areas in Section 6. Use the trajectory analysis in **Appendix D** to assist in prediction of potentially impacted areas. Determine which of these areas may be threatened by the spill and direct contractors to proceed with boom and skimmers to these specified locations.

3.0 TSVEDT NOTIFICATIONS/PHONE NUMBERS

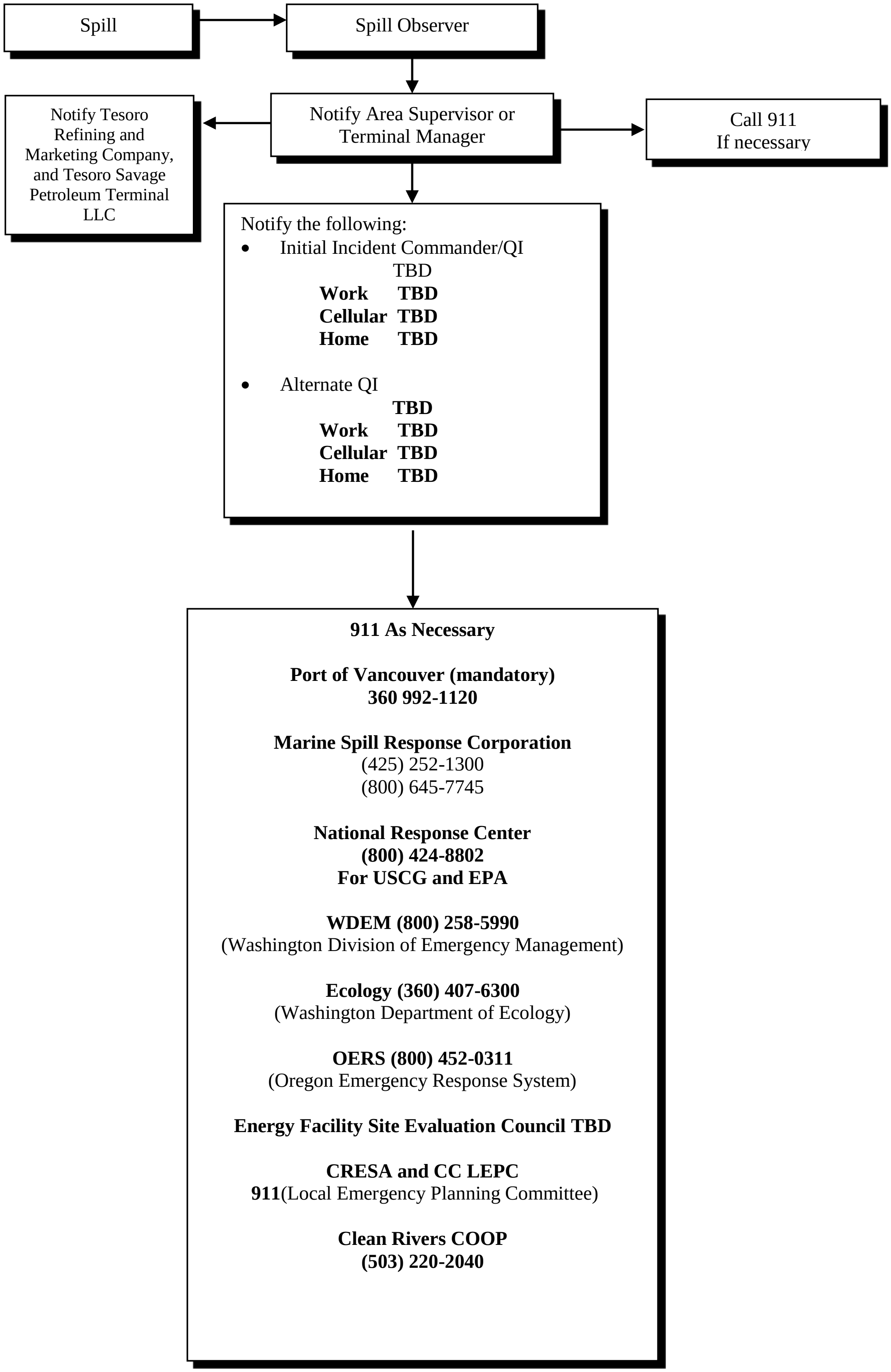
3.1 Emergency Reporting and Notification Procedures

This section describes required notifications and information summaries to be provided in the event of a spill. The priority of actions and response procedures will depend upon actual circumstances and will be determined by the Incident Commander. The contents of this section are as follows:

- **Figure 3.1** contains a notification flowchart.
- **Figure 3.2** contains a Notification Information Reporting Form. This form includes information required by the EPA/USCG/Ecology to be completed in the event of an oil spill. Level I responders on duty at the time of a spill will complete this form. It is not necessary to complete this form before notifying the various agencies.
- **Figure 3.3** includes a notification summary and documentation form to assist in documenting notifications.
- **Figure 3.4** contains a summary of agency notifications.

Spillage of any petroleum hydrocarbon or other hazardous substance onto land or water must be immediately reported, without exception.

Figure 3.1 – Notification Flow Chart



3.2 Oil Spill Prioritized Information/Notifications

- The **Spill Observer** notifies terminal personnel, nearby vessel personnel, and Terminal Manager.
- **Terminal Manager** (Incident Commander) notifies the following in the order listed:
  - Port of Vancouver Security Marine Spill Response Corporation
  - National Response Center
  - Clark Regional Emergency Services Agency (CRESA)
  - Qualified Individual
  - Washington Division of Emergency Management
  - Tesoro West Coast CP&R Manager

- If a spill is detected the following information should be provided to the Incident Commander:
  - Was anyone hurt?
  - Location of spill.
  - Time of spill.
  - Product/volume spilled.
  - Source of spill.
  - Actions taken.
  - Weather conditions.
  - Projected spill movement.
  - Equipment needed.
  - Environmental concerns.

- Never speculate when reporting a spill. Report only facts.
- Employees and contractors are not to give any information about a spill to anyone other than the designated on-scene representatives of Ecology, USCG, or the EPA.
- <u>No statements</u> should be made regarding the following subjects, except by persons designated by the Incident Commander:
  - Liability for spill.
  - Estimates of damage expressed in dollars.
  - Estimates of the duration of cleanup.
  - Commitments regarding effectiveness of cleanup.
  - Comments regarding appropriateness or effectiveness of public or private involvement.

All inquiries from newspapers, radio stations and television stations will be referred to the Incident Commander.

Figure 3.2 – Oil Spill Discharge Information Required in a Report to the National Response Center (NRC)

24/7 TELEPHONE: (800) 424-8802

Note: it is not necessary to wait for all information before calling NRC. **Notification Must Occur within the First Hour.**

REPORTING PARTY INFORMATION

Name: ____________ Position: ____________ Company: ____________

Day Telephone: TBD Evening Telephone: ____________

Address: 5501 NW Lower River Rd

City: Vancouver State: WA Zip: 98660

Were Materials Discharged? **YES/NO** Confidential? **YES/NO**

Meeting Federal Obligations to Report? **YES/NO** Date Called: ____________

Are you calling for the responsible party? **YES/NO** Time Called: ____________

INCIDENT DESCRIPTION

Source and/or Cause of incident: ____________

Date of Incident: ____________ Time of Incident: ____________

Incident Address/Location: ____________

Nearest City: ____________ State: ____________ County ____________ Zip ____________

Distance From City: ____________ Direction from City: ____________

Section ____________ Township ____________ Range ____________ Borough ____________

Container Type ____________ Tank Oil Storage Capacity ____________

Facility Oil Storage Capacity: ____________

Facility Latitude: Facility Longitude:

MATERIAL DISCHARGE

CHRIS CODE	Discharged Quantity	Unit of Measure	Material Discharged in Water	Quantity	Unit of Measure

RESPONSE ACTION

Actions Taken to Correct, Control, or Mitigate Incident?

IMPACT

Number of Injuries: ____________ Number of Fatalities: ____________

Were there Evacuations? YES//NO Number Evacuated: ____________

Was there any Damage? YES/NO Damage in Dollars (approximate): ____________

Medium Affected: ____________

Description: ____________

More Information about Medium:

ADDITIONAL INFORMATION

Any Information about the incident not recorded elsewhere in the report:

CALLER NOTIFICATIONS

EPA YES/NO | **USCG** YES/NO | **STATE** YES/NO | **OTHER** YES/NO **Describe:**

Figure 3.3 – Notification Summary and Documentation Form

AFFILIATION	PHONE NUMBER	NAME OF PERSON CONTACTED	TIME CONTACTED
A. COMPANY PERSONNEL			
TBD	TBD		
B. MANDATORY NOTIFICATIONS			
Port of Vancouver Security	360-992-1120		
National Response Center (NRC)	(800) 424-8802*		
USCG MSO – Portland (FOSC)	(503) 240-9301*		
State of Washington Energy Facility Site Evaluation Council	TBD		
State of Washington Department of Emergency Management (SERC)	(800) 258-5990 or (800) OILS-911		
State of Washington Department of Ecology – Southwest Office	(360) 407-6300		
Oregon Emergency Response System (OERS)	(800) 452-0311		
Clark Regional Emergency Services Agency (CRESA)	911		
City of Vancouver	(360) 487-8000 (360) 693-9302		

*Represents after hours telephone numbers

Figure 3.3 – Notification Summary and Documentation Form (Continued)

AFFILIATION	PHONE NUMBER	NAME OF PERSON CONTACTED	TIME CONTACTED
C. NOTIFICATIONS AS APPROPRIATE			
Federal Agencies			
EPA Region X – Seattle	(206) 553-1264*		
National Ocean and Atmospheric Association (NOAA) Seattle (Hazmat)	(206) 526-6317 (206) 526-4911		
National Weather Service Portland	(503) 326-2340 (503) 326-2720		
Federal Bureau of Investigation Portland	(503) 224-4181*		
U.S. Forest Service Mountlake Terrace, WA	(800) 627-0062		
U.S. Department of the Interior Portland, OR	(503) 326-2489		
Tribal Nations			
TBD	TBD		
State Agencies			
Washington Highway Patrol (Emergency Only)	(360) 757-1175* (360) 753-6540		
Washington State Department of Fish and Wildlife	(800) 258-5990 (360) 534-8233 (pager) (360) 902-8124 (office)		
Oregon Emergency Response System	(800) 452-0311		
Washington State Department of Fish and Wildlife Oil Spill Response Team	(360) 534-8233 (pager) (360) 902-8124 (office)		
Washington State Department of Natural Resources (Regional)	(360) 856-3500		
Washington State Department of Parks and Recreation	(360) 755-9231		
Washington State Fire Marshall	(360) 596-3900		
Oregon Department of Wildlife	(503) 872-5268		
Local Agencies			
Port of Vancouver	(360) 992-1120		
Vancouver Public Works Operations Center	(360) 693-9302		
Clark Public Utilities	(360) 992-3000		
Clark County Public Works (waste water)	(360) 397-6118		
Vancouver-Clark Parks and Recreation	(360) 487-8311		
Clark County Public Health	(888) 727-6230		

*Represents after hours telephone numbers

Figure 3.3 – Notification Summary and Documentation Form (Continued)

AFFILIATION	PHONE NUMBER	NAME OF PERSON CONTACTED	TIME CONTACTED
D. EMERGENCY SERVICES			
Emergency Medical and Hospitals			
Legacy Salmon Creek Hospital	(360) 487-1000		
SW Washington Medical Center (Emergency Room)	(360) 514-2064		
Clark County/Vancouver Emergency Services	(360) 737-1911 or 911		
Clark County Public Health	(360) 397-8215		
Oregon Health & Science University (Portland)	(503) 494-7686		
Providence Portland Medical Center	(503) 215-1111		
Legacy Good Samaritan Hospital & Medical Center (Portland)	(503) 413-7711		
Fire Departments			
Vancouver Fire Department	911 or (360) 487-7211		
Clark County Fire Marshall	(360) 397-2375 x-2186		
Clark County Hazardous Materials	(360) 397-2375		
Police Departments			
Vancouver Police Administration	911 or (360) 487-7400		
Clark County Sheriff Administration	911 or (360) 397-2366		
E. MEDIA			
Radio			
AM 750 KXL, Portland	(503) 417-9595		
AM 1190 KEX, Portland	(503) 225-1190		
Television			
KING TV NBC, Channel 5 (Seattle)	(206) 448-5555		
KIRO TV CBS, Channel 7 (Seattle)	(206) 728-7777		
KOMO TV ABC, Channel 4 (Seattle)	(206) 404-4145		
KATU ABC, Channel 2 (Portland)	(503) 231-4222		
KOIN NBC, Channel 6 (Portland)	(503) 464-0600		
KGW NBC, Channel 8 (Portland)	(503) 226-5000		
Newspapers			
Seattle Times	(206) 464-2111 (206) 464-2261 (fax)		
Associated Press	(206) 682-1812		
The Columbian (Clark County)	(360) 699-6006		
The Oregonian (Portland)	(503) 221-8100		

Figure 3.3 – Notification Summary and Documentation Form (Continued)

AFFILIATION	PHONE NUMBER	NAME OF PERSON CONTACTED	TIME CONTACTED
F. RESPONSE CONTRACTORS			
Marine Spill Response Corporation	1-800-645-7745 (360) 417-9287 (Office) (206) 799-1621 (Cell)		
Clean Rivers Cooperative	(503) 220-2040*		
CARDNO ENTRIX Environmental Consultants	(800) 476-5886*		
Global Diving and Salvage Inc. (no contract in place)	(206) 623-0621* 1-800-441-3483		
NRC (no contract in place)	(800) 337-7455		
Harder Mechanical	(503) 281-1112		
G. MUTUAL AID			
Nustar	(360) 694-8591 (360) 772-5031 (Cell) (360) 567-8871 (Cell)		
H. MARINAS/PORTS			
Port of Vancouver	(360) 992-1120		
Port of Portland	(800) 547-8411		
Tomahawk Island Marina	(503) 289-5511		
Marineland at Pier 99	(503) 286-8221		
Ridgefield Marina	(360) 903-8517		
Kadow's Marina	(360) 693-0723		
I. LOCAL WATER SUPPLY			
City of Vancouver Municipal Water Treatment	(360) 696-8177		
Clark County Groundwater	(360) 397-6118		
Port of Vancouver Facilities	(360) 518-0501		
J. HELICOPTERS AND AIRCRAFT CHARTERS			
C&C Aviation (Portland)	(503) 760-6969		
Precision Helicopters	(503) 537-0108		
Hillsboro Helicopters (Contract with)	(503) 648-2831		

*Represents after hours telephone numbers

Figure 3.3 – Notification Summary and Documentation Form (Continued)

AFFILIATION	PHONE NUMBER	NAME OF PERSON CONTACTED	TIME CONTACTED
K. WILDLIFE REHABILITATION SPECIALISTS			
International Bird Rescue & Research Center (IBRRC)	(888) 447-1743*		
Focus Wildlife	(310) 386-5965 (800) 578-3048		
Oiled Wildlife Care Network	(530) 979-7561 (800) 645-1911 (oil spill) (877) 823-6926 (oiled animal)		
Progressive Animal Welfare Society (PAWS)	(425) 787-2500 (425) 412-4040		
Tri-State Bird Rescue	1-800-710-0696 (pager) (302) 218-7371 (cell) (302) 737-7241		
L. LOCAL ACCOMMODATIONS			
Staybridge Suites	(360) 891-8282		
Homewood Suites	(360) 750-1100		
Red Lion at The Quay	(360) 694-8341		
Gateway Inn Express	(360) 576-1040		
La Quinta Inn	(360) 566-1100		
Hilton	(360) 993-4500		
M. NEIGHBORING FACILITIES			
Port of Vancouver	(360) 693-3611		
Glacier/CalPortland	(360) 892-5100 (360) 907-9607 (cell) (360) 694-9420 ext. 1 (Office)		
NGL Transfer (Keyera Energy)	360-694-2844		
Clark Public Utilities	360-992-3000		
Clark County Jail Work Center	360-397-2138		
Tidewater Terminal Company	360-693-1491		
Farwest Steel	360-735-8744		
Subaru of America	360-737-7630		
Tri-Star Transload	503-807-2952 (24-hr)		
West Van Recycling	360-690-6842 (24-hr) or 360-904-0667		
HME Construction	360-695-4553 or 888-699-1053		
BPA Substation	360-570-4338 (Office) 360-951-4464 (Cell)		

*Represents after hours telephone numbers

Figure 3.3 – Notification Summary and Documentation Form (Continued)

AFFILIATION	PHONE NUMBER	NAME OF PERSON CONTACTED	TIME CONTACTED
N. DOWNRIVER WATER USERS			
U.S. Fish & Wildlife Services Ridgefield Refuge (River Mile 94)	(360) 887-4106		
Bachelor Island Ranch (5 Intakes) (River Mile 90)	(360) 887-3883		
Boise Cascade Industrial Intake (River Mile 88)	(503) 397-2900		
Emerald Environmental (River Mile 75)	(360) 673-2550		
Trojan Nuclear Power Plant Intake (River Mile 73)	(503) 556-3713		
City of Rainier Drinking Water (River Mile 68)	(503) 556-7301 (City Hall) (503) 410-2173 (Cell)		
Longview Fiber (River Mile 68)	(360) 425-1550		
Weyerhaeuser Company (4 Intakes) (River Mile 64)	(360) 425-2150		
City of Longview (Discharge only) (River Mile 64)	(360) 442-5000		
Jammies Environmental (River Mile 58)	(360) 577-5691		
Portland General Electric (River Mile 53)	(503) 728-7470		

*Represents after hours telephone numbers

NOTE: For information about local food services and local transportation resources, consult the Vancouver-area yellow pages.

Figure 3.4 – Agency Notifications Requirements

AGENCY	SPILL SIZE	VERBAL REPORT	WRITTEN REPORT
National Response Center (NRC) (USCG, EPA, and DOT notified)	Immediately for all spills that impact or threaten navigable water or adjoining shoreline Any size on land if threatening surface waters Fire/explosion/injury from regulated pipeline	Call NRC Immediately (Within 1 hour): 800-424-8802	None
EPA Region 10	If spill is 1000 gal or more (on land), or >42 gallons in each of 2 discharges within 12 month period	No	Yes (within 60 days)
US DOT	Any size from a regulated pipeline	Immediately	Within 30 days on DOT Form 7000-1 (http://phmsa.dot.gov)
WSDOT	Spill on WSDOT-regulated roadway	Immediately: Washington Traffic Safety Commission: 360-753-6197	None
Energy Facility Site Evaluation Council	• TBD by Site Certificate	TBD by Site Certificate	TBD by Site Certificate
Port of Vancouver	• Any amount on land or water requiring notification outside of Facility Management	Immediately Security 360-992-1120	As may be requested by the agency
Department of Ecology – Spills Program	• Any amount into or threatening state waters – inland, marine, or groundwater. • Any amount into a storm drain or ditch • Any amount onto snow • Any amount onto state highways and freeways. • Any amount onto land which could threaten waters of the state (including groundwater)	Immediately (within 30 minutes) WA Emergency Management Division: 800-258-5990	As may be requested by the agency
Department of Ecology – Dangerous Waste Program	• Any amount released to the environment which poses a threat to human health or the environment • Any amount released to containment which is not "promptly" cleaned up.	Immediately (within 60 minutes): Ecology Eastern Regional Office: 509-329-3400	As may be requested by the agency
Washington Utilities Commission	• Any release of product from a pipeline >5 gallons • Damage to a pipeline exceeding $25,000 • Other "significant occurrences" (especially if reported by news media) • Ref: WAC 480-75-630	Immediately (within 2 hours): Pipeline Safety Notification: 888-321-9144	Written report within 30 calendar days
	• Emergency pipeline shutdown, discovery of material defects, or physical damage that impairs pipeline	Immediately (within 24 hours): Pipeline Safety Notification: 888-321-9144	As may be requested by the agency
Washington Department of Natural Resources	• Any amount which may impact state-owned aquatic lands	Immediately: WA Emergency Management Division: 800-258-5990 Rivers DNR Aquatic District: 360-577-2025	As may be requested by the agency

4.0 RESPONSE TEAM ORGANIZATION

4.1 Description

The TSVEDT is owned and operated by Tesoro Savage Petroleum Terminal LLC, a joint venture of Savage Companies and Tesoro Corporation. In addition to TSVEDT employees, Tesoro provides staffing of Area 400 Marine Terminal operations. Oil spill response at the Facility relies both upon TSVEDT specific resources, as well as the Tesoro spill response organization and resources deployed region-wide.

The effective management of personnel and resources during a spill event is integral to the overall success of the response effort. The TSVEDT and Tesoro have developed its oil spill response organization around the Incident Command System (ICS), which provides the structure for effective management of spill resources. The components of organization would be activated and mobilized in accordance with the size and complexity of the incident.

The Company's oil spill response organization consists of:

- TSVEDT Initial Response Team (IRT)
- Tesoro West Coast Regional Response Team (RRT)

If a response exceeds the Terminal IRT's capabilities, the Incident Commander (IC) may activate the West Coast RRT in all or part. Procedures are in place to activate this team.

4.1.1 Terminal Initial Response Team

The TSVEDT Initial Response Team consists of the TSVEDT Manager and Operators, or Tesoro Area Manager, supported by the primary spill response contractor, MSRC. The IRT is responsible for:

- Local planning and preparation activities to enable effective response actions.
- Providing first and sustained response to a spill originating from the Terminal.

Phone numbers for the IRT are provided in **Figure 3.3**. An organizational chart is provided in **Figure 4.1**.

4.1.2 West Coast Regional Response Team

Tesoro has established an oil spill incident command and spill management team, which assists Tesoro West Coast terminal and refining operations as needed. This management team also supports spill response activities at the TSVEDT. Team members will be made available, as needed, for a response at the TSVEDT. Arrival time of the team members will vary depending on work schedules, but team members should typically arrive within 4 to 12 hours of notification. A roster is provided in **Figure 4.2**. Adequate trained personnel are available to manage the first 7 days of response.

The TSVEDT team has cellular telephones, portable radios, computers, printers, and fax machines immediately available to carry with them to the spill site. Team members are trained to work as commanders, officers, chiefs, and responders under NIMS. The initial IC has the authority to activate any portion or all of the West Coast RRT. Once activated, the team will:

- Assess the magnitude of the incident and its potential impact,
- Estimate the level of effort necessary for minimizing its impact, and
- Arrive on scene, if necessary, as soon as possible.

Once on scene, WCRRT members will integrate with the terminal initial response personnel and contractors on scene. The terminal IRT organization is provided in **Figure 4.1**.

4.1.3 Contractor Equipment, Personnel, and Services

TSVEDT and/or Tesoro have contracted with MRSC to provide spill response services at the TSVEDT. Spill response equipment and a projected deployment schedule for MRSC equipment is described in **Section 7** and **Appendix B**.

- Within 2 hours of notification, MSRC will have response equipment on site.
- Upon arrival at the spill site, representatives from MSRC will lead on-water Operations until relieved.
- MSRC will also assist in logistics to assure that equipment arrives on the scene as needed.
- Within 6 hours of notification, MSRC will provide 10 additional responders through their subcontractors
- Within 10 hours of notification, MSRC will provide 16 additional personnel through their contractors.
- The TSVEDT Manager will continue to be the IC. He will rely on MSRC and their subcontractors to help address initial health and safety and environmental concerns. He will also look to members of the Tesoro West Coast RRT to provide help or guidance as needed.

4.1.4 Volunteers

TSVEDT and Tesoro does not intend to use citizen volunteers for spill response. All people who volunteer will be referred to persons designated by the federal and state OSCs.

Members of MSRC have trained personnel who may be available to provide mutual assistance during an oil spill. These people will be directed to report to the Tesoro IC for job assignments.

4.2 Activation Procedures

Activation of the TSVEDT/Tesoro West Coast RRT may be accomplished in stages as illustrated below:

- Spill Observer (most likely vessel or terminal personnel) reports spill to West Coast or Terminal Manager, who then assumes the role of IC.
- IC directs certain members or entire TSVEDT/Tesoro West Coast RRT to travel to the spill site and evaluate the spill.

- IC follows established Facility Response Plan (FRP) checklists and uses TSVEDT/Tesoro IRT and Oil Spill Removal Organizations (OSROs) to initiate a response to the oil spill.

4.3 Team Member Response Times

During normal business hours, the IRT would organize immediately; during night operations, the IRT could be mobilized within one hour. Initial deployment of equipment and personnel at the spill site will occur within one hour of discovery given suitable safety conditions.

Transition of Response Staff

Shift change and the transition of initial staff to incoming local or away team personnel shall occur in an orderly and deliberate manner. The incoming staff shall be sufficiently briefed by the outgoing staff before the outgoing staff is relieved. The briefing shall include a review of the ICS-201 or the Incident Action Plan. The incoming staff will acknowledge understanding of the transition briefing in writing. The outgoing staff shall ensure that both the organizational chart and communication plan reflect appropriate personnel changes.

4.4 Command Post

4.4.1 Location

It is vitally important to establish a central location to serve as a base for each of the functional groups (i.e., Command, Operations, Planning, Logistics, and Finance) and to conduct meetings, post spill/response related information, and to handle response communications.

Command post features should include:

- Sufficient size to allow response personnel to operate effectively and comfortably.
- Conference/media room.
- “Situation room” with wall maps to track the spilled oil, response equipment, sensitive resource areas, personnel, etc.; erasable boards for phone numbers to track equipment; and posted organization charts.
- Secure phone line and fax phone line for IC and response managers.
- Full security.
- Office support systems (e.g., fax machines, copiers, phone lines, computers, file system, AM radios, VHF/UHF radio, telephones, base communication station, pagers, courier services, and secretarial service).

In the event of a major spill, both an off-site corporate command post and a facility command post will be established. For a minor spill, the facility command post will be established in one of the following locations:

- Primary Command Post:
  TSVEDT Office
- Alternate Command Post:
  Hilton Hotel Vancouver

Depending on the area affected by the spill, additional field command posts may be established.

If the incident involves events that impact the community and require the involvement of government agencies, Unified Command meetings would be conducted at a Joint Operations Center. Members of the response team, along with personnel from the governmental agencies would assume responsibility for the overall management of the spill incident under an ICS Unified Command structure.

In the unlikely event the designated facilities are unavailable, an alternate location that would be considered for use is:

Hilton Hotel Vancouver
301 West Sixth Street
Vancouver, WA 98661

Phone number: (360) 993-4500

This facility generally meets all of the aforementioned criteria for a command post.

During a major spill response, a number of warehouses may also be necessary to receive, maintain, store, and distribute response equipment and/or supplies. Warehouses would be located in areas readily accessible by land, air, and/or water, and preferably in proximity to the site(s) where equipment/supplies would be used. The amount of warehouse space required would depend largely upon the incident but it should have, or have the capability for obtaining, the following services:

- Electricity
- Telephones
- Security
- Sanitation facilities

The warehouse would be manned 24 hours per day and have defined shipping and receiving areas, appropriate inventory control mechanisms, and maintenance equipment.

4.4.2 Staging Areas

In a major spill response, numerous staging areas may be required to support containment and cleanup operations. The Port of Vancouver USA facility may be used as staging.

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

- Direct access to impacted areas.
- Proximity to secure parking, airports, docks, pier, or boat launches.
- Ability to be a secured area.
- Proximity to populated areas or environmentally-sensitive areas.
- Adequate lighting.

Access/staging areas for personnel and equipment within the location boundaries of this plan are identified in Response Maps as part of the *Lower Columbia River Geographic Response Plan*. These access/staging areas should meet the following criteria:

- Be readily accessible to large trucks and trailers, which may be used to transfer equipment and should be located near the waterfront.
- 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. In addition, moorage should be available for vessels to facilitate the loading/offloading of personnel.

4.5 Unified Command System

The Unified Command Structure will be used as a method of integrating federal, state, and local agencies with the Incident Management Team (IMT). The purpose of this system is to organize the variety of agencies that may be involved in a response into a consistent team that performs their duties in a concerted, unified effort.

The UCS structure consists of four key On-Scene Coordinators: Federal On-Scene Coordinator (FOSC), State On-Scene Coordinator (SOSC), and Local On-Scene Coordinator (LOSC) and Tribal On-Scene Coordinator (TOSC) each assisting the Responsible Party/Incident Commander (RP/IC). These five entities will share decision-making authority as Incident Commanders in the Command Center and will consult with each other regarding spill response management issues. The FOSC will coordinate all federal agencies involved in the response. The SOSC will coordinate all state and local agencies involved in the response activities. The LOSC will coordinate all local and 911 response activities. The TOSC will evaluate and input on sensitive tribal issues, and the RP/IC will coordinate all company activities.

Depending upon the size and complexity of the incident, additional federal and state agency personnel may integrate into the other functions of the SMT.

4.6 Qualified Individual

The Qualified Individual (QI) oversees the management of the entire response, establishes the response priorities and objectives, serves as the liaison with Corporate management, and works with the State and Federal On-Scene Coordinators in Unified Command. The QI is an English-speaking representative of the Facility, available on a 24-hour basis, familiar with the implementation of this plan, and trained in responsibilities outlined in this section.

The Incident Commander/Qualified Individual (IC/QI) is the primary senior contact person for the Deputy Incident Commander. The IC/QI has the access to senior management personnel that will establish company policies and ensure that the Deputy IC, Operations Section Chief, Logistics Section Chief, Finance Section Chief, and Planning Section Chief have the resources and support necessary to mount and sustain response operations.

The IC/QI will keep the Deputy IC and command staff fully advised of decisions that may impact oil spill response strategies.

The designated Company IC/QI is the Tesoro West Coast RRT or TSVEDT Manager.

The QI has the following responsibilities and authorities as required by the OPA 90 (40 CFR Parts 9 and 112):

- Activate internal alarms and hazard communications systems to notify all appropriate personnel;
- Notify all response personnel as needed;
- Identify 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;
- Initiates a claims process where oil is uncontained and insures claims information is made public; and
- A direct cleanup activity until properly relieved of responsibility or incident is terminated.

The QI and alternates have adequate knowledge and/or have received sufficient training or experience in the following areas:

- Applicable Federal/OSHA standards for emergency response operations (29 CFR 1910.120);
- How to implement the Oil Spill Contingency Plan (OSCP);
- Requirements of the National Contingency Plan and Northwest Area Contingency Plan (ACP);
- Overall spill prevention and response provisions in the OSCP and the specific responsibilities assigned to the QI position;
- Resources committed or that could be potentially committed during an incident;
- Procedures for obtaining and obligating funds to carry out the necessary or directed response activities; and the persons or offices to contact outside or within the Company who would facilitate and expedite such actions;
- Ability to perform liaison duties between the Company and the FOSC and SOSC; and
- Ability to assess the needs for additional resources, and to make the appropriate notifications and contractual agreements.

If for any reason the responsibility of the QI is transferred to an alternate during spill response activities, the SOSC and FOSC will be notified. The process by which the QI's responsibility is transferred also includes internal notification of the IMT. Notification procedures are provided in **Section 3**.

Figure 4.1 – TSVEDT/Tesoro Incident Management Team Organizational Chart

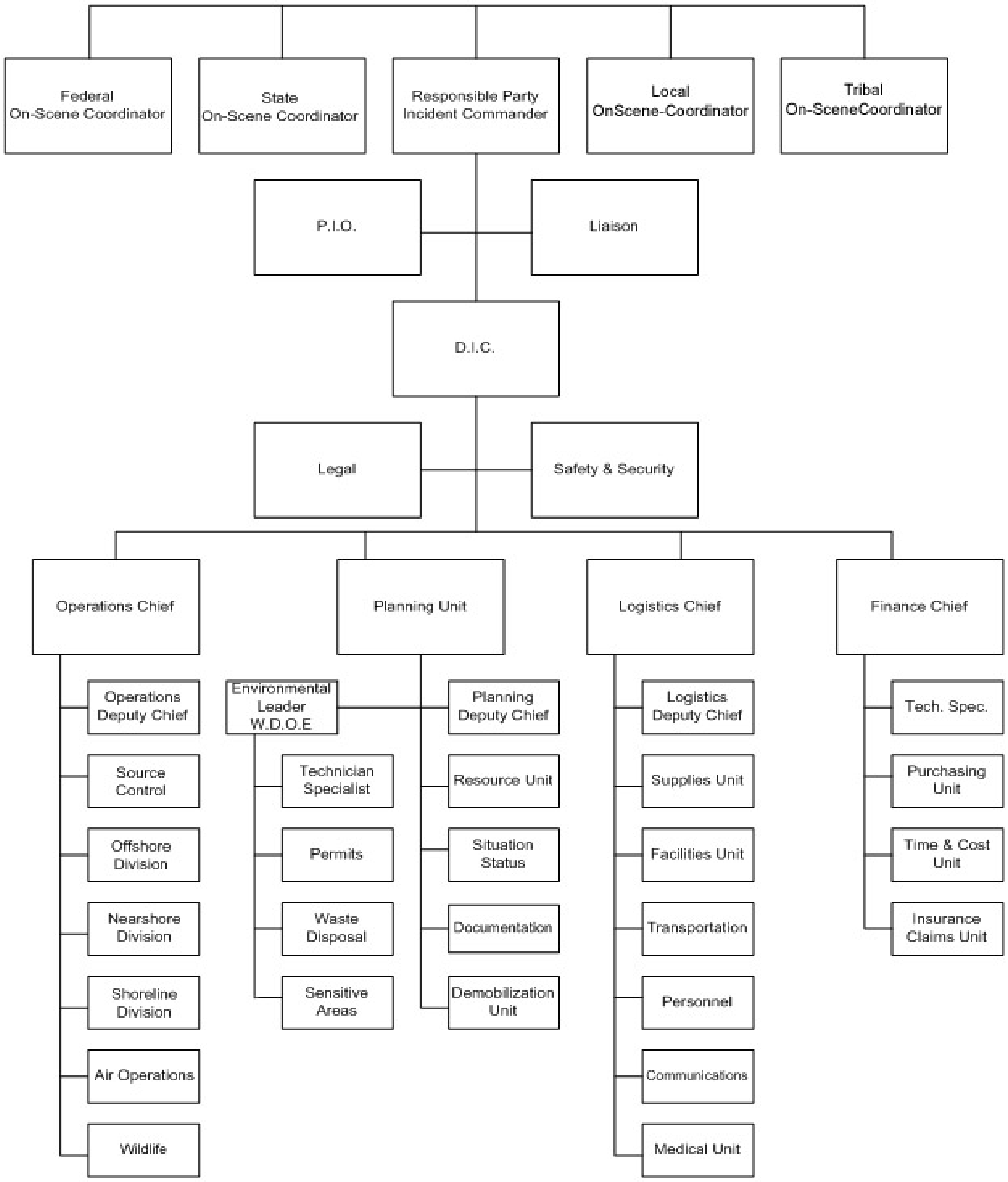


Figure 4.2 – Tesoro National Response Team
(Primary and Alternate Leaders)

POSITION	LAST NAME	FIRST NAME	OFFICE	CELL	LOCATION
Incident Commander/Deputy IC	Brown	Shawn			AK
	Cameron	Daniel			WA
	Carter	Jeffrey			AK
	Haugstad	Eric			TX
	Schumacher	John			WA
	Walker	John			CA
Legal	Haffner	Jeff			TX
	Harriss	Heather			TX
	Magee	Charles			WA
	Vail	Vanessa			TX
	Vining	Stoney			TX
Public Information Officer	Barbee	Christina			TX
	Marcy	Mike			CA
	Saletta	Jill			TX
Liaison	Bean	Jack			CA
	Dami	Kenneth			CA
	Gill	Matt			AK
	Marcy	Mike			CA
	Riley	Daniel			TX
	Sotelo	Brissa			CA
	Tanaka	Lance			HI
Safety	Alder	Anne			UT
	Larrigan	Harry			TX
	Morris	Christine			TX
	Pineda	Gerald			TX
Intelligence	Kohler	Jeffry			AK
Operations	Alleyn	Michael			WA
	Carter	Brock			UT
	Markee	Thomas			TX
	McCaughey	Robert			CA
	Miller	Bob			CA
	Rosin	Scott			AK
	Waldron	Clark			UT
Planning	Carter	Brock			UT
	Helberg	Pamela			WA
	Jungbluth	Robert			TX
	Lam	Annie			HI
	Miller	Bob			CA
	Shea	Mike			WA
	Waldron	Clark			UT
Environmental	Baker	Jeff			WA
	Donovan	Robert			WA

POSITION	LAST NAME	FIRST NAME	OFFICE	CELL	LOCATION
Environmental (continued)	Scheetz	Doug			ND
	Norcross	Neil			WA
	Ribbens	Peter			AK
	Spencer	Claire			CA
	Stockdale	Robert			CA
	Trujillo	Sharon			CA
Documentation	Courtney	Jeannie			HI
	Cox	Gloria			UT
	Grinton	Leilani			CA
	Risen	Kathryn			TX
	Stigall	Amanda			AK
	Straus	Michelle			WA
	Young	Carol			WA
Resources	Carter	Brock			UT
	Kestenbaum	Robert			CA
Situation	Cowan	Tracy			TX
	Harris	Sherry			UT
	Lam	Annie			HI
	Pedroza	Roel			WA
Logistics	Carroll	Jason			ND
	Havard	Tara			WA
	Kohler	Jeffry			AK
	Tingey	Roy			UT
Security	Burris	Mark			WA
	Griffin	Bonnie			TX
Finance	Devito	Aleja			AK
	Elsberry	Jamie			CA
	Gillett	Bruce			WA
Human Resources	Hanich	Thomas			TX
	Kimmel	Ryan			TX
	Sambrano	Rose			TX
IT	Keith	Kris			CA
	Necessary	Lance			AK

Figure 4.3 – Spill Management Team Activation Procedure

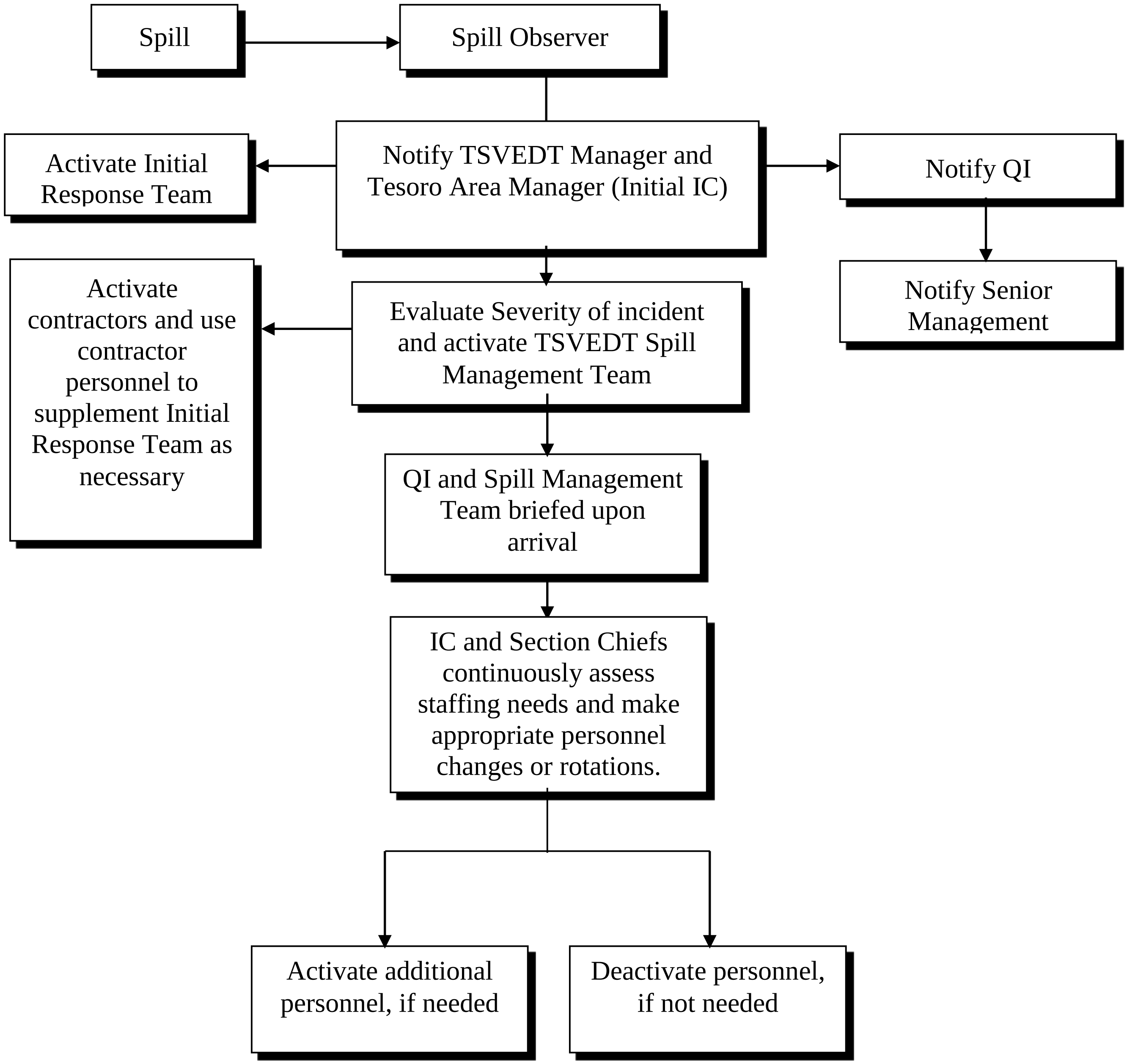


Figure 4.4 – Incident Command Team Duties and Responsibilities

TSVEDT positions and roles described in the TSVEDT Facility Response Plan (FRP) are intended to be representative of the positions and roles described in the most currently updated Northwest ACP. For the purpose of training and/or role clarification the TSVEDT plan will refer to the Northwest ACP roles that apply to our ICS positions. Abbreviated role descriptions in the FRP are intended to help reduce the bulk of the plan. TSVEDT may, from time to time, elect to fill certain ICS support positions with approved Primary Response Contractor (PRC) or contract personnel; **at no time will these individuals be cast in the role of IC or Section Chief.** Reference **Appendix C** of the approved PRC Application.

TSVEDT and Tesoro will follow a planning cycle consistent with the Northwest ACP.

SPILL RESPONSE MANAGER

Incident Commander/ Responsible Party (IC/RP): Responsible for managing the crisis including the development and implementation of strategic decisions. The Incident Commander/Responsible Party (IC/RP) may designate a Deputy to delegate the duties and responsibilities found on the checklist of positions identified in the IMH.

Deputy Incident Commander (Deputy IC): Assists by carrying out assignments and duties as given by the IC/RP. In the event the IC/RP could no longer perform required duties, the Deputy IC would assume those duties. The Deputy IC is trained to perform the role of the IC/RP.

COMMAND STAFF

Legal Officer: Provides advice to the IC on certain aspects of an oil spill incident. The Legal Officer ensures that information which may be relevant to the defense and/or settlement of future claims against the company is gathered and preserved. The Legal Officer also assists other members of the SMT upon request in making legal judgments and decisions related to safe and expedient resolution of the response.

Liaison Officer: Responsible for communicating with local, state, and federal government agencies not involved in the unified command structure. Also advises interested groups, corporations, and organizations of the actions that the SMT and/or Unified

Command is taking to address concerns. This position may be filled by an agent of Ecology rather than the Company, unless otherwise directed by the Unified Command.

Information Officer: Responsible for the formulation and release of information about the crisis to the news media. Is expected to work in concert with other members of the Joint Information Center when the magnitude of an event warrants formation of a Joint Information Center. Provides Company-based information to be used in dissemination of facts and information regarding a crisis event. This position may be filled by an agent of Ecology rather than the Company unless otherwise directed by the Unified Command.

Safety Officer: Responsible for monitoring and assessing hazardous and unsafe situations and developing measures for ensuring personnel safety. Follows prescribed guidelines detailed in the IMH and Northwest ACP in an effort to anticipate potential hazardous working conditions and prevent exposures to the public and response personnel.

Security Officer: Responsible for providing safeguards needed to protect personnel and property from loss and damage. Specific "Post Orders" are developed to custom-fit the security needs of the crisis. Generally keeps watch over areas defined by the Unified Command as limited or no-access areas. May work directly with Local OSC or other local authority upon request.

Staff Assistants: Staff assistants support the IC team by performing administrative secretarial duties, such as photocopying, taking notes and recording action items at all meetings, delivering general messages, and assisting with records management, at the direction of the Documentation Unit Leader. Tesoro provides a staff assistant for each Section and the Command staff in an effort to improve the flow of information throughout the response activity. **(Not included in the IMH and Northwest ACP)**

OPERATIONS SECTION

Operations Chief: Responsible for the management of all operations directly applicable to control, containment, recovery, clean up, and rehabilitation. Activates and supervises organizational elements in accordance with the response objectives set forth in the Incident Action Plan (IAP). Follows the guidance of the IMH and Northwest ACP by drafting primary and alternative response strategies, work assignments, and identifiable resources necessary to sustain a long-term response activity.

Operations Specialist: Assists and provides information for field operations.

Field Supervisors: Responsible for the implementation of an assigned portion of the IAP, assignment of resources within the progress of control operations, and the status of resources.

Air Ops Branch: Primarily responsible for preparing the air operations portions of the IAP. The plan reflects Company or agency restrictions that have an impact on the operations capability of utilization of resources.

PLANNING SECTION

Planning Section Chief: Responsible for the collection, evaluation, dissemination, and use of information about the development of the spill and status of resources. The information is needed to understand the current situation, predict the probable course of incident events, and prepare alternate strategies and control operations for the incident. The Planning Chief will follow the Planning Cycle as outlined in the Northwest ACP Section 2100.

Resources Unit: Responsible for establishing all check-in activities; preparation and maintenance of displays, charges, and lists that reflect current status; the preparation and processing of resources status change information and the location of incident resources.

Situation Unit: Collects and organizes spill status and situation information. Responsible for the evaluation, analysis, and display of that information.

Documentation Unit: Maintains accurate and complete historical files, provides duplicating services, and stores incident files for legal, analytical, and historic purposes.

Environmental Unit: Tesoro recognizes the Environmental Unit Leader position will initially be filled by an IC/RP designee until such time that Ecology or other trustee agency of the state of Washington arrives. At this point, Unit Leader responsibilities may be passed to the State until it is deemed appropriate to return this function to the IC/RP designee, or until such time the IC/RP or U.C. directs the change to be made.

The Environmental Unit determines the extent of environmental damage and evaluates the effects of cleanup methods on the environment, obtains necessary permits, coordinates with government agencies to arrange for disposal of recovered oil and waste, and implements wildlife protection and treatment plans.

Technical Specialist: Technical specialists are advisors with special skills needed to support incident options. They may report to the Planning Section Chief. They function within an existing unit such as the situation unit, form a separate unit if required, or can be reassigned to other parts of the organization. Filled by contract services personnel.

LOGISTICS SECTION

Logistics Section Chief: Responsible for providing facilities, services, and materials in support of all phases of the incident response.

Supply Unit: Orders personnel, equipment, and supplies; receives and stores supplies; maintains inventories and distributes supplies as requested.

Facilities Unit: Provides for office work areas, living quarters and storage buildings; provides sanitation facilities, manages remote camps and general maintenance to facilities.

Group Support Unit: Provides for transportation of personnel, supplies, food, and equipment; performs fueling, service and repair work to vehicles and other ground support equipment; implements traffic plan for the incident.

Medical Unit: Develops a medical emergency plan and renders medical aid for injured and ill personnel assigned to the spill.

Food Unit: Determines feeding requirements at all spill locations and facilities; provides drinking water and contractor oversight.

Comms Unit: Develops plans for the effective use of spill communications equipment and facilities; installs and tests equipment, and operates an Incident Communications Center.

Radio Dispatch: Maintains communication links between command post and field supervisors. Provides for recording of all communications and routing of hard copy to required parties.

Procurement Unit: Administers and establishes, as necessary, vendor contracts for operations support-related supplies, services, and technical consultants.

FINANCE UNIT

Finance Section Chief:	Responsible for all financial and cost analysis aspects of the spill.
Time/Cost Unit:	Provides time/cost reporting of labor, materials, and supplies used during spill containment and repair.
Insurance Unit:	Manages claims activities and works with insurance company to ensure claims are accurately documented and evaluated. Initiates investigation and documentation on all claims other than personal injury and arranges for damage surveyors and adjusters.

5.0 INCIDENT PLANNING/DOCUMENTATION

5.1 Documentation Procedures

TSVEDT and Tesoro have adopted the NIMS as their response management system. The Tesoro Supervisor of Contingency Planning maintains a set of all forms for documentation during an exercise or actual spill event. In addition, each section chief maintains the forms specific to their functional group.

Documentation of all events of an oil spill is important in order that management can keep informed, and that accurate reports can be provided to government agencies and the media. The following provides considerations to ensure that effective documentation practices are followed.

Documentation of an oil spill will provide a record of the events as they occur. It will provide the necessary data to determine the accuracy of trajectory analysis, spill size predictions, success of containment, and clean-up operations. Thorough documentation of all events will aid in determining adequacy of spill response plan, modifications needed, and potential improvements for future response operations.

Documentation should begin immediately upon notification of an oil spill and continue until post spill assessments have been made.

The types of information required to provide adequate documentation include:

- Origin of spill.
- Spill characteristics.
- Photographic surveys.
- Climatological reports.
- Cost information.
- Equipment utilization and evaluation.
- Copies of logs.
- Records of contacts with and permits obtained from regulatory agencies.
- Copies of plans prepared for the incident.

5.1.1 Origin of Spill

All factors, which led to a failure resulting in a spill, should be documented. This should include the following information, if applicable:

- Description of exact piece of equipment that failed.
- Persons responsible for causing spill, including their affiliation with contractors or other organizations.
- Apparent cause of equipment failure.
- If safety or operations practices were not followed, state details.
- If act of vandalism, report any indications leading to identity of persons involved.

5.1.2 Spill Characteristics

All relative information pertaining to the oil spill should be recorded throughout the incident. Records should include, but not be limited to, the following information.

- Person discovering the spill.
- Date and time spill occurred or was first observed.
- Location of spill occurrence and area covered by oil.
- Actual or estimated spill volume and direction of movement.
- Type of pollutant.
- Rate of release, known or estimated.
- Effectiveness of containment.

5.1.3 Photographic Surveys

Photographic coverage of the oil spill incident could provide important documentation of the incident, if warranted and feasible. Consideration should be given to photographing important activity/events.

All photographs should properly be identified with respect to location, date, subject, time, direction, photographer's name, and any witnesses present.

5.1.4 Climatological Reports

Climatological data to be gathered for the affected areas during the incident would include:

- Temperature.
- Precipitation.
- Wind direction and speed.
- Surface currents (Estimate velocity).
- Ice and/or snow cover.

5.1.5 Cost Information

A complete record of all costs incurred during the oil spill incident should be maintained, including costs of:

- Equipment.
- Contractual support (labor and equipment).
- Supplies and materials.
- Property damage claims.
- Repair.
- Support services (photographic, sample analysis, transportation, food, etc.).
- Legal services.

5.1.6 Equipment Utilization and Evaluation

Records should be maintained of all equipment utilized during the spill incident and necessary data and information should be gathered to allow an evaluation of the performance of major equipment items, i.e., skimmers, booms, and sorbents. This information will allow updating of containment, exclusion and clean-up procedures and will indicate the need for obtaining additional and/or different equipment.

5.1.7 Logs

Copies of personal logs that individuals maintained during response operations should also be gathered as part of the documentation record. This information would be particularly useful during the post-spill assessment in determining the strengths and weaknesses of the response efforts.

5.1.8 Record of Contacts with and Permits Obtained from Regulatory Agencies

All contacts with and directives from regulatory agencies should be recorded and copies should be made of all permits obtained for specific operations which are subject to regulations such as disposal of oil materials, utilization of government owned equipment, access to land.

5.1.9 Copies of Plans Prepared for the Incident

All of the plans that were prepared to guide response operations should be copied and maintained as part of the documentation records. This plan provides a chronological record of the significant decisions that were made and actions taken during the incident response.

5.1.10 Claims Process

TSVEDT and Tesoro will use Broadspire to handle third-party injury and damage claims resulting from explosions, fires, chemical releases, and oil spills. Broadspire also offers a cost-containment program that uses bar-coders to identify and track cleanup resources. This database is used to provide logistics reports, cost estimation reports and reconcile contractor billings through invoice review.

TSVEDT and Tesoro capture incident data on the Incident Notification Form to communicate to Broadspire for claims activation.

Broadspire adjusters work under the supervision and guidance of TSVEDT’s and Tesoro’s Business Insurance Group (Finance Section/Claims Unit).

HOW TO ACCESS:

Broadspire can be activated by contacting the 24-hour teleplus line number 800-753-6737. Be prepared to provide the following information:

- Your name, company name
- Telephone and fax number
- Nature and location of the emergency
- Nearest airport
- If the public has been evacuated or threatened and if so how many
- If would you like to establish an “800” phone number

Your call will be returned by a Broadspire Claims Adjuster who will act as the point of contact and coordinator of response.

The team will immediately appoint a representative to provide supervision and guidance for Broadspire.

TESORO

INCIDENT NOTIFICATION FORM

This form is mandatory for notification to corporate for all level 3, 4, 5 events and near miss incidents. This form can also be used for all other levels of notification. In addition; facilities with EC shall use the Corporate Environmental report form to report Environmental incidents.

Event: Choose an item. **Level:** Choose an item.

Brief summary of known facts regarding the Event:
The information provided above should be a brief notification of an event that should include: Where the event happened, who was involved, type of event (robbery, vehicle, spill/release, fire, flares, incidents having community impact, etc.

Report Prepared by: **Date:** **Time of Event:** AM ☐ PM ☐

Responsible Party for Future Contact:

Event Classification

Type: Choose an item. **Category:** Choose an item. **Level:** Choose an item.

Consequences/Matrix:

Business Area: Choose an item. **Location:**

Additional Local Information:

Personal Injury / Illness? Yes ☐ No ☐

Contractor Company Involved:

Estimated damages, spillage, and agency involvement:

Select Item Impacted: *Pick appropriate category (some events may require multiple picks)*

Choose an item.
Choose an item.
Choose an item.

Additional information (current status, additional support needed):

Immediate corrective actions(s) taken:

Please forward per your specific business area notification distribution procedure.
As a minimum notification must be distributed per TSHS-006.

2011-02-23

Figure 5.1 –

A. SITE DESCRIPTION

Location ____________________ Date ____________________
Hazards ____
Area Affected ____
Surrounding Population ____
Topography ____
Weather Conditions ____

B. ENTRY OBJECTIVE

The objective of the initial entry to the contaminated area is to:

____

____

C. OFF-SITE ORGANIZATION AND COORDINATION

(SEE TSVEDT INCIDENT COMMAND CHART)
The following personnel are designated to carry out the stated job functions on site. (Note: One person may carry out more than one job function.)

TASK FORCE LEADER	________________________________
SITE SAFETY OFFICER	________________________________
SECURITY OFFICER	________________________________
FEDERAL AGENCY REPS	________________________________
	________________________________
STATE AGENCY REPS	________________________________
	________________________________
LOCAL AGENCY REPS	________________________________
	________________________________
CONTRACTORS	________________________________
	________________________________
	________________________________

All personnel arriving or departing the site should log in and out with the Site Security Guard. All activities on site must be cleared through the Project Team Leader.

D. OFF-SITE CONTROL

___________________________ has been designated to coordinate access control and security on site. Safe perimeter has been established at ___________
____
No unauthorized person should be within this area.

The on-site Command Post and staging area have been established at ________
____
prevailing wind conditions are ___________________. This location is upwind from the Exclusion Zone.

Control boundaries have been established, and the Exclusion Zone (the contaminated area), hotline, Contamination Reduction Zone, and Support Zone (clean area) have been identified and designated as follows:_________________
____
____
____
____

These boundaries are identified by
____
____
____

E. HAZARD EVALUATION

The following substance(s) are known or suspected to be on site. The primary hazards of each are identified.

Substances Involved	**Concentrations (if known)**	**Primary Hazards**

The following additional hazards are expected on site: ______________________
____
____

Hazardous substance information form(s) for the involved substance(s) have been completed and are attached.

F. PERSONAL PROTECTIVE EQUIPMENT

Based on evaluation of potential hazards, the following levels of personal protection have been designated for the applicable work areas or tasks:

Location	**Job Function**	**Level of Protection**
Hot Zone		**A B C D Other**
Decontamination Area		**A B C D Other**

Specific protective equipment for each level of protection is as follows:

LEVEL A	LEVEL B	LEVEL C	LEVEL D	OTHER

If air-purifying respirators are authorized, ___________________________ is the appropriate canister for use with the involved substances and concentrations. A competent individual has determined that all criteria for using this type of respiratory protection have been met.

NO CHANGES TO THE SPECIFIED LEVELS OF PROTECTION SHALL BE MADE WITHOUT THE APPROVAL OF THE SITE SAFETY OFFICER AND THE PROJECT TEAM LEADER.

G. ON-SITE WORK PLANS

Work party(s) consisting of ___________ persons will perform the following task:

Project Team Leader

____

Work Party #1 ____

Work Party #2 ____

Rescue Team (required for IDLH entry) ______________________________

Decontamination Team ____

The work parties were briefed on the contents of this plan at _________________

H. COMMUNICATION PROCEDURES

Channel _________ has been designated as the radio frequency for personnel in the **HOT ZONE.** All other on-site communications will use Channel ______.

Personnel in the **HOT ZONE** should remain in constant radio communication or within sight of the Project Team Leader. Any failure of radio communication requires an evaluation of whether personnel should leave the **HOT ZONE**.

______________________ is the emergency signal to indicate that all personnel should leave the **HOT ZONE**. In addition, a loud hauler is available if required.

The following standard hand signals will be used in case of failure of radio communications:

Hand gripping throat	Out of air - can't breathe
Grip partner's wrist or both hands around waist	Leave area immediately
Hands on top of head	Need assistance
Thumbs up	I am alright, I understand
Thumbs down	Negative

Telephone communication to the Command Post should be established as soon as practical. The phone number at the Command Post is ____________________________.

I. DECONTAMINATION PROCEDURES

Personnel and equipment leaving the **HOT ZONE** shall be thoroughly decontaminated. The standard level _________ decontamination protocol shall be used with the following decontamination stations: (1) _______________________
(2) ____________________ (3) ___________________ (4) ___________________
(5) ____________________ (6) ___________________ (7) ___________________
(8) ____________________ (9) ___________________ (10)___________________
(Other) ____

Emergency decontamination will include the following stations:
____
____
____

The following decontamination equipment is required: _______________________
____

_____________________________ will be used as the decontamination solution.

J. SITE SAFETY AND HEALTH PLAN

1. **Site Safety Officer**

______________________ is the Site Safety Officer and is directly responsible to the Project Team Leader for safety recommendations on site.

2. Emergency Medical Care

___________________________ and _____________________________ are the qualified EMT's on site. ____ at ____________________ located _______________ minutes from this location.

_________________________________ was contacted at ______________and briefed on the situation, the potential hazards, and the substances involved. A map of alternative routes to this facility is available at _________________________________.

Local ambulance service is available from ___________________________ at phone number ____________________. Their response time is _____________ minutes. Whenever possible, arrangements should be made for on-site standby.

First-aid equipment is available at the following locations:

First Aid Equipment	**Location**
First Aid Kit	______________________________
Emergency Eye Wash	______________________________
Emergency Shower	______________________________

Emergency medical information for substances present:

Substance	**Exposure Symptoms**	**First-Aid Instructions**

List of emergency phone numbers:

Agency/Facility	Phone/Contact
Police	______________________________
Fire	______________________________
Hospital	______________________________
Airport	______________________________
Public Health Advisor	______________________________

3. Personnel and Environmental Monitoring

The following environmental monitoring instruments shall be used on site at the specified intervals. (strike if not applicable)

Combustible Gas Indicator	continuous/hourly/daily/other _________
O_2 Monitor	continuous/hourly/daily/other _________
Colorimetric Tubes	continuous/hourly/daily/other _________
HNU/OVA	continuous/hourly/daily/other _________
Other	continuous/hourly/daily/other _________

4. Emergency Procedures

(should be modified as required for incident)

The following standard emergency procedures will be sued by on-site personnel. The Site Safety Officer shall be notified of any on-site emergencies and be responsible for ensuring that the appropriate procedures are followed.

Personnel Injury in the HOT ZONE:

Upon notification of an injury in the HOT ZONE, the designated emergency signal ________________ shall be sounded. All site personnel shall assemble at the decontamination line. The rescue team will enter the HOT ZONE (if required) to remove the injured person to the hotline. The Site Safety Officer and Project Team Leader should evaluate the nature of the injury, and the affected person should be decontaminated to the extent possible prior to movement to the Support Zone. The on-site EMT shall initiate the appropriate first aid, and contact should be made for an ambulance and with the designated medical facility (if required). No persons shall reenter the HOT ZONE until the cause of the injury or symptoms is determined.

Personnel Injury in Support Zone:

Upon notification of an injury in the support Zone, the Project Team Leader and Site Safety Officer will assess the nature of the injury. If the cause of the injury or loss of the injured person does not affect the performance of on-site personnel, operations may continue, with the on-site EMT initiating the appropriate first aid and necessary follow-up as stated above. If the injury increases the risk to others, the designated emergency signal ________________ shall be sounded and all site personnel shall move to the decontamination line for further instructions. Activities on site will stop until the added risk is removed or minimized.

Fire/Explosion:

Upon notification of fire or explosion on site, the designated emergency signal ________________ shall be sounded and all site personnel shall assemble at the decontamination line. The fire department shall be alerted and all personnel moved to a safe distance from the involved area.

Personal Protective Equipment Failure:

If any site worker experiences a failure or alteration of protective equipment that affects the protection factor that person and his/her buddy shall immediately leave the HOT ZONE. Reentry shall not be permitted until the equipment has been repaired or replaced.

Other Equipment Failure:

If any other equipment on site fails to operate properly, the Project Team Leader and Site Safety Officer shall be notified and then determine the effect of this failure on continuing operations on site. If the failure affects the safety or personnel or prevents completion of the work plan tasks, all personnel shall leave the HOT ZONE until the situation is evaluated an appropriate actions taken.

The following emergency escape routes are designated for use in those situations where egress from the HOT ZONE cannot occur through the decontamination line:

____

____

____

In all situations, when an on-site emergency results in evacuation of the HOT ZONE, personnel shall not reenter until:

(1) The conditions resulting in the emergency have been corrected.
(2) The hazards have been reassessed.
(3) The Site Safety Plan has been reviewed.
(4) Site personnel have been briefed on any changes in the Site Safety Plan.

5. Personal Monitoring:

The following personal monitoring will be in effect on site: ____________________
____
____
____

Personal exposure sampling: ____
____
____

Medical monitoring: The expected air temperature will be ______________ F. If it is determined that heat stress monitoring is required (mandatory if over 70 F), the following procedures shall be followed:

____
____
____

All site personnel have read the above plan and are familiar with its provisions.

Site Safety Officer ____

Project Team Leader ____

Other Site Personnel ____

5.2 Dispersant Plan

The following steps should be used to decide if the use of dispersants will be required. (An immediate threat to life which can be substantially lessened by the use of dispersants preempts the following matrix by the OSC.)

Figure 5.2 – Washington Dispersant Use Checklist

a. Compilation of Data.	
(1) Spill data	
(a) Circumstances (fire, grounding, collision, etc.):	
(b) Time/Date of Incident:	
(c) Type of oil product:	
(d) List bulk chemicals carried and their volumes:	
(e) Volume of product released:	
(f) Total potential of release:	
(g) Type of release (instantaneous, continuous, intermittent etc.):	
(2) Characteristics of the spilled oil	
(a) Specific gravity:	
(b) Viscosity:	
(c) Pour point:	
(d) Volatility (flash point):	
(e) Relative toxicity:	
(3) Weather and water conditions/forecasts	
(a) Air temperature, wind speed, direction:	
(b) Tide and current information:	
(c) Sea conditions:	
(d) Water temperature and salinity:	
(e) Water depth and depth of mixed layer:	
(4) Trajectory information	
(a) 48-hour oil trajectory forecast:	
1. Surface area slick:	
2. Expected areas of landfall	
(b) 48-hour dispersed oil trajectory forecast:	
1. Oil movement in water column:	
2. Surface oil movement in water column:	
3. Concentration of dispersant / oil mixture in water column:	
(5) Characteristics of available dispersants	
(a) Characteristics of the dispersant:	
Product 1------Product 2------Product 3	
1. Name	
2. Manufacturer	
3. When available	
4. Location(s)	
5. Amount available	
6. Type of containers	
7. Characteristics	
a. Toxicity	
b. Effectiveness	
c. Reactions	

[1] Indicates seasonal considerations

Figure 5.2 – Washington Dispersant Use Checklist (Continued)

d. Applicability to spilled oil	
e. Other	
8. Application methods	
9. Miscellaneous	
(b) Type of transportation and dispersing equipment	
Company 1-----Company 2-----Company 3	
1. Name	
2. Location	
3. Time to arrive	
4. Equipment available	
5. Other	
(6) Info about available dispersant & dispersing equipment.	
(a) Name of proposed dispersant on EPA and State acceptance lists:	
(b) Type (self-mix, concentrate, etc.):	
(c) Proposed application methods and rates:	
(d) Efficiency under existing conditions:	
(% dispersed and volume dispersed)	
(e) Location of the area to be treated	
(f) Surface area of slick treatable in schedule time period:	
(g) Estimated time interval between dispersant application and sensitive environments/resources	
(7) Comparison of effectiveness of conventional cleanup methods vs. the use of dispersants:	
(a) Containment at the source:	
(b) Shoreline protection strategies:	
(c) Shoreline cleanup strategies:	
(d) Time necessary to execute response:	
(8) Habitats and resources at risk	
(a) Shoreline habitat type and area of impact:	
Dispersant treated spill----Untreated spill	
1.	
2.	
3.	
4.	
(b) Resources	
Dispersant treated spill----Untreated spill	
1. Endangered/threatened species (state and federally designated	
2. Critical habitats for the above species	

[1] Indicates seasonal considerations

Figure 5.2 – Washington Dispersant Use Checklist (Continued)

3. Marine animals (pupping, migration)[1]	
4. Waterfowl use (nesting, migration)	
5. Shellfish (spawning, harvesting)	
6. Finfish (spawning, release migration, harvest)	
7. Commercial use (aquaculture, water intakes, etc.)	
8. Public use areas (parks, marinas, etc.)	
9. Other resources of specific significance	
(9) Economic Considerations	
(a) Cost of dispersant operation:	
(b) Cost of conventional containment and protection:	
1. With dispersant use	
2. Without dispersant use	
(c) Cost of shoreline cleanup: (cost per barrel x number of barrels reaching the shoreline)	
1. With dispersant use	
2. Without dispersant use	
b. Recommendation to the RRT	
(1) Possible options:	
(a) Do not use dispersants	
(b) Use dispersants on trial basis, but not as control/cleanup technique.	
(c) Disperse in limited or selected areas.	
(d) Disperse to the maximum extent possible with accepted methods and available equipment.	
(2) Other recommendations/rationale:	
c. Consequences of a dispersant application decision.	
(1) Will application of dispersant remove a significant amount of the slick from the surface of the water	
(2) Can the extent or location of shoreline impacts be altered in a positive manner?	
(3) Can the damage to endangered or threatened species, marine mammals, and waterfowl be lessened?	
(4) Will the damage to habitats and resources resulting from chemical dispersion be less than those resulting without chemical dispersion?	
(5) If recreational, economic and aesthetic considerations are higher priority than natural resource considerations what is the most effective means of their protection?	

1 Indicates seasonal considerations

Figure 5.3 – Federal On-Scene Coordinator (FOSC) Checklist

The FOSC Checklist is used by the Incident Commander to determine whether a request should be forwarded to the Regional Response Team for Dispersant Use. All of the criteria below must be met before a request is made.

Checklist:

1.	Is the spilled petroleum dispersable?	Y/N
2.	Is the appropriate equipment available for dispersant application?	Y/N
3.	Is a sufficient quantity of dispersant available to respond to the spill?	Y/N
4.	Are weather and oceanographic conditions favorable for dispersant application?	Y/N
5.	Does the dispersion of spilled petroleum to the water column pose less of an environmental risk than leaving the petroleum on the sea surface?	Y/N
6.	Will the area of dispersant application fall within established water depth and distance boundaries identified in the approval process?	Y/N
7.	If required, have state and international boundary considerations been addressed?	Y/N
8.	Has the ART Unit recommended the use of dispersants?	Y/N

Basic information regarding the spill (weather, location of slick, type of oil, trajectory analysis, resources at risk, etc.) - see attached forms.

Phone Call List

EPA	Y/N
USCG	Y/N
DOC	Y/N
DOI	Y/N
Washington	Y/N

Figure 5.3 – FOSC Checklist (Continued)

Part 3

Support Information for
Quick Approval Process

1. On-Water Mechanical Cleanup Equipment Availability

Equipment Type	Skimming Capacity	Estimated Time of Arrival

1. ______________________________

2. ______________________________

3. ______________________________

4. ______________________________

5. ______________________________

6. ______________________________

2. Spill Information

A. Incident Information:

Cause of Spill: ______________________________

____

Date and Time of Spill: ______________________________

Location: ______________________________

____

Volume and Type of Release (Continuing vs. Instantaneous):

____

____

Figure 5.3 – FOSC Checklist (Continued)

Potential Volume to be Released:

____

B. Characteristics of Spilled Oil:

Oil Type/Name

____

Specific/API Gravity ____________________ Flash Point ______________________

Pour Point ____________________________ Viscosity ________________________

C. Dispersant Information:

Available Dispersant and Amounts:

____

____

____

Laboratory Data on Dispersability of Oil:

____

D. Weather and Water Conditions/Forecast

Water Temp: __________________________ Air Temp: ______________________

Currents (present and over next 48 hours) (attach)

Tides (present and over next 48 hours) (attach)

Wind Speed/Direction (present and 48-hour projection)

____

Salinity: _____________________________ Water Depth: ___________________

Figure 5.3 – FOSC Checklist (Continued)

Sea State (present and 48 hour projection)

____

Comments:

____

____

E. Oil Trajectory Information

Surface Area of Slick ______________________________

24 Hour Slick Trajectory (attach)

48 Hour Slick Trajectory (attach)

Expected Land Fall (Location/Time)

____

Comments:

____

____

Biological Resources at Risk
(provided by Ecology)

A. On-Water Resources

____

____

B. Shallow Subtidal Resources:

____

C. Intertidal Resources:

____

D. Anadromous Resources:

____

E. Significant Water Column Resources:

____

Figure 5.4 – Sample Dispersant Application Plan

This application presents the proposed plan for dispersion application and monitoring for treatment of the spill incident report on ________ at _______ hours.

Date/Time of Submission: ______________________ Submitted By: _______________________

A. Application

1. Aerial Application

Full-scale aerial application will be initiated as soon as possible after approval at the initial dosage rate. The preliminary strategy is to apply dispersants to the leading edge of the slick starting at ______ hours using the DC-4 and a dosage rate of ______. Successive applications adjacent to each preceding application will be conducted, working toward the center of the slick. Helicopter systems will be used to treat smaller slicks along the leading edge of the main body of the spill. Planned daily application coverage by air includes _____ acres by DC-4 and _____ acres by helicopter.

This application represents potential treatment of ______ gallons of oil on about ______ percent of the spill volume at the time of application.

Assume that the following criteria apply.

Parameter	Helicopter	DC-4
Transit speed	55 knots	120-180 knots
Application speed	As necessary to achieve dosage	140 knots
Dispersant capacity	150 to 300 gal	2,000 gal*
Pump rate	80 to 90 gpm	300 gpm
Range (one way)	50 miles	3,000 miles
Actual flying time between refueling (minus reserve)	2.5 hours	17 hours
Turn-around time without refueling	20 min.	30 min.
Turn-around time with refueling	45 min.	60 min.
Swatch width	65 to 100 feet	20 ft. at 50-ft. altitude

* Can arrive on scene form Mesa, Arizona, with 1,800 gallons of dispersant.

Figure 5.4 – Sample Dispersant Application Plan (Continued)

2. Vessel Application

   The ____________________ will standby to apply dispersants to treat smaller slicks along the leading edge of the main spill, but in areas away from active aerial application. The vessel speed will be adjusted to ______ knots to achieve the optimum application rate of ______ gallons per acre.

3. Communications/Coordination

   Company radios are desirable when available as they provide a much higher degree of privacy and non-interference. When company frequencies are not available, standard marine radio frequencies are used. All vessels normally monitor the USCG emergency channel 16. If a second radio is available, or when requiring a working frequency, any pre-selected channel is suitable such as 6 or 12. If a channel becomes crowded due to outside traffic, an alternate one can be selected.

4. Monitoring

   Monitoring will be conducted using the following methods, where applicable:

   Calibration records will be maintained on all application equipment, with periodic calibration checks conducted.

   Visual and photographic/video records will be collected by air crews and observers. Narrative reports will be collected.

   Application records will be compiled at command headquarters for aircraft using reported LORAN positions. Vessels positions will be approximated on vessels using standard navigational procedures.

   Periodic oceanographic samples will be collected (weather and safety permitting. Sampling will include the following:

   Local weather conditions will be monitored periodically; currents in dispersion area will be monitored using drogues and dye.

   Examine water surface before and after treatment by visual observation and sampling. Key parameters include depth of water column penetration and droplet reforming.

   Option 1. Water column samples to be collected at 1 foot, 3 feet, and 50 percent of wave height or 25 percent of swell (approximate limits of surface mixing) using stainless steel samplers. Samples to be analyzed for oil and/or dispersant by IR or GC. Control samples to be taken outside treatment plume.

   Option 2. Water column samples to be collected at various depths and analyzed on site using flow-through fluorometric techniques. Periodic samples will be collected for laboratory checks.

5.3 Bioremediation

Figure 5.5 – Bioremediation Checklist

Bioremediation Checklist	
SPILL DATA/INCIDENT INFORMATION	
Cause (specific):	
Date/Time:	
Location:	
Volume and Type of Release (cont., intermittent):	
Potential Volume to be Released:	
Confidence in Data (high, medium, low):	
CHARACTERISTIC OF SPILLED OIL	
Oil Type/Name:	
Specific Gravity:	Flash Point:
Pour Point:	Viscosity:
% Aromatics:	% Saturates:
% Asphaltenes:	
WEATHER AND WATER CONDITONS/FORECAST (48-HR)	
Water Temp:	Air Temp:
Current Info:	Wind Speed:
Salinity:	Wind Direction:
Water Depth:	Sea State:
Tide Info:	
Comments:	

Figure 5.5 – Bioremediation Checklist (Continued)

	Product 1	Product 2	Product 3
Name			
Manufacturer			
EPA Listed			
State Licensed			
Stockpile Location			
Point of Contact			
When Available			
Amount Available			
Amount Needed			
Amount on Hand			
Toxicity			
Type (concentrate/mix)			
Physical Reactivity			
Applicability on Oil			
Efficiency (% projected)			
Application Means			
Positive Dosage Control			
Dosage Rate Settings			
Dosage Charts Available			
Bioremediation Application Information/Evaluation:			
Proposed Bioremediation Application Plan:			

5.4 In-Situ Burning

The following checklist is 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 or Oregon waters. The checklist is divided into several sections of information about the spill, weather, oil behavior, and proposed burning plan. Immediately following the first three sections are a series of questions relating to operational constraints that are used to determine the feasibility of in-situ burning. Generally, all the questions must be answered with a "YES" before it is determined feasible to burn in the specific spill scenario being considered. However, it is important to note that failure to meet one or more operational constraint (i.e., a "NO" answer) does not necessarily lead to a blanket "NO BURN" decision since conditions could change that would make in-situ burning a feasible option at a later time.

Figure 5.6 – In-Situ Burning Checklist

1. Spill data (To be completed by the responsible part and submitted to the unified command.

   a. Date and time of incident: Month/Day/Year ______; Time ___________

   b. Responsible Party: ____

   c. Incident: Grounding ☐ Transfer Operations ☐ Explosion ☐ Collision ☐ Pipeline ☐

   d. Is source burning? Yes ☐ No ☐

   e. Spill Location: Latitude __________ ; Longitude ________________

   f. Distance (in miles) and direction to nearest land: __________________

      Nearest population center(s): ________________________________

   g. Product Released: ____

   h. Product easily emulsified? Yes ☐ No ☐ Uncertain ☐

   i. Product(s) already emulsified upon Release? Yes ☐ No ☐

   If emulsified: Lightly (0-20%) ___; Moderate (21-50%) ___;

   Heavy (>50%) ___; Unknown ___

   j. Estimated volume of released product (gal/bbls): __________________

Figure 5.6 – In-Situ Burning Checklist (Continued)

k. Estimated volume of product potentially released: ___________________

l. Release status: Continuous _____ Estimated rate ____

Intermittent _____ Estimated rate ____

One time only, flow now stopped __________

m. Surface area of spill (sq. mi): ___________ Date/Time ________________

Feasibility Factors:

n. Is emulsification of the oil being considered for in-situ burning <50%

Yes ___ No ___

o. Is oil thickness > 1/10"? Yes ___ No ___

2. Weather and water conditions at the time and location of spill (to be completed by the responsible party and submitted to the unified command)

a. Temperature: Air ___F Water ___F

b. Weather: Clear ___ Partly Cloudy ___ Overcast ___

c. Tidal State: Slack Tide ___ Flood ___ Ebb ___

d. Dominant surface current, net drift: Speed ___ Kts.

Direction (to) _________

e. Wind Speed: ____kts. Direction (from) _________

f. Sea State: Calm ___ Choppy ___ Swell (in feet) ___

Waves: <1foot___ 1 -3 feet____ >3 feet

g. Water Depth (ft.) 0-60. ___ 60-120 ___ >120 ___

Figure 5.6 – In-Situ Burning Checklist (Continued)

h. Other Considerations:
- General Visibility
- Rip Tides/Eddies
- Floating Debris
- Submerged Hazards

Feasibility Factors:

i. Is wind speed <25 knots? Yes ___ No ___

j. Is wave height <2-3 ft.? Yes ___ No ___

k. Can debris be adequately handled? Yes ___ No ___

l. Is visibility >500 feet vertically and .5 mile horizontally? Yes ___ No___

m. Are rain forecasts favorable for ignition? Yes ___ No ___

3. Proposed Burning Plan (to be completed by responsible party)

   a. Location of the proposed burn relative to the spill source:

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

   c. Location of the proposed burn relative to nearest land:

   d. Potential for accidental secondary fires:

   e. Potential of reducing visibility at nearby airport(s) or freeway(s):

   f. Name, distance, and location of nearest population center(s):

   g. Method(s) used to notify residents in areas within the potential smoke plume trajectory:

   h. Type of igniter proposed for use:

   i. Burning promoters or wicking agents to be used? Yes ___ No ___

Figure 5.6 – In-Situ Burning Checklist (Continued)

j. Proposed method of deployment for:

 1. Igniters:

 If helicopters used: Name of company and helicopter type:

 FAA approval granted for igniter use? Yes ___ No ___

 Awaiting FAA approval? Yes ___ No ___

 2. Burning promoters:

 3. Wicking agents:

k. Method of oil containment, if any:

l. Proposed location of oil containment relative to spill source:

m. Proposed burning strategy (circle):

 1. Immediate ignition at or near source
 2. Ignition away from source after containment and movement to safe location
 3. Controlled burning in boom or natural collection site at or near shore
 4. Possible need for multiple ignition attempts.

n. Estimated amount of oil to be burned:

o. Estimated duration of burn:

p. Estimated smoke plume trajectory:

q. Method of collecting burned oil residue:

r. Proposed storage and disposal of burned oil residue:

Feasibility Factors:

(1) If spill source is not burning, can accidental ignition be avoided?
 Yes ☐ No ☐

Figure 5.6 – In-Situ Burning Checklist (Continued)

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

(3) Is the smoke plume unlikely to drift toward population centers within ___ miles? Yes ___ No ___

(4) Are air stability/stagnation conditions conductive to burning?
Yes ___ No ___

(5) Are adequate fire boom, tow boats and igniter resources available?
Yes ___ No ___

(6) Is adequate air support and burn monitoring equipment available?
Yes ___ No ___

(7) Is adequate computer/software support available?
Yes ___ No ___

(8) Can adequate notice be given to mariners, aircraft and the general public?
Yes __ No ___

(9) Can necessary personnel and equipment be mobilized during the in-situ burning window of opportunity?
Yes ___ No ___

4. Weather and water condition forecast (to be completed by NOAA Scientific Support Coordinator)

a. Wind Speed (kts.):

24 hour protection:

48 hour protection:

b. Wind Direction (from):

24 hour projection:

48 hour projection:

Figure 5.6 – In-Situ Burning Checklist (Continued)

c. Sea Conditions:

24 hour projection:

Calm ___ Choppy ___ Waves 1-3 ft. ___ > 3 ft. ___ Swells (ft.) ___

48 hour projection:

Calm ___ Choppy ___ Waves 1-3 ft. ___ > 3 ft. ___ Swells (ft.) ___

d. Tidal Information for three tidal cycles (see attached graph)

e. Dominant current (net drift): Speed: __kts Direction (to): ___

5. Predicted oil behavior (to be completed by the NOAA Scientific Support Coordinator)

a. Unburned oil forecast

(1) Estimated trajectory (see attached chart):
(2) Expected area(s) and time(s) of landfall:
(3) Estimated percent naturally dispersed and evaporated within first 24 hours:

6. Resources at risk will be determined using available information from the Geographic Response Plan developed for the spill and specific data provided by the resource agencies at the time of the spill.

5.5 Decanting

Figure 5.7 – Oil Spill Decanting Authorization Form

Oil Spill Decanting Autorization Form

The federal and state OSC's, under authority of RCW 90.56.320(l) 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)

The decanting operation must meet the following conditions :

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 entrainment.
5. Visual monitoring of the decanting shall be maintained at all times so that dischare 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: **Federal 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 contidtions and limitatiions are clearly understood by all parties.

5.6 Disposal Plan

Figure 5.8 – Sample Incident Disposal Plan

Model Disposal Plan for Oil Spills in Washington State

____
(Incident Name)

Responsible Party: ________________________
Spilled Material: ________________________
Spill Volume (estimate): ________________________
Spill Location: ________________________
Spill Date/Time: ________________________
Report Update Time: ________________________

Disposal Plan Authorization

This plan is written at the request of the USCG and/or EPA and the Washington State Department of Ecology. The responsible party will recover the maximum feasible amount of oil spilled during the above named incident. In addition an unknown quantity of oily waste debris (including plastics, sands, etc.) will be recovered. When disposing of this material, the responsible party will abide by all applicable state, local and federal laws and regulations. Disposed material will be tracked to provide an accurate means of estimating total oil recovered. Each section of this incident specific disposal plan addresses and corresponds with the waste disposal "Guideline" found in Section 9620 of the Northwest ACP.

This plan may be amended as necessary to ensure compliance with all applicable laws and regulations. Amendment may occur only upon mutual agreement of the responsible party, the federal OSC (USCG/EPA), and/or the state OSC (Ecology).

Submitted By: ________________________ Date: ______

Approved by Ecology: ________________________ Date: ______

Reviewed by USCG/EPA: ________________________ Date: ______

Approved by Responsible Party: ________________________ Date: ______

Approved by other Local Government Representative(s) (Optional):

________________________ Date: ______

SECTION I WASTE HANDLERS

The following licensed transporters and approved treatment and disposal facilities are to be used for waste handling and disposition unless otherwise directed by Ecology. All waste handlers have read and are working in accordance with this plan.

Name of Company *Disposal Functions* *Company Representative Signature.*

SECTION II DESIGNATION

The spilled material was deemed (non-) dangerous waste based on the following:

SECTION III INTERIM STORAGE, SEGREGATION, and TRACKING

A. INTERIM STORAGE OF SOLID MATERIAL

Interim storage sites will be located at: ______________________________
____
____

Provide a description each site, lined roll-off boxes, etc.. Describe how each site was constructed, bermed, covered, etc. to minimize infiltration of rainwater and prevent leaching.

Describe measures that will be taken to return sites to their original condition

Ecology's authorization

B. SEGREGATION

Describe measures taken to ensure material recovered was properly segregated. Material recovered must be segregated in the following manner unless otherwise directed by the State or Federal OSC:

1. Oil collected from sources other than state waters/shorelines (e.g. on vessels or pier)
2. Oil and oil/water mixtures recovered from state waters/shorelines
3. Oiled organic debris: wood, aquatic vegetation... Oily debris should be placed in **clear plastic bags** for ease of identifying contents and segregation. To the extent possible efforts should be made to homogenize recovered organic debris e.g., heavily oiled eel grass should be kept separate from dissimilar debris
4. Oiled sorbent material: oil snares, pads, and booms
5. PPE and other typically non-sorbent materials

C. WASHINGTON STATE OIL RECOVERY CREDIT FOR NATURAL RESOURCE DAMAGES

Detail measures taken to ensure segregation as per oil spill recovery credit. See Washington Department of Ecology document "Compensation Schedule Credit for Oil Recovery, RDA Committee Resolution 96-1".

D. TRACKING
Describe the waste tracking system used during this response. Include copies of waste tracking forms.

E. DECANTING
Decanting authorization form (if approved) should be attached.

SECTION IV DECONTAMINATION

Describe the areas designated for decontamination including location, set up, and pollution prevention measures.

SECTION V ANIMAL CARCASSES

If applicable describe the number of animal carcasses disposed of and methods used for their disposal.

SECTION VI WASTE DISPOSITION and FINAL DISPOSAL

ICS Form 209 Final Waste Status Summary

Type	Recovered	Stored	Disposed of
Oil (bbl)			
Oily Liquids (bbl)			
Oily Solids (tons)			
Solids (tons)			

Include copies of waste tracking forms for final disposal if used, (See Appendix A for example). Also, include copies of receipts from disposal facilities.

A. RECOVERABLE OIL
Oil recovered will be transported by_____________ to ______________.

Company names and Contacts
____
____
____

B. BURNABLE MATERIAL:
Burnable material includes oily wood, debris, PPE, sorbents, oil snares and other suitable organic material collected during cleanup operations. The debris will be transported from the interim storage site by _______________ to _________________.

Transporter(s)	Facility

C. OTHER MATERIAL:

This material may consist of sand and tar balls and other assorted material that has been collected from the cleanup effort and has been stored at interim storage sites. All of this material will be transported to a licensed facility

Transporter(s)	Facility

Final Disposal Tracking					
	Disposal Facility Location(s)	**Received From:** Location(s)	**Time:** Received	**Volume** (Gallons*)	**Type of Waste**
Totals>					

* Cubic Yards for Solids
**Means to address demand per location per time

5.7 Recovered Oil and Water Management Plan

Incident Name: ____

Responsible Party: ____

Spilled Material: ____

Spill Volume (estimate): ____

Spill Location: ____

Spill Date/Time: ____

Report Update Time: ____

Submitted By: ____

Approved By: ____

Tesoro Savage Petroleum Terminal LLC
6340 South 3000 East, Suite 600
Salt Lake City, Utah 84121
801-944-6600

TSVEDT
5501 Northeast Lower River Road
Clark County
Vancouver, Washington 98660

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LIST OF ATTACHMENTS

1.0 RECOVERED OIL

Oil, oil and seawater, and oil and freshwater mixtures will be collected from the spill area using oil recovery equipment deployed by the Oil Spill Response Organization (OSRO) and/or a vacuum truck supplied by another response contractor. Recovered oil and water mixtures will be immediately transported to designated waste staging areas to bulk storage fractionation tanks (frac tanks) used in the spill response operations**. Tank gauging must be conducted at that time to document the volumes of oil and water recovered**.

Shoreside storage at the terminal may vary according to current terminal operations. In the event that adequate shoreside storage is not available at the terminal, TSVEDT will use frac tanks, vac trucks, and floating storage to enable recovery operations to continue while oil is transferred to a location where it can be refined.

Proper tank, drum and container gauging is a critical component of all response actions. **Third party certified gauging contractors must be mobilized so that accurate documentation of recovered oil and oil/water volumes can be achieved.**

No recovered oil or oil/water mixtures can be discharged or disposed of prior to gauging and volume inventory reconciliation completion.

Once oil has been transferred to frac tanks and allowed to settle, as much liquid oil as possible will be separated. Potential management methods for recovered liquid hydrocarbons include: re-injection or recycling into a crude or bunker fuel process stream, oil reclamation, and/or recycling at other oil industry facilities. The volume and the presence or absence of other potential contaminants in the oil must be determined prior to recycling.

Crude oil recovered early in the clean-up operation will be the easiest to process. Injection of recovered crude into a product stream after a spill will be a preferred option.

2.0 OILY WATER

Oily water recovered as part of the cleanup process will be managed by one of the following methods:

A. Reclaimed along with entrained oil by a third party oil reclaimer retained by TSVEDT,

B. Injected into TSVEDT process water treatment facilities, if available,

C. Injected into a nearby publicly-owned treatment works (POTW) wastewater influent stream (local, state, or federal approval required), or

D. Treated on-site in a portable, temporary wastewater treatment system in accordance with applicable surface-water quality standards and discharged (state/federal permit approval required). Where possible, oily-freshwater and oily-salt (ocean) water should be segregated since the salinity of ocean water limits its treatability.

2.1 Oily Water Decanting

Decanting of water from oily mixtures is a common procedure used during a spill response. Decanting is the process of draining off recovered water from portable tanks, barges, collection wells, or other containers to increase available recovered oil storage capacity.

During a response, it may become necessary for TSVEDT to request the Federal and/or state on-scene coordinator (FOSC/SOSC) authority to decant water while recovering oil so that response operations do not become impaired. Authorization from FOSC is required in all cases; authorization from the SOSC is required for decanting activities in state waters. Expeditious review and approval of such requests is necessary to ensure efficient recovery operations. The request, decision and permission to decant **must** be documented. Decanting permit applications appear as **Attachment 1**.

The following criteria should be considered when determining whether decanting is applicable, unless circumstances dictate otherwise:

A. 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.

B. Vessels employing sweep booms with recovery pumps in the apex of the boom should decant forward of the recovery pump.

C. 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 and should transfer oil/water mixtures to a vessel or on-shore equipment with approved oil-water separation technology. Unequipped vessels should not decant oil-water mixtures.

D. Visual monitoring of the decanting area shall be maintained at all times so that discharge of oil in the decanted water is detected promptly.

3.0 DISPOSAL OF RECOVERED OIL AND OILY WATER

Recovered oil and oily water will be transported by company-owned vacuum trucks to on-site tankage. Approved oil reclamation contractors are identified in Attachment B of the Oil Spill Waste Management and Disposal Plan. Applicable company names and contacts for the off-site disposal of recovered oil and oily water are as follows:

1. ______________________________

2. ______________________________

3. ______________________________

ATTACHMENT 1

OIL SPILL REQUEST FOR DECANTING AUTHORIZATION

Responsible Party (RP): ___________________________ Date: __________________

The RP hereby requests permission to decant free water from its on-water storage systems. The free water collected during skimming operations will be decanted back into a contaminated area (i.e., into containment boom).

The following information is provided for your consideration:

Name of Oil Spill: ____

Location of Spill (latitude/longitude): __________________________________

Vessel Names: ____

Product: ____

Skimming Platforms: ____

Weather: ____

Tides: ____

☐ Approved ☐ Disapproved

RP Representative Signature: ____

Dates Approval Effective: ____

Conditions (circle numbers that apply):

1. All decanting should be done in a designated response area within a collection area, vessel collection well, recovery belt, or weir area, or directly in front of a recovery system.
2. Visual monitoring of the decanting shall be maintained at all times so that discharge of oil in the decanted water is detected promptly.
3. 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.
4. Additional site-specific conditions (continue on reverse side if necessary).

____________________________ ____________________________________

USCG SOSC

ATTACHMENT 2

Northwest Area Contingency Plan

7.3.2 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.	

5.8 Recovered Oil Quantification Plan

Incident Name: ____

Date: ____

Submitted By: ____

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TABLES:

1.0 ESTIMATION METHODS FOR QUANTIFICATION OF RECOVERED OIL

The amount of spilled oil recovered during cleanup operations must be estimated. The amount of free oil, oily water, oil recovered from absorbents and decontamination water, and oil trapped in contaminated soil will be estimated separately. Materials identified as contributing to the total recovered hydrocarbons include, but are not limited to, oil collected in skimming tanks, oil from decontamination procedures, recovered oil tar balls, oily absorbents, oily debris, and oiled personal protective equipment (PPE) such as gloves and coveralls. **Table 1** should be used to document the total amount of oil recovered in a given spill response.

1.1 Oiled Media Sampling

All samples for analysis of chemical concentrations or calculation of oil must be collected according to established sampling protocols and sent for analysis using chain of custody forms. Upon request, the responsible party will provide a copy of the material safety data sheet (MSDS) for the hydrocarbon product released for all sampling exercises. Proper PPE, Level D minimum, will be used at all times during sampling. Sampling guidelines are presented in a separate document entitled *The Spill Response Sampling Plan*.

1.2 Estimates of Recovered Oil and Oily Water

During spill activities, a qualified third party contractor will be retained to record the data needed to estimate total oil recovery. Oil-containing media generated and estimates of the amount of recovered oil include free liquids recovered from surface waters (oil and water mixture) and oily water. Various containers may be used to collect and store recovered oily water containing recovered liquid hydrocarbons.

Free liquids will be measured according to the following procedure:

- Liquid will be removed from the water by pumping into ballast tanks, fractionation or other storage tanks on-shore.

- The liquids will be allowed to sit for a minimum of 30 minutes to three hours to allow separation into the two fractions (water and oil).

- The still liquid will be gauged to determine the total depth of liquid, the thickness of the water layer, and the thickness of the oil layer. Gauging will be done with a ruler or tape measure and water finding paste or similar product. Measurements will be made to the nearest quarter inch. Where possible in clean oil/water interfaces, API tank gauging methods (e.g., a reel and water paste) will be used in conjunction with engineering data such (e.g., strapping tables) to determine the oil levels and volumes in the container. When practical, multiple tank gauges will be conducted, with the results averaged for final calculations. For pure water or oil/water emulsions, multiple samples will be taken and analyzed for total petroleum hydrocarbon content. The averaged analytical results, coupled with engineering data, will be used to determine the oil content of the liquid.
- Using the height of each layer of liquid and the surface area of the frac tank, the volume of each liquid will be calculated using the formula: **1 cu. ft. = 7.48 gal**. Calculated values will be reported on the summary.

- After measurement and unified command approval, the recovered oil/water will be managed in accordance with the methods selected for the spill event, typically to an approved reclaimer/recycler.

A qualified contractor will collect a representative sample from each hold or container of recovered oil according to established sampling protocol for each vessel arriving at the facility intending to offload recovered spill material. Each sample will be submitted for a bottom sediment and water (BS&W) analysis. From the result, subtract percent solids and water to yield the total estimated percent oil.

Equation 1

(% oil from BS&W) (hold/container volume in gallons) = oil volume (gallons)

This information should be included in **Table 1**. At hour 33 after the spill occurs, a qualified contractor will initiate collecting representative samples from all containers in the field until hour 36, in accordance with established sampling protocol. At hour 36, all sampling ends and all collected samples will be submitted for BS&W analysis as per above paragraph. This process is repeated for longer spill requiring longer response periods.

1.3 Estimates of Recovered Oil from Booms/Swipes/Absorbents and PPE

The oil in booms, swipes and absorbents may be estimated separately from the oily debris and PPE. All oily material is typically collected and placed into heavy-duty garbage bags. The garbage bags are then placed into a lined container, such as a roll off container, for transport to a waste handling and processing facility. It is assumed that the bags of oily material will not have any free liquid, as characterized by the type of spilled oil.

Manufacturers' estimates for the amount of oil on swipes/absorbents can be determined by assuming half the recovered absorbents' weight may be attributed to oil loading. The oiled booms/swipes/absorbents need to be weighed. Calculation can then be made as follows to calculate the volume of the oil in gallons:

Equation 2

(absorbent weight in lbs) (50%) (0.018 ft^3/lb oil) (7.48 gal/ft^3) = oil volume (gallons)

Oil collected from sorbent pads will be estimated by multiplying the known absorbency of the pads (gallons per pad) by the number of pads. Since the sorbent pads have, on average, been saturated to approximately 50 percent, this value will be divided by two.

Equation 3

(pad absorbency in gallons) (# of pads) (50%) = oil volume (gallons)

The procedure for determining the amount of liquid hydrocarbons on oily material will be as follows:

(a) Visually check all garbage bags to make a determination of the contents.

(b) Sort the garbage bags by waste type (tar balls, absorbent pads, etc.), as determined by the majority of the contents of the garbage bag into separate roll-off containers.

(c) For each waste type, use the following guidelines for collecting a representative sample:

- Mark off a 4-foot square grid pattern in each roll-off.
- Within each grid, collect a grab sample from a garbage bag at three different layers (top, middle, and bottom).
- Combine the individual grid samples into one composite sample.
- Collect three 16-ounce samples from the composite sample. Submit one for analysis and keep two for retains.

(d) Analyze each sample for total hydrocarbon content using a third party analytical laboratory facility. The samples will be analyzed for total petroleum hydrocarbons (TPH) using the specific method the state regulatory agency recommends to characterize TPH.

(e) For each waste type, weigh the garbage bags of oily material to obtain a gross weight.

(f) Determine the actual weight of the recovered oil in the material by multiplying the weight of the oily material by the hydrocarbon content result of the composite sample. Determine the oil volume by dividing the actual weight by the specific gravity of the spilled oil. The information should be included in **Table 1**.

Equation 4

$$\frac{\text{(weight of recovered oily material [kg]) x (TPH concentration [mg/kg]) x (0.0022lb/kg)}}{\text{(specific gravity of petroleum material spill)}} = \text{gallons of oil}$$

1.4 Estimates of Recovered Oil from Decontamination Water

Decontamination water will be collected on-site and the total volume will be recorded. The amount of liquid in each container will be determined by using engineering data available on the container such as strapping tables or construction drawings, by actual field measurements, or by weighing the containers. Representative composite samples of the wash water should be collected and analyzed for total petroleum hydrocarbons (TPH) using the specific method the state regulatory agency recommends to characterize TPH. The amount of recovered oil contained in the decontamination water will be estimated by using the average total petroleum hydrocarbon (as measured by Environmental Protection Agency [EPA] Method 418.1) analytical results from analysis of representative composite samples collected. The estimate of oil recovered in decontamination waters will not account for variables such as evaporation or operational losses. The average TPH will be converted into total gallons of oil by the following equation:

Equation 5

(TPH mg/L) x (decon volume gal) x (1x10^{-6} kg/mg) x (8.34 lbs/gal) x (0.018 ft^3/lb oil) x (7.48 gal/ft^3) = total gallons of oil recovered

1.5 Estimates of Recovered Oil from Contaminated Soil

Stockpiled contaminated soil will be cross-sectioned by on-site survey personnel and the total volume in cubic yards will be recorded. Representative samples of the stockpiled soil should be collected and analyzed for TPH. The amount of recovered oil contained in contaminated soil will be estimated by using the average TPH analytical results. The estimate of oil recovered in soil will not account for variables such as soil moisture or losses due to volatilization so the estimate will be conservative. The average TPH will be converted into gallons of oil by the following equation:

Equation 6

(TPH mg/kg) x (Volume) x (1-COARSE) x (1x10^{-6} kg/mg) x (125 lbs/ft^3 soil) x (27 ft^3/yd^3) x (0.018 ft^3/lb oil) x (7.48 gal/ft^3) = gallons of oil

Where:

TPH =	Unweighted mean of TPH results (including duplicate) to date in mg/kg
Volume =	Volume of recovered contaminated soil in yd^3
COARSE =	Discount for coarse material >2 inches (default estimated at 20 percent or 0.2 for the formula)

1.6 Compilation of Recovered Oil Estimates and Reporting

The total estimated amount of liquid oil recovered, oil recovered in contaminated soil and in sorbent pads/booms, and oil recovered with decontamination water will be combined into an overall oil recovery estimate. This estimate will be calculated and/or measured from recovered oil skimmings and recovered oily materials. The estimate of oil recovered is not an estimated of spill size. An estimate of spill size will not be possible until the complete extent of surface and/or subsurface contamination has been determined at a later date.

A report must be prepared containing all calculations of the total oil recovered, including free liquid and oil contained in contaminated soils. **Table 1**, completed with pertinent information from this spill, should be included in the report. The report will contain estimated volume of contaminated soil recovered, conversion factors for estimating the amount of oil in the contaminated soil, estimated volume of oil recovered in sorbent pads, and total estimate of total oil recovered.

Table 1 – Recovered Oil Summary

EVENT NAME: ______________________

Source/Media Of Material	Type of Material	Amount Collected	Material Discarded	Amount Of Material Discarded	Recovered Oil Volume
Free Liquid Vac Truck 1					
Free Liquid Vac Truck 2					
Free Liquid Vac Truck 3					
Free Liquid Frac Tank 1					
Free Liquid Frac Tank 2					
Free Liquid Frac Tank 3					
Free Liquid Barge 1					
Free Liquid Barge 2					
Free Liquid Other (tote tanks, drums, etc.)					
Free Liquid Other (tote tanks, drums, etc.)					
Absorbent Booms					
Absorbent Booms					
Absorbent Booms					
Absorbent Pads					
Absorbent Pads					
Absorbent Pads					

Table 1 – Recovered Oil Summary

EVENT NAME: ______________________

Source/Media of Material	Type of Material	Amount Collected	Material Discarded	Amount of Material Discarded	Recovered Oil Volume
Sand/Sediment/Soil					
Sand/Sediment/Soil					
Personal Protective Equipment					
Garbage Bags Waste Storage Area 1					
Equipment Decontamination Water Decon Area 1					
Equipment Decontamination Water Decon Area 2					
Personnel Decontamination Water Decon Area 1					
Personnel Decontamination Water Decon Area 2					
Personnel Decontamination Water Decon Area 3					
Other					
Other					
Other					
TOTAL					

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6.0 TSVEDT SENSITIVE AREAS/RESPONSE TACTICS

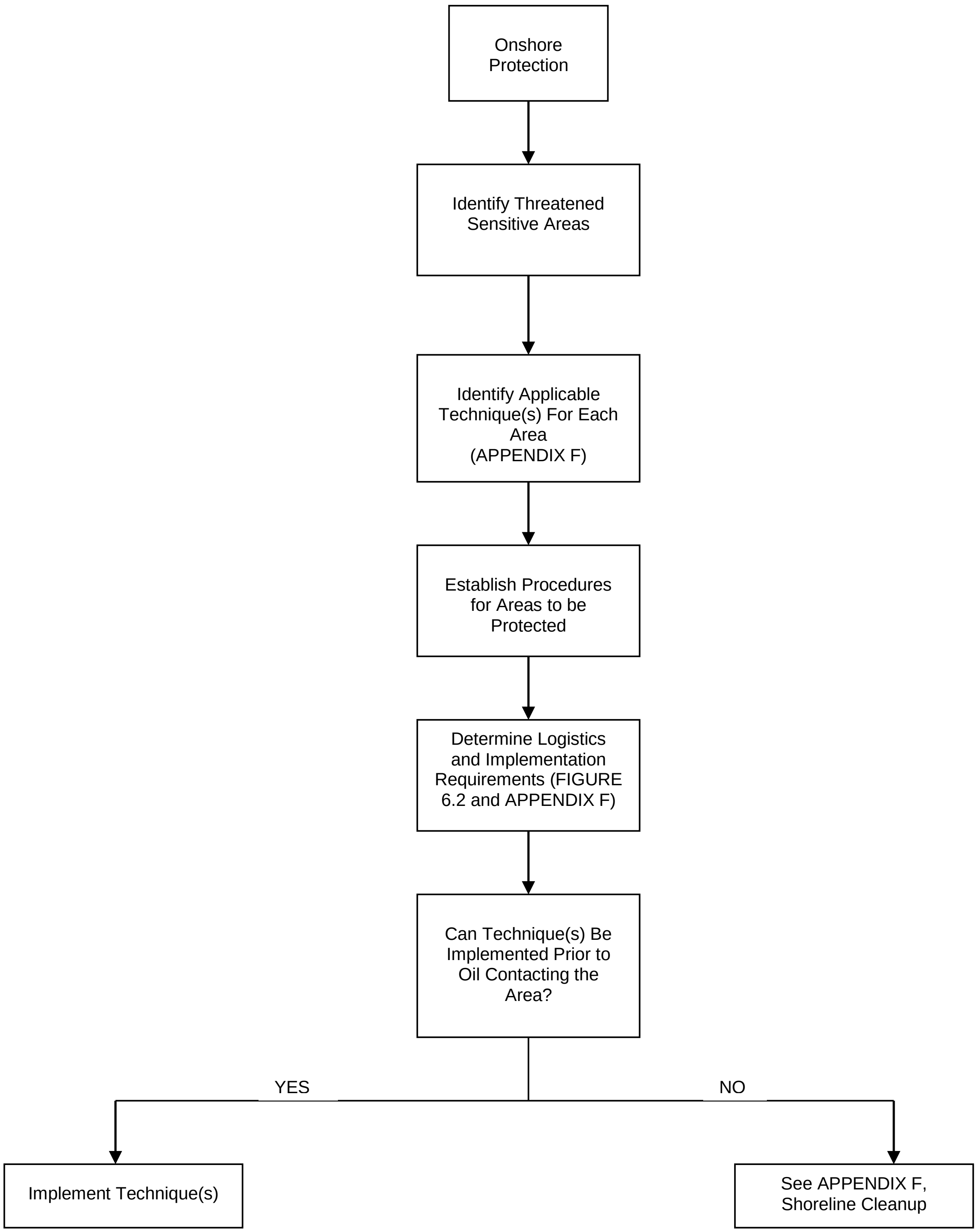
6.1 Introduction

- Sensitive resources that may be impacted by a spill must be identified.
- Protection strategies and priorities for allocating response resources must be identified.
- **Figure 6.1** presents an implementation sequence for protection of sensitive areas.
- This section describes different ecologically and culturally/economically sensitive resources which may be impacted by a spill from this Facility. These sensitivities are identified in the Northwest Area Committee Geographic Response Plans (GRPs), specifically the Lower Colombia River GRP.
- Methods for protecting these sensitive resources are also described in **Appendix F** and in the Northwest ACP.

6.2 Types of Sensitive Resources

- Key resources requiring protection from oil spills include fish and wildlife species, sensitive habitats, and recreationally, culturally, and economically important areas.
- Sensitive species may include shore birds and other water fowl, seals and other marine mammals, shellfish, and commercially important finfish.
- Sensitive habitats range from protected bays with marshes and tidal flats to open coast areas used as marine mammal or bird breeding sites.
- Areas of more direct importance to humans include native lands, waterfront parks and recreational areas, as well as harbors and anchorages.
- These sensitive resources are discussed below and in **Figure 6.2** with a presentation of NOAA’s Environmental Sensitivity Index (ESI) classification scheme.

Figure 6.1 – Sensitive Area Protection Implementation Sequence



6.2.1 Key Sensitive Resources

Upstream from the facility, there are minor shoreline environmental sensitivities, as well as shorebird habitat, sensitive marshes, and critical wetland habitat. Downstream from the facility, key sensitive resources include Bachelor Island Slough, the mouth of the Willamette River, Sauvie Island, and Multnomah Channel. Bachelor Island Slough is a great blue heron spring nesting location, waterfowl nesting area, and sandhill crane wintering spot.

The 15-mile segment of the Columbia River downstream from the TSVEDT dock is a critical wetland habitat. The mouth of the Willamette River, Sauvie Island, and Multnomah Channel are home to waterfowl, shorebirds, cranes and egrets. These areas also provide winter feeding grounds for eagles and a fish entry point. The Multnomah Channel is a critical sensitive area.

Another critical wetland area is the flushing channel to Lake Vancouver. Entry of any oils into the lake could affect several waterfowl species.

6.2.2 General Sensitive Resources

For shoreline areas that are not associated with a particular sensitivity, a general sensitivity ranking system known as the ESI has been adopted by NOAA and can be used for prioritization. The ESI system ranks various shoreline types in order of their increasing potential for long-term persistence and biological damage (i.e. an ESI ranking of 2 has a higher overall sensitivity than a ranking of 1). A summary of the shoreline types and associated rankings in provided in **Figure 6.2**.

Protection strategies should also consider the impact of oil on the general intertidal biological community. The level of impact is often dependent on the type of shoreline as different shoreline/substrate types support different intertidal communities. Shore types affect oil deposition within the intertidal area as well as oil persistence. Description of the most common types of shorelines, their associated biological communities, and the potential impacts of oil spills are provided in **Appendix F**. Shoreline types indicative of the Lower Colombia River area may be found in the Northwest ACP.

Figure 6.2 – ESI Shoreline Types and Rankings

ESI Ranking	Shoreline Type	Persistence Potential	Comments
1	Exposed Rocky Headlands/Cliffs/Seawalls/ Bulkheads/Pilings	Low	Wave-induced cleansing generally removes oil in several weeks.
2	Exposed Wave-Cut Rock Platforms	Low	Wave-induced cleansing generally removes oil in several weeks.
3	Exposed Fine-Grained Sand Beaches	Low	Penetration is usually minimal and wave-induced erosion can expedite oil removal.
4	Exposed Coarse-Grained Sand Beaches	Moderate	Penetration is usually moderate and oil may be retained for months.
5	Exposed Mixed Sand/Gravel Beaches	Low	Most oil naturally removed in several months.
6	Sheltered Sand Beaches (Coarse or Fine)	High	Oil can persist for years.
7	Exposed Gravel/Boulder Beaches	High	Significant penetration can result in long-term oil persistence.
8	Sheltered Rocky Shores and Rip-Rap	High	Oil may persist for many years.
9	Sheltered Tidal Flats	Moderate	Oil may persist for a significant period of time.
10	Marshes	Very High	Oil may persist for several years.

6.3 Area Description

The TSVEDT Facility is located in the Port of Vancouver, directly adjacent to other industrial facilities and within approximately one and a half miles of residential neighborhoods. The port is zoned as a heavy industrial area.

The Facility receives crude oil by rail, stores it on site in storage tanks, then pumped through pipelines to the terminal where it is loaded onto marine vessels for shipment. The terrain directly adjacent to the terminal is relatively flat with undefined drainage patterns. The dock is located on the Columbia River, an important conduit for ocean-going tank, freight, and passenger vessels that move a variety of products up and downstream.

Downstream areas from the terminal are heavily populated and industrialized. Recreational boating and fishing are common activities throughout the Columbia River system, and annual salmon migrations occur in the river waters.

Flight restriction zones exist in the area to protect sensitive wildlife species. Additional information about the natural resources in the Lower Columbia River area are located in the Northwest ACP.

6.3.1 Tide and Current Considerations

The river currents in the Willamette and Columbia Rivers will be a deciding factor when planning for oil spill containment and cleanup operations. For planning purposes, the average current in the Columbia River is 2 knots; however, current velocity in the main channel of the lower Columbia and Willamette Rivers typically varies from 1 to 6 knots. In upper segments of the lower Columbia, currents have been recorded as high as 7 knots during seasonal floods. Current flow in the sloughs and back channels are generally much less than the main channels. This velocity is highly variable and is heavily influenced by seasonal runoff levels, the strength of the tidal current, and the volume of water released by the dams.

Tidal influence is a consideration for most of the lower Columbia and Willamette Rivers. The diurnal rise and fall of the tides create a tidal current which, during low river flow conditions, can create a reversal in the downstream current. It will then increase significantly on an outgoing tide, especially when coupled with a heavy spring run-off. During high river flows, current reversals by tidal influences are limited to the Columbia River estuary.

Salt water intrusion at the mouth of the Columbia River and the estuary has an effect on water movement, usually by creating a two-layered circulation pattern. Salt water will flow inland near the bottom of the river and estuary while the river continues to flow downstream at the top layer. The extent of salt water intrusion is largely influenced by the rate and volume of river discharge, tides, and water depth.

Offshore or coastal currents along the Oregon/Washington Coast may also affect oil movement if it travels to the river mouth and is discharged into the ocean. Generally, the surface currents drift southward along the Oregon Coast in the summer and are pushed northward along the coast of Washington during the winter. However, the prevailing winds, tidal forces, and the local topography will continue to affect the surface movement of water and oil, creating a complex and constantly changing pattern of movement.

The Multnomah Channel runs from the Willamette River to the Columbia River on the southwest side of Sauvie Island near Portland. During the spring and early summer when flow rates down the Columbia River are high, the water level of the Columbia River may be higher than the level in the Willamette River at the junction where both rivers meet. When this occurs, part of the Columbia River will actually flow up the Willamette River until it reaches the Multnomah Channel where the combined flow of both rivers will be directed downstream through the Multnomah Channel until it converges again with the mainstream of the Columbia River.

At the junction of the Willamette River and Multnomah Channel, the converging currents create a slack water which tends to disperse the pollutants to both sides of the Willamette River. Areas which will be affected by the Multnomah Channel effect during an oil spill are Kelly Point Park, Columbia Slough, numerous marines and houseboat moorages, and log rafts along Multnomah Channel.

6.3.2 Climate

Local weather is determined primarily by the region's topography, prevailing wind direction, and proximity to the Pacific Ocean. Maritime air dominates the area creating a climate with mild temperatures, heavy precipitation from October to May, and dry summers. The mean annual temperature is approximately 51 degrees F. Typical temperatures for the region are:

Summer Maximum	70 - 80 degrees F
Summer Minimum	45 - 55 degrees F
Winter Maximum	35 - 45 degrees F
Winter Minimum	10 - 20 degrees F

Annual precipitation around the lower Columbia River is characterized by an intermittent dry season in the summer followed by a wet winter season. Precipitation increases inland with the rise in elevation from the Coast Range then decreases in the valley between the coast range and the Cascade Mountain Range. Precipitation increases again going up the western slopes of the Cascade Mountains. Average annual rainfall in the Vancouver-Portland metropolitan area is approximately 42 inches.

Winds along the coast at the mouth of the Columbia River are steady onshore winds which shift from a summer northwesterly direction to a southwesterly direction in the winter. Further inland along the Columbia River, the summer winds are typically from the northwest with some diurnal variations in direction. During the winter months, the prevailing flow is from the east as the colder air drains out of the inland basin of eastern Washington. Wind with steady velocities 15-20 miles per hour are not uncommon. Maximum wind velocities have been recorded at 50-60 miles per hour.

A summary of the local climatic and hydrographic conditions are provided in **Figure 6.9**.

6.3.3 Birds

Marine birds and shorebirds are the primary wildlife concern in the area. Many species are either residents or seasonal visitors of this area. Seabird and waterfowl nesting areas are scattered throughout the region, particularly concentrated in marsh and wetland areas. Bald eagles nest within the area and feed at the mouth of the Willamette during the winter months. These birds are listed as Threatened and are therefore of particular concern.

In addition to supporting a wide variety of resident birds, the Lower Columbia River is an important waterfowl wintering area on the Pacific flyway for waterfowl.

Most of the migrating bird species follow the coast during their southward movement; many species winter around local bays, while others stop briefly to rest and feed before continuing their migration to Southern California, Mexico, Central America or South America. During fall and spring migration, as well as winter, large populations of shorebirds and waterfowl inhabit nearshore areas in the vicinity of the lower Columbia and adjacent coastal areas. Consequently, in the event of a spill, certain protective measures may be required to minimize the impact on waterfowl. During a spill response, initial efforts should attempt to repel birds from the site with equipment such as bird canons. Depending on the species involved some repelling devices will successfully deter individuals from the affected area, while others will be ineffective.

Subsequent efforts can be reorganized on the basis of these results. The degree of effectiveness decreases as birds become accustomed to the sound system; this process is referred to as habitation. Activities such as people, boats, and machinery usually are the most effective deterrents.

6.3.4 Marine Mammals

Common species of whales and dolphins found in the Coastal Oregon and Washington area include gray whale, orca, Dall's porpoise and harbor porpoise. In addition, the harbor seal is a permanent resident of local coastal areas. Three additional species occur as regular seasonal residents or migrants: the Steller sea lion, California sea lion, and northern elephant seal. The Columbia River provides suitable foraging habitat for Steller sea lion. This region also supports a large population of river otters.

6.3.5 Priority Habitats and Species

The Washington Department of Fish and Wildlife (WDFW) publishes a list of Priority Habitats and Species (PHS) and Species of Concern (SOC) to catalog the habitats and species considered to be priorities for conservation and management.

Priority species include endangered, threatened, sensitive, and candidate species; animal aggregations considered vulnerable; and those species of recreational, commercial, or tribal importance that are vulnerable. Priority habitats are those habitat types or elements with unique or significant value to a diverse assemblage of species. These species and habitats should be given special consideration and protection during a spill response, to minimize impacts to these critical areas and organisms.

Updated information on PHS data is available through the Department of Fish and Wildlife.

6.3.6 Inlets, Intakes, Harbors, and Marinas

Inlets, intakes, harbors and marinas are inhabited by a variety of fish, invertebrates, and waterfowl that would be at risk if an oil spill occurs near any of these facilities. Marinas have a great potential for public exposure to hazards and damage claims and should be boomed to exclude oil. Intakes for commercial, industrial and municipal water usage areas are subject to impact due to safety hazards, loss of use and damage claims. Protective measures could include exclusionary booming to prevent or exclude oil from entering these areas. Many of the entrances or channels have tidal currents exceeding 1 knot or surf breaking in the opening.

In these cases, booms should be deployed landward from the entrance in quiescent areas. Booms should be placed at an angle to the current to guide oil to an area where it can be recovered.

The deployment of a second boom behind the first may be desirable to contain any oil that escaped under the primary boom.

Publicly accessible recreation areas generally have good water/shoreline access for logistical purposes.

6.4 Vulnerability Analysis

A vulnerability analysis was performed to address the potential effects of an oil spill on the following areas.

- Water intakes
- Schools
- Medical facilities
- Residential areas
- Businesses
- Wetlands or other sensitive environments
- Fish and wildlife
- Lake and streams
- Endangered flora and fauna
- Recreational areas
- Transportation routes (air, land, water)
- Utilities
- Other applicable areas

Vulnerabilities located in the area were identified and are described below.

6.4.1 Water Intakes

A discharge from the TSVEDT would not threaten a public drinking water intake. The closest downstream public drinking water intake from the Columbia River is located in Rainier, Oregon.

6.4.2 Schools, Medical Facilities, Residential, and Business Areas

The Facility is located within one and a half miles of residential neighborhoods, however, a release from the facility would not likely travel in such a direction as to threaten a residential area.

The Facility is located in the Port of Vancouver in an area zoned for heavy industrial use. A release from the Facility would threaten adjacent businesses, which include other terminals and industrial uses.

The Clark County Jail Work Center is located between the elements of the Facility. The jail work center is a 224-bed minimum security setting facility. A release from the Facility may have the potential to impact the Jail Work Center.

There are several schools located within a 5-mile radius of the facility, however, a release would not likely travel in a direction to threaten any schools. There are no medical facilities within a vulnerable area.

6.4.3 Sensitive Environments and Wetlands

Willamette River

- Multnomah Channel/Sturgeon Lake – waterfowl, eagle winter feeding area, shorebirds, cranes, sensitive marshes
- Sauvie Island/Smith & Bybee Lakes – critical wetland area

Columbia River

- Caterpillar Island/Dairy Creek – wetland habitat and waterfowl concentrations
- Willow Bar Islands and Post Office Lake – wetland habitat
- Hathaway Lake– waterfowl
- Bachelor Island Slough – sandhill crane wintering, great blue heron spring nesting
- Shillapoo Wildlife Area
- Vancouver Lake Wildlife area
- Columbia River Wetland Mitigation Bank

In addition, two shoreside wetland complexes are located adjacent to or near Facility elements:

- Port of Vancouver Parcel 1A wetland mitigation site
- Port of Vancouver Parcel 2 wetland mitigation site

6.4.4 Economically Important Resources

Recreational and economically important areas in the lower Columbia River area, which may require special protection in the event of an oil spill include fishing areas, lakes and streams, and other recreational areas and marinas.

Marinas in the area include:

- Hayden Island
- Boat ramps and marinas upstream to the I-205 bridge on both sides of the river.
- Kadow’s Marina

Recreational areas include:

- Vancouver Lake and Shillapoo Wildlife areas
- Caterpillar Island
- Cedar Creek – Pigeon Springs
- Two Forks Access Point

Commercial Fishing areas include:

- Big Creek – Salmon
- Westport Slough/Clatskanie River Salmon
- Altoona-Salmon
- Germany Creek – Salmon

- Abernathy Creek – Salmon
- Globe/Tide Creeks – Salmon

Additional information, as well as protection and response strategies, are available in the Northwest ACP and through WDFW.

6.4.5 Endangered Flora and Fauna

The following federally listed endangered and threatened species are located in the vicinity of the facility and may be impacted by a release.

Endangered:

- Chinook salmon (Upper Columbia River spring run ESU)
- Steelhead (Upper Columbia River DPS)
- Short-tailed albatross
- Columbian white-tailed deer

Threatened:

- Aleutian Canada goose
- Marbled murrelet
- Western snowy plover
- Steller sea lion
- Bull trout
- Chinook salmon
- Steelhead
- Chum salmon
- Coho salmon
- Green sturgeon
- Pacific eulachon
- Torrey's peavine

The bald eagle is listed as a state sensitive species, a priority species, and a Species of Greatest Conservation Need by WDFW. The species was removed from the federal endangered species list in 2007. However, it remains under the protection of the federal Bald and Golden Eagle Protection Act of 1940 and the Migratory Bird Treaty Act.

6.4.6 Utilities

Various submerged pipelines, elevated power lines, and other utilities cross the Willamette and Columbia Rivers. These utilities are not expected to be impacted by a spill, but their presence may need to be considered during spill response.

6.4.7 Transportation Routes

The Willamette and Columbia Rivers are key shipping corridors. There are several automobile and rail transportation bridges that cross these rivers. The I-5 bridge and the

Columbia River rail bridge cross both rivers within a 5-mile radius of the facility and might be impacted by a spill.

6.5 Sensitive Area Protection

The information necessary to identify, prioritize, and protect sensitive areas is as follows:

- Implementation sequence for protection of sensitive areas
- Different ecologically and culturally/economically sensitive areas
- Various coastal marine habitats presented in order of their relative sensitivity to oil spills based on the ESI system used by NOAA
- Methods for protecting these sensitive resources
- Guidelines for selecting the appropriate protection methods for each resource
- Prioritization schemes for determining the order for protecting the resources
- Booming strategies for specific areas within the spill envelope of the evaluated spills

Figure 6.3 provides a list of proposed booming and collection strategies contained on the Northwest ACP for areas within the overall spill envelope for the Company. The information in the updated Lower Columbia River GRPs would be used to develop response priorities. The GRPs include the following:

- Site descriptions;
  - Resources of concern and seasonal concerns;
  - Suggested protection strategies, resources and collection points; and
  - Access to areas.

Section 6.8 contains the GRPs for the TSVEDT planning area.

Figure 6.3 – Environmental Response Map Index

4.2.1 Lower Columbia River Priority Tables

Map # 1 - Ilwaco	
Priority	**Strategy Number**
1	LCR-7.1
2	LCR-6.8
3	LCR-7.5
4	LCR-4.0
5	LCR-3.3
6	LCR-1.8
7	LCR-1.6

Map # 2 - Astoria	
Priority	**Strategy Number**
1	LCR-17.7
2	LCR-14.1
3	LCR-13.0
4	LCR-10.8
5	LCR-14.6
6	LCR-14.8
7	LCR-14.3
8	LCR-12.9
9	LCR-12.6
10	LCR-12.3

Map # 3 – Grays Bay	
Priority	**Strategy Number**
1	LCR-26.4
2	LCR-24.1
3	LCR-22.4
4	LCR-22.3
5	LCR-23.6
6	LCR-17.8
7	LCR-27.5
8	LCR-27.2
9	LCR-20.3
10	LCR-20.0
11	LCR-19.9
12	LCR-19.3

Map # 4 - Cathlamet	
Priority	**Strategy Number**
1	LCR-37.9
2	LCR-37.2
3	LCR-36.0
4	LCR-35.0
5	LCR-34.6
6	LCR-34.7
7	LCR-34.4
8	LCR-33.3
9	LCR-32.2
10	LCR-38.8
11	LCR-38.5

Map # 5 – Crims Island	
Priority	**Strategy Number**
1	LCR-55.5
2	LCR-54.4
3	LCR-55.9
4	LCR-55.7
5	LCR-54.2
6	LCR-53.9
7	LCR-49.1
8	LCR-48.1
9	LCR-55.6
10	LCR-55.4
11	LCR-48.8
12	LCR-48.6
13	LCR-49.4

Map # 6 – Longview	
Priority	**Strategy Number**
1	LCR-64.0
2	LCR-71.4
3	LCR-70.0
4	LCR-58.7
5	LCR-58.9
6	LCR-60.2

Figure 6.3 – Environmental Response Map Index (Continued)

4.2.1 Lower Columbia River Priority Tables

Map # 7 – Kalama	
Priority	**Strategy Number**
1	LCR-81.2
2	LCR-81.0
3	LCR-81.8
4	LCR-82.4
5	LCR-79.5
6	LCR-79.8
7	LCR-76.0
8	LCR-73.7

Map # 8 – St. Helens	
Priority	**Strategy Number**
1	LCR-94.3
2	LCR-92.3
3	LCR-91.0
4	LCR-87.6
5	LCR-94.5
6	LCR-87.3

Map # 9 – Portland	
Priority	**Strategy Number**
1	LCR-100.8
2	LCR-98.6
3	LCR-97.5
4	WR-0.9

Map # 11 – Government Island	
Priority	**Strategy Number**
1	LCR-114.8
2	LCR-113.3

Map # 12 – Camas	
Priority	**Strategy Number**
1	LCR-120.6
2	LCR-122.6
3	LCR-120.7
4	LCR-119.1

Map # 14 – Bonneville	
Priority	**Strategy Number**
1	LCR-142.8
2	LCR-141.4
3	LCR-137.0
4	LCR-143.1
5	LCR-142.4

6.6 Oiled Wildlife Care

In the event of a spill, wildlife may come into contact with oil especially on the surface of water or along shorelines. The numbers and types of animals affected will depend on a number of factors, such as size of the spill, weather, wind and currents, habitats affected, and time of year the spill occurs. Birds are the most likely wildlife to be affected during on-water spills, although aquatic or marine mammals may also be affected. Terrestrial mammals are more likely to be secondarily affected when they scavenge other animals that are stressed or have died.

Operations and Wildlife Branch personnel should refer to the Northwest Wildlife Response Plan and Policy, as found in Chapters 3000 and 9000 of the Northwest Area Contingency Plan (Northwest ACP), regarding wildlife response operations, which are incorporated into this plan by reference.

6.6.1 Notifications

Any observations of oiled wildlife made prior to the establishment of an ICS, will be reported to the Washington Emergency Management Division (800-258-5990).

Once an ICS has been established, all observations of oiled wildlife must be reported to the Operations Section, Wildlife Branch Director (or their designee) and to the Planning Section, Environmental Unit Leader (or their designee).

The Marine Spill Response Corporation (MSRC) will be notified when oiling of wildlife is eminent or has been reported. The Washington State regulatory planning requirement for wildlife rescue and rehabilitation will be met by MSRC who will be responsible, through contracts, for the operational setup and accommodations of oiled wildlife recovery and treatment.

Once an ICS has been established the U.S. Fish and Wildlife Service (USFWS) Response Coordinator in Lacey, Washington, will be contacted to initiate the process of obtaining spill-specific authorizations related to oiled wildlife activities (see Migratory Bird Treaty Act below). The main office phone number is 360-753-9440. A 24-hour pager number 360-971-6000 is available for after business hours and weekends.

Private oiled wildlife care contractors (listed below) will be notified as required depending on the number and types of species affected. These contractors have varying abilities to provide service and personnel during response activities.

- Focus Wildlife, 310-386-5965 or 800-578-3048, http://www.focuswildlife.net/
- International Bird Rescue Research Center, 503-338-7490 or 888-447-1743, http://www.ibrrc.org/index.htlnl
- Oiled Wildlife Care Network, 530-979-7561 or 800-645-1911 (oil spill) or 877-823-6926 (oiled animal), http://www.vetmed.ucdavis.edu/owcn/
- Progressive Animal Welfare Society (PAWS), 425-412-4040 or 425-787-2500 ext. 815, http://www.paws.org/find-rehab.html
- Tri-State Bird Rescue, 302-737-7241, http://www.tristatebird.org/

The following organizations have mobile wildlife rehabilitation trailers capable of being on site within 24 hours - as required under WAC 173-182-540 and may be contacted 24/7:

- Clean Rivers Cooperative (Portland, OR), 503-220-2040, http://www.cleanriverscooperative.com/
- Marine Spill Response Corporation, 800 645 7745 or 800 259 6772 (off hours), http://www.msrc.org/
- Washington Department of Fish and Wildlife (Olympia, WA), 360-534-8233 (pager) or 360-902-8124 (office number)

6.6.2 Permits

All oiled wildlife activities conducted during a spill response will be conducted in compliance with applicable state and federal regulations. The purpose of this section is to identify the state and federal permits required for activities related to the collection and care of affected wildlife.

Migratory Bird Treaty Act (Federal) – Oiled bird activities conducted during a spill response will be conducted in compliance with the Migratory Bird Permit requirement and spill specific authorizations. This act makes it illegal for anyone to take or possess any migratory bird except under the terms of a valid Migratory Bird Permit. As authorized by the Migratory Bird Treaty Act, USFWS issues Migratory Bird Permits to qualified applicants to recovery, temporarily possess, transport, and rehabilitate oiled migratory birds.

A rehabilitator must secure two separate *spill-specific* authorizations (in association with their Migratory Bird Rehabilitation Permit) in order to work with oiled birds during a response. The first authorization permits the rehabilitator (or their designee) to recover and rehabilitate oiled (live) birds during the specific event. The second authorization permits the rehabilitator (or their designee) to collect and store dead oiled birds. The purpose of this second authorization is to ensure that the dead birds are handled, documented, and stored as "evidence" for later use. Spill-specific authorizations for Western Washington may be requested from the USFWS Response Coordinator in Lacey. The main office phone number is 360-753-9440. A 24-hour pager number 360-971-6000 is available for after business hours and weekends.

Endangered Species Act (Federal) – Oiled animal activities conducted during a spill response will be conducted in compliance with the Endangered Species Act (ESA) requirements. A Migratory Bird Rehabilitation Permit (see above) authorizes the recovery, temporary possession, transport, and rehabilitation of oiled threatened and endangered species of migratory birds with no additional ESA permits required. In the event of an oil spill or hazardous substance release, the ESA must be considered in the development of federal response activities and actions during an oil spill response (Section 4314 of Northwest Area Contingency Plan).

As the spill response occurs, the FOSC must consult with the natural resource trustees as laid out in Section V.B of the *Inter-agency Memorandum of Agreement Regarding Oil Spill Planning and Response Activities Under the Federal Water Pollution Control Acts*

National Oil and Hazardous Substances Pollution Contingency Plan and the Endangered Species Act (ESA MOA). The Environmental Unit will address ESA Section 7 Consultation requirements, as outlined in the ESA MOA.

Marine Mammal Protection Act (Federal) – Oiled marine mammal activities conducted during a spill response will be conducted in compliance with the Marine Mammal Protection Act (MMPA). Under the MMPA (16 USC 1361-1407), federal, state and local government officials, or designees of the relevant Secretaries of the departments of the Interior and Commerce, may take marine mammals during the course of official response duties if such taking is for the protection or welfare of the mammal, the protection of public health and welfare, or the nonlethal removal of nuisance animals (16 USC 1379 Section 109(h)(1)).

Government contractors conducting officially authorized oiled wildlife spill response related activities and acting under the direct supervision of the Wildlife Branch Director are regarded as spill response employees and may take marine mammals *if the Wildlife Branch is activated* and if the Wildlife Branch Director is authorized pursuant to Section 109(h) of the MMPA and implementing regulations (USFWS, NOAA National Marine Fisheries Service, state wildlife agency, or is designated by the NOAA Regional Administrator under 16 USC 1382 Section 112(c)). "Take" is considered appropriate for the purposes of recovery and transport of marine mammals (live or dead) to a designated location, rehabilitation by an authorized facility, return to the wild, or for the collection of evidence.

If oiled wildlife spill response field personnel are contract employees of a nongovernment agency and not otherwise authorized pursuant to Section 109(h) or 112(c) of the MMPA, authorization to take oiled marine mammals during spill response activities must be obtained directly from the appropriate federal trustee (USFWS or NOAA National Marine Fisheries Service). Likewise, if the Wildlife Branch is not activated, authorization to take oiled marine mammals must be obtained directly from the appropriate federal trustee (USFWS or NOAA National Marine Fisheries Service) pursuant to 16 USC 1382 Section 112(c).

Washington State Rehabilitation Permit (Washington State) – Oiled animal operations and facilities used during a spill response will be in compliance with Washington State Rehabilitators Permit requirements (WAC 232-12-175). WAC 232-12-175 states that it shall be unlawful for any person to possess wildlife for the purpose of rehabilitation unless they have a valid wildlife rehabilitation permit or they are working under the supervision of a person who has a valid wildlife rehabilitation permit. The permit is valid so long as the information in the permit remains current, the permit holder continues to meet the conditions and requirements of the permit, and provisions of the rule are followed.

6.6.3 Wildlife Branch

The Wildlife Branch is contained within the Operations Section of the ICS and its organizational chart may be found within the Northwest ACP.

It is the policy of the Northwest Area Committee (NWAC) that representatives of USFWS will assume the positions of Director and Deputy Director of the Wildlife Branch. WDFW representatives will assume these positions if a USFWS representative is not available, or if designated by a USFWS representative. Appointment of other parties, including Responsible Parties representatives, to one or both of these positions may be made by a USFWS representative or their designee at any time during an incident, and for such periods of time as may be deemed appropriate.

Unless otherwise indicated by USFWS, the Wildlife Branch Director position will be delegated to WDFW for spills that occur in Washington State. Delegation of the position may change during a spill of extended duration. The Wildlife Branch Director is responsible for overseeing all activities related to oiled wildlife recovery and rehabilitation during a response.

Currently, private wildlife contractors are typically used to provide the care for affected wildlife. *All* persons who will serve as part of the rehabilitation or field crews, however, must be trained in accordance with the site-safety plan established for the incident and should be familiar with generally accepted published guidelines for collecting, cleaning, and rehabilitating oiled birds.

6.6.4 Oiled Wildlife Care Procedures

Federal (USFWS) policy requires that spill responders comply with the care standards outlined in *Best Practices for Migratory Bird Care During Oil Spill Response,* which is incorporated by reference as a requirement of the Northwest ACP. Additional information may be obtained in *Protocols for the Care of Oil-Affected Birds.*

- *Best Practices for Migratory Bird Care During Oil Spill Response.* U.S. Fish and Wildlife Service. 2002
- *Protocols for the Care of Oil-Affected Birds*. Oiled Wildlife Care Network (UC Davis). 2000.

6.6.5 Oiled Wildlife Facilities, Equipment, and Personnel

The Northwest ACP has established four response levels with regards to oiled bird operations: Level 4 (up to 15 animals), Level 3 (up to 100 animals), Level 2 (up to 500 animals), and Level 1 (more than 500 animals). The equipment and facility infrastructure for oiled wildlife operations will be made available as needed during a spill response as established by Ecology in WAC 173-182-540.

Specific oiled bird rehabilitation facility requirements associated with space, water, and ventilation, have been established by WDFW in WAC 232-12-275. Current planning standards require that the equipment and facility infrastructure for Level 4 and Level 3 responses be capable of being on site within 24 hours of spill awareness. The space, equipment, and personnel needs identified for these response levels are listed in the table at the end of this section.

One or more of the regional Mobile Rehabilitation Units (MRUs) currently under development by the Mobile Facility Workgroup for use by regional PRCs will be used to meet the space and equipment requirements listed in the table. The personnel requirements listed in the table will be met through the use of the oiled wildlife care contractors listed in Section 6.6.1.

In the event of a spill originating from the Facility resulting in impacted wildlife, one or more MRUs (as necessary) will likely be established at a designated staging area. Additional support and staging space will be made available as necessary. This may include buildings, trailers, or tents.

Electrical power will be provided by one or more stand-alone diesel powered generators. Fresh water will be supplied through hoses connected to a water source inside the Bioremediation Building or the nearby fire hydrant.

Wastewater generated by the cleaning operations will likely contain surfactants and oils and may not be suitable for discharge into the on-site sanitary sewer system. Therefore, wastewater will be stored in temporary storage tanks delivered to the site. Based upon the results of sampling and analysis, the wastewater will be disposed of on site or transported to an off-site disposal facility. This determination will be made by the Disposal Group Supervisor and approved by Ecology. The task on the next page shows MRU operational requirements. The table on the next page shows MRU operational requirements.

Infrastructure/Personnel	15 Birds (NWACP Level 4)	100 Birds (NWACP Level 3)
Ventilated and heated interior space (total sqft)	800	2400
Interior personnel support space (total sqft) [1]	400	2500
Exterior space for pools (total sqft)[2]	300	1800
Search and collection space (total sqft)	280	280
Number of pens (combined pre-wash and drying, 4'x8'each)	5	10
Number of wash/rinse stations	1	2
Number of 12' diameter pools	1	6
Maximum daily volume of conditioned fresh water (wash stations) required (gallons)[3]	900	6,000
Maximum daily volume of unconditioned fresh water (pools) required (gallons) [4]	14,450	86,700
Number of management level personnel	4[5]	9[6]

1 This space is required for administrative activities, volunteer/workforce support and coordination, and laundry services associated with a response but is not required to be on the same site as the rehabilitation facility.

2 This space required for the pools and their associated surrounding workspace (at least 4')

3 Conditioned water refers to water that has been adjusted to a hardness of 2-3 grains (if needed) and is maintained at a temperature of 104°F - 106°F, with a pressure 40-60 psi, and a flow rate of 4 gallons/minute.

4 Each pool is required to have an exchange rate of 4.25x per day to eliminate oil and waste products. The volumes of water listed assume that no filtration and recirculation systems will be used. It is anticipated that required water volumes could be decreased substantially (>90%) if appropriate filtration, oil-separation, and recirculation systems were utilized.

5 One each, Wildlife Branch Director, Wildlife Veterinarian, Bird Recovery and Transportation Unit leader, Rehabilitation Unit leader. Additional Management Functions to be performed by these staff: Deputy Wildlife Branch Director, Bird Recovery and Rehabilitation Group Supervisor, Wildlife Reconnaissance Group Supervisor, Hazing Unit leader, and Volunteer Unit leader.

6 One each, Wildlife Branch Director, Deputy Wildlife Branch Director, Wildlife Veterinarian, Bird Recovery and Rehabilitation Group Supervisor, Wildlife Reconnaissance Group Supervisor, Volunteer Unit leader, Hazing Unit leader, Bird Recovery and Transportation Unit Leader, and Bird Rehabilitation Unit leader.

Figure 6.4 – Data Sheet for Collection of Live Contaminated Wildlife

Date: ____________________ Oil Spill Incident: ____________________________

Rehabilitation Identification Number: ____

Specific Capture Location: ____

Specimen Common Name: ____

Species Found: ____

Was Specimen Obviously Oiled? Yes ___________ No _______

Extent of Oiling (check one):

___ Completely covered ____ Discrete spots

___ Ventral or dorsal surface only ____ No obvious oil

Date of Arrival at Treatment Center: ____

Date Cleaned: _________________________ Date Released: __________________

Location of Release: ____________________ Date Died: ______________________

Collected By:

Printed Name: ____

Signature: _____________________________ Date: __________________________

Telephone #: ____

Affiliation: ____

Address: ____

Relinquished To:

Printed Name: ____

Signature: _____________________________ Date: __________________________

Telephone #: ____

Affiliation: ____

Address: ____

Figure 6.5 – Data Sheet for Collection of Dead Contaminated Wildlife

Date: ______________________________ Oil Spill Incident: ________________________________

Specific Capture Location: ____

Specimen Common Name: ____

Species Found: ____

Was Specimen Obviously Oiled? Yes _____________ No ________

Was Specimen Scavenged? Yes ________________ No ________

Comments: ____
____
____
____
____
____
____

Collected By:

Printed Name: ____
Signature: ________________________________ Date: ______________________________
Telephone #: ____
Affiliation: ____
Address: ____

Relinquished To:

Printed Name: ____
Signature: ________________________________ Date: ______________________________
Telephone #: ____
Affiliation: ____
Address: ____

6.7 Protection/Response Strategies

The current GRP for the lower Columbia River will be used for location of sensitive areas and response strategies. Those strategies to protect and respond to sensitive areas immediately around the Terminal are provided in the following locations:

- **Figure 6.3** identifies the GRP booming strategies included in this plan and summarizes the length of boom required to carry out each strategy.
- **Figure 6.6** contains proposed booming and collection strategies for the Columbia River in areas near the terminal.
- **Figure 6.7** identifies locations along the Columbia and Willamette Rivers, near the facility, where boom has been pre-staged to support the GRP strategies in those locations.

6.8 GROUND WATER SPILLS

Immediate assessment of ground water spills is addressed in the terminal's Spill Prevention Control and Countermeasure Plan.

6.8.1 Procedure for Reporting Spills to Ground

In accordance with WAC 173-303-145 the following steps shall be strictly adhered to in the event of a light hydrocarbon spill or release into the environment. Per Washington Dangerous Waste Regulation, light hydrocarbons are those with a closed cup flashpoint of less than 140 degrees Fahrenheit. As such, the designation "light hydrocarbon" includes most crude oils along withal products and intermediates with volatility equal or greater than kerosene.

In the event that 10-100 barrels of regulated material comes into direct contact with the soil and there is reason to believe that liquid phase oil will be left in contact with soils for longer than 8 hours, and/or that solids saturated by the spilled material will not be removed within 5 working days, notifications shall be made to the Washington Department of Emergency Management and the Vancouver LEPC. Contact information for WDEM and the VLEPC is located in **Section 3**, page 3-2. For spills of less than 10 barrels of regulated material directly to the soil, a courtesy call will be placed to the Washington Department of Emergency Management (WDEM). The Port of Vancouver is to be notified in the event of any spill to ground.

In the event that more than 100 barrels of regulated material comes into contact with the soil, the WDEM will be contacted in all circumstances.

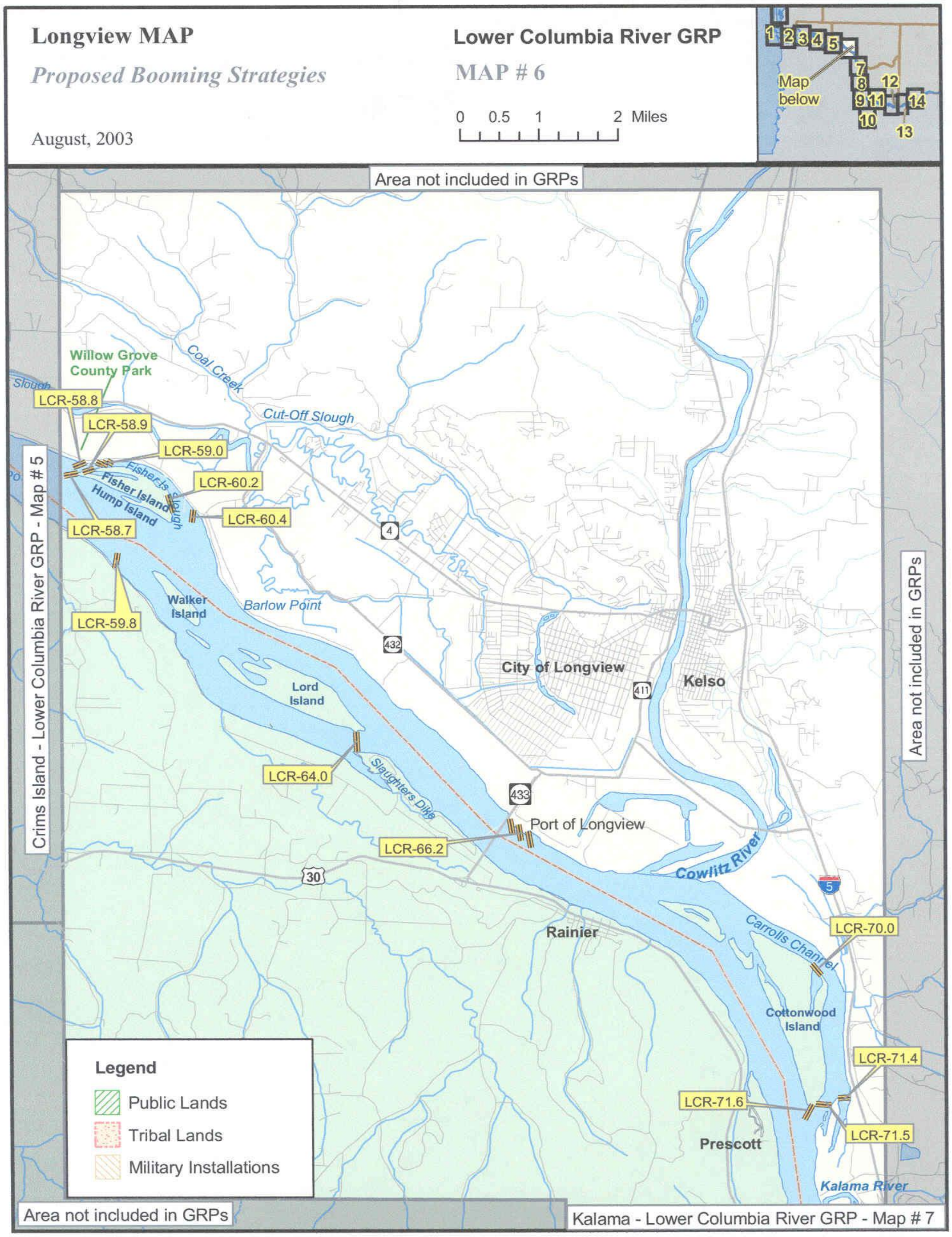
Contact information for the WDEM is located in **Section 3**, **Figure 3.3**, "Notification Summary and Documentation Form."

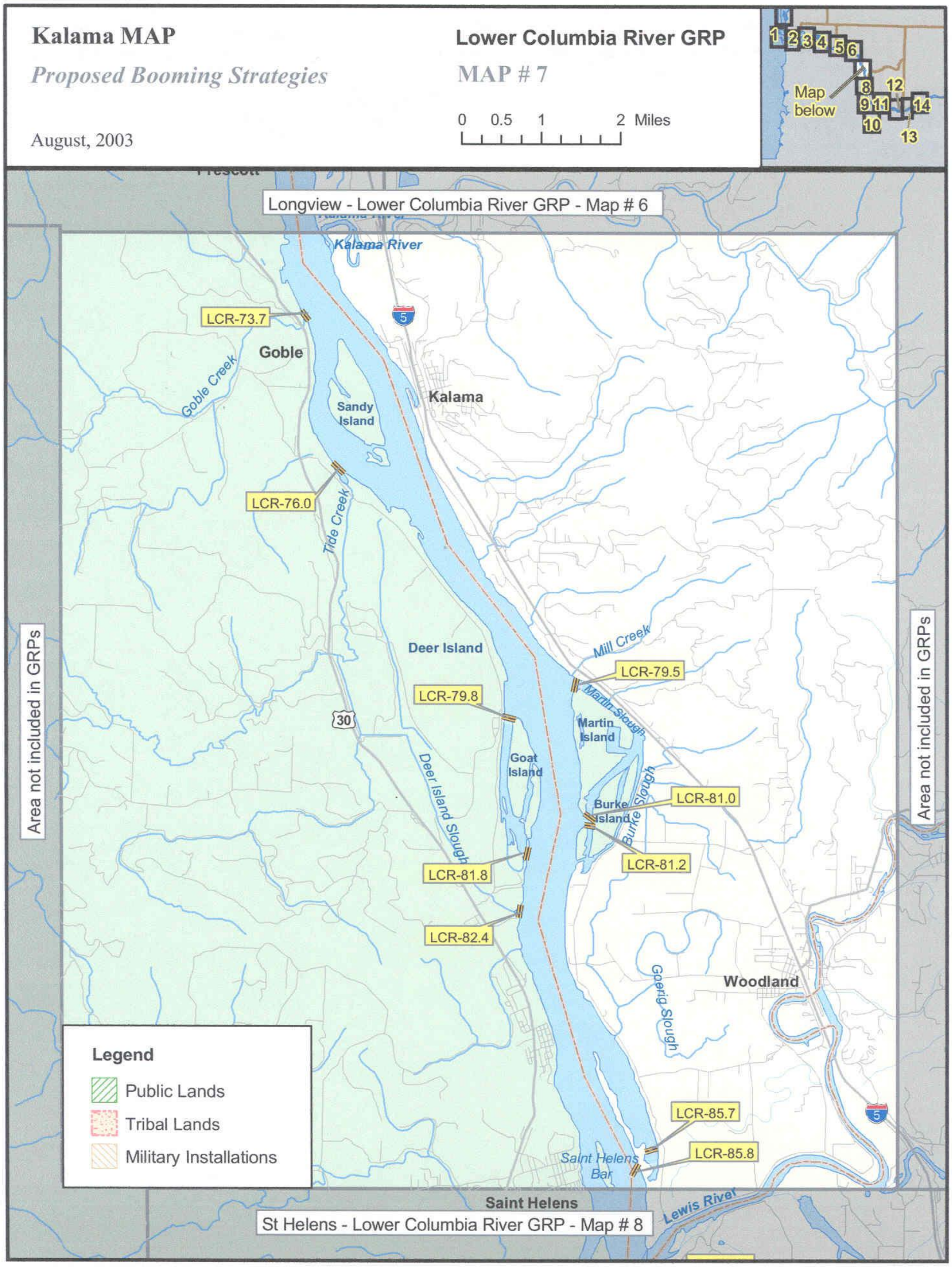
Impacted Groundwater Mitigation Protocol

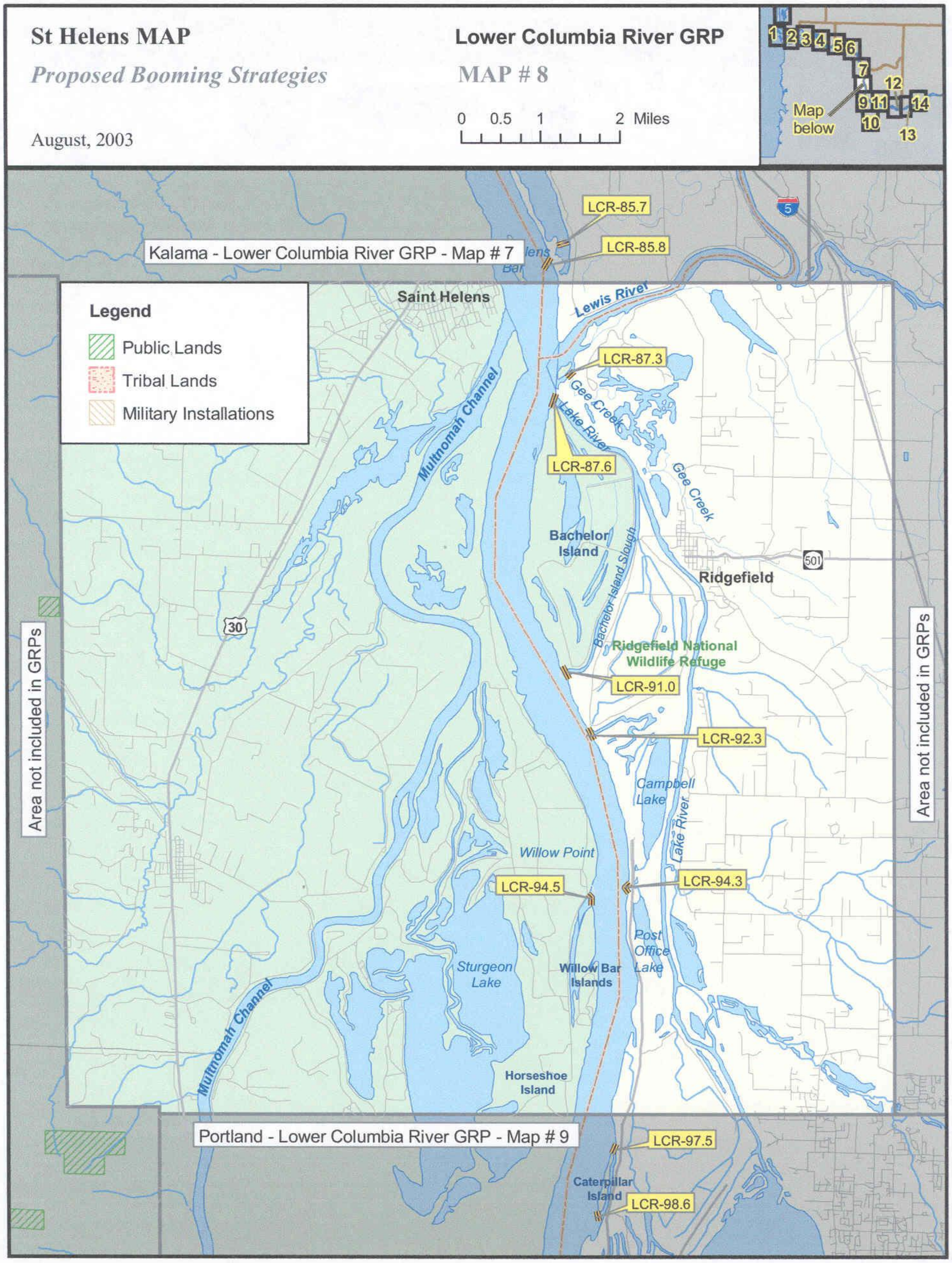
Upon discovery or imminent threat of impacts to groundwater at or around the Facility, several proactive steps are taken to ensure that any actual impacts are minimized and cleaned up in a cost-effective manner. The following steps are implemented to respond to an actual or suspected threat to groundwater:

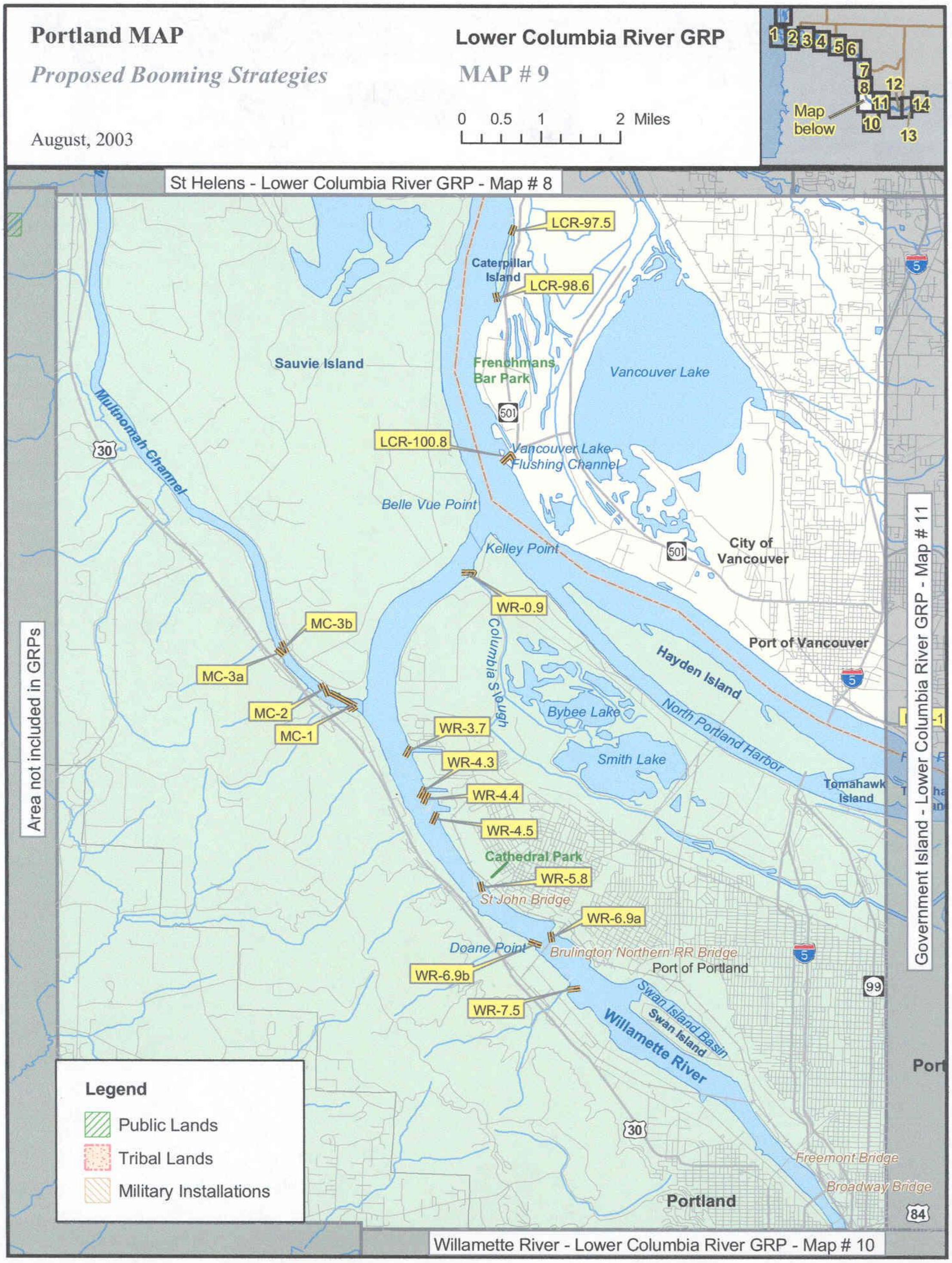
- TSVEDT contacts one of several pre-approved groundwater remediation consulting firms, provides an overview of the site situation and characteristics of the material potentially released. This information transfer may occur via providing an ICS 201 Form briefing or by means of other discussions.
- TSVEDT and groundwater consultant review site specific subsurface conditions, including geology and regional groundwater flow direction.
- Groundwater consultant prepares a Phase 1 work plan to assess area around suspected groundwater impact. Approach is site specific but in general, involves several direct push borings and collection of soil and groundwater samples.
- Groundwater samples are analyzed for suspected site-specific contaminants of concern (COCs).
- Data are evaluated to determine nature, extent and severity of suspected impact.
- Based on data review, additional direct-push borings and/or permanent groundwater monitoring wells are installed to delineate and quantify impact. Depending on depth to groundwater, this step may also include excavation of soil in attempt to control/minimize the COC source.
- Once impact area and media are defined, data are used to evaluate/select/design potential site specific remediation alternatives.
- Remediation alternative of choice is pilot tested to determine suitability for full scale application at the site
- Remediation system is expanded to full scale system, procured, installed and started up.
- Remediation system is operated and monitored to determine effectiveness of system with respect to site cleanup. Data are provided to Regulatory Agency with oversight responsibility.
- Remediation system is operated, monitored and optimized during project to expedite cleanup. Cleanup is achieved to oversight agency standards. System is decommissioned, wells plugged and abandoned (if present), site is restored to pre-release conditions.

Figure 6.6 – Proposed Booming Strategy Maps




Kalama MAP
Proposed Booming Strategies
August, 2003
Lower Columbia River GRP
MAP # 7
0 0.5 1 2 Miles
Map below
Longview - Lower Columbia River GRP - Map # 6
Kalama River
LCR-73.7
Goble
Goble Creek
Sandy Island
Kalama
LCR-76.0
Tide Creek
Deer Island
Mill Creek
LCR-79.5
LCR-79.8
Martin Slough
Martin Island
Goat Island
Burke Island
Burke Slough
LCR-81.0
LCR-81.2
Deer Island Slough
LCR-81.8
LCR-82.4
Woodland
Goerig Slough
Area not included in GRPs
Area not included in GRPs
Legend
Public Lands
Tribal Lands
Military Installations
LCR-85.7
LCR-85.8
Saint Helens Bar
Saint Helens
Lewis River
St Helens - Lower Columbia River GRP - Map # 8


St Helens MAP
Proposed Booming Strategies
August, 2003
Lower Columbia River GRP
MAP # 8
0 0.5 1 2 Miles
Map below
1 2 3 4 5 6 7 9 10 11 12 13 14
Kalama - Lower Columbia River GRP - Map # 7
LCR-85.7
LCR-85.8
Legend
Public Lands
Tribal Lands
Military Installations
Saint Helens
Lewis River
LCR-87.3
LCR-87.6
Gee Creek
Lake River
Multnomah Channel
Bachelor Island
Bachelor Island Slough
Ridgefield
501
Ridgefield National Wildlife Refuge
30
Area not included in GRPs
LCR-91.0
LCR-92.3
Campbell Lake
Willow Point
LCR-94.5
LCR-94.3
Post Office Lake
Sturgeon Lake
Willow Bar Islands
Horseshoe Island
Portland - Lower Columbia River GRP - Map # 9
LCR-97.5
Caterpillar Island
LCR-98.6
Area not included in GRPs



Portland MAP
Proposed Booming Strategies
August, 2003
Lower Columbia River GRP
MAP # 9
0 0.5 1 2 Miles
Map below
St Helens - Lower Columbia River GRP - Map # 8
Government Island - Lower Columbia River GRP - Map # 11
Willamette River - Lower Columbia River GRP - Map # 10
Area not included in GRPs
LCR-97.5
Caterpillar Island
LCR-98.6
Sauvie Island
Frenchmans Bar Park
Vancouver Lake
LCR-100.8
Vancouver Lake Flushing Channel
Multnomah Channel
Belle Vue Point
Kelley Point
City of Vancouver
WR-0.9
MC-3b
MC-3a
Columbia Slough
Port of Vancouver
Hayden Island
MC-2
MC-1
WR-3.7
Bybee Lake
North Portland Harbor
WR-4.3
Smith Lake
WR-4.4
Tomahawk Island
WR-4.5
Cathedral Park
WR-5.8
St John Bridge
WR-6.9a
Doane Point
Brulington Northern RR Bridge
Port of Portland
WR-6.9b
WR-7.5
Swan Island Basin
Swan Island
Willamette River
Legend
Public Lands
Tribal Lands
Military Installations
Freemont Bridge
Broadway Bridge
Portland

Figure 6.7 – Proposed Booming and Collection Strategies – Lower Columbia River

LOWER COLUMBIA RIVER GRP

4.3.2.1 Lower Columbia River Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Flow Level	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
LCR-64.0	Field visit; date un-known	Lord Island - east end (OR) 46°-07.310'N 122°-59.890'W	Exclusion - Prevent oil from moving through the channel between Lord Island and Slaughters Dike.	Low flow	1,400'	Deploy boom across the opening between Lord Island and Slaughters Dike.	Stage from the Willow Grove County Park.	Boat access only. Ramp at Willow Grove Park.	Waterfowl use area, wetland habitat.
LCR-66.2	Field visit; date un-known	Port of Longview (WA) 46°-06.435'N 122°-57.378'W	Collection - Prevent oil from moving down stream.	Low flow	3,000'	Deploy 1,000' lengths of boom from the Port of Longview to contain/collect oil under docks. May need tug to assist in deployment. This is a major natural collection site, and the last good chance to prevent oil from moving down stream. *Note - Longview Fibre has developed a number of additional strategies in this vicinity to address the unique hazards of a toluene spill; consult their response plan for more information.*	Port of Longview.	Vehicle access from Longview to the port docks. Boat access from the Ramp at Willow Grove Park or Rainier.	Downstream resources.
LCR-70.0	Field visit; date un-known	Cottonwood Island - east side slough (WA) 46°-04.915'N 122°-52.540'W	Exclusion - Keep oil out of slough.	Any flow	500'	Close off mouth to the slough on east side of Cottonwood Island.	Stage from the Willow Grove County Park or Kalama.	Boat access only. Use ramp at Willow Grove Park, or steep pay boat ramp at Kalama.	Wetland habitat.
LCR-71.4	No field visit/ test	Carrol's Channel south end (WA) 46°-03.510'N 122°-52.040'W	Exclusion - Keep oil out of small inlet at the south end of the channel (east side).	Any flow	1000'	Close off mouth of the small inlet at the south end of Carrol's Channel (on the east side).	Stage from the Willow Grove County Park or Kalama.	Boat access only. Use ramp at Willow Grove Park, or steep pay boat ramp at Kalama.	Wetland habitat.

4-38 August 2003

4.3.2.1 Lower Columbia River Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Flow Level	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
LCR-71.5	New strategy 3/03	Carrol's Channel south end (WA) 46°-03.365'N 122°-52.333'W	Collection/ Exclusion - Natural collection area, prevent oil from moving up the channel.	Any flow	1200'	Deploy boom across the south end of Carrol's Channel to direct collected oil to the east shore, and to prevent oil from moving through Carrol's Channel. Current may be too strong to deploy boom across channel. If so, deploy as much boom as possible to divert oil to the east shore for collection.	Stage from the Willow Grove County Park or Kalama.	Vehicle access from east shore. Boat access from ramp at Willow Grove Park, or steep pay boat ramp at Kalama.	Wetland habitat.
LCR-71.6	New strategy 3/03	Carrol's Channel south end (WA) 46°-03.345'N 122°-52.540'W	Collection - Enhance natural collection into south end of Carrol's Channel.	Low flow	500'	Deploy boom from the south end of Cottonwood Island to enhance natural collection.	Stage from the Willow Grove County Park or Kalama.	Boat access only. Use ramp at Willow Grove Park, or steep pay boat ramp at Kalama.	Wetland habitat.
LCR-73.7	No field visit/ test	Goble Creek (OR) 46°-01.250'N 122°-52.522'W	Exclusion - Keep oil out of the creek.	Any flow	100'	Deploy boom across creek mouth.	Stage from the Willow Grove County Park or Kalama.	Possible vehicle access from Highway 30. Boat access from ramp at Willow Grove Park, or steep pay boat ramp at Kalama.	Salmonid concentrations and habitat (peak times are Sep-Oct, Apr-May).
LCR-76.0	No field visit/ test	Tide Creek (OR) 45°-59.660'N 122°-51.920'W	Exclusion - Keep oil out of the slough and creek.	Any flow	1000'	Deploy boom across small slough at the creek mouth.	Stage from the Willow Grove County Park or Kalama.	Boat access only. Use ramp at Willow Grove Park, or steep pay boat ramp at Kalama.	Wetland habitat, salmonid concentrations and habitat (peak times are Sep-Oct, Apr-May).
LCR-79.5	No field visit/test	Martin Island - north end (WA) 45°-57.375'N 122°-47.985'W	Exclusion - Keep oil out of Martin Slough.	Any flow	600'	Deploy boom across the north end of Martin Slough.	Stage from St. Helens or Kalama.	Boat access only. Use ramp at St Helens, or steep pay boat ramp at Kalama.	Waterfowl (winter); geese (summer).

4.3.2.1 Lower Columbia River Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Flow Level	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
LCR-79.8	New strategy 3/03	Goat Island - north end (OR) 45°-56.945'N 122°-49.168'W	Exclusion - Keep oil out of slough behind Goat Island.	Any flow	600'	Deploy boom across the north end of the slough behind Goat Island.	Stage from St. Helens or Kalama.	Boat access only. Use ramp at St Helens, or steep pay boat ramp at Kalama.	Waterfowl (winter); geese (summer).
LCR-81.0	No field visit/test	Martin Island - south end (WA) 45°-56.065'N 122°-47.850'W	Exclusion - Keep oil out of Martin Slough.	Any flow	600'	Deploy boom across the south end of Martin Slough.	Stage from St. Helens or Kalama.	Boat access only. Use ramp at St Helens, or steep pay boat ramp at Kalama.	Waterfowl (winter); geese (summer).
LCR-81.2	No field visit/test	Burke Island - south end (WA) 45°-55.863'N 122°-47.823'W	Exclusion - Keep oil out of Burke Slough.	Any flow	300'	Deploy boom across the south end of Burke Slough.	Stage from St. Helens or Kalama.	Boat access only. Use ramp at St Helens, or steep pay boat ramp at Kalama.	Waterfowl (winter); geese (summer).
LCR-81.8	New strategy 3/03	Goat Island - south end (OR) 45°-55.518'N 122°-48.865'W	Exclusion - Keep oil out of slough behind Goat Island.	Any flow	500'	Deploy boom across the south end of the slough behind Goat Island.	Stage from St. Helens or Kalama.	Boat access only. Use ramp at St Helens, or steep pay boat ramp at Kalama.	Waterfowl (winter); geese (summer).
LCR-82.4	No field visit/test	Deer Island Slough (OR) 45°-54.860'N 122°-48.965'W	Exclusion - Keep oil out of slough.	Any flow	300'	Deploy boom across the mouth of the slough on the south end. Ensure tide gates are closed at each end.	Stage from St. Helens or Kalama.	Boat access only. Use ramp at St Helens, or steep pay boat ramp at Kalama.	Creek; freshwater clams; wetland habitat.
LCR-85.7	No field visit/test	Goerig Slough - collection (WA) 45°-52.400'N 122°-46.725'W	Collection - Prevent oil from moving down stream.	Low flow	1000'	Deploy boom from the southeast corner of the islands off Goerig Slough to the mainland shore for collection with a skimmer or vac truck.	Stage from St. Helens.	Possible vehicle access from Dike Road. Boat access from ramp at St Helens.	Downstream resources.
LCR-85.8	No field visit/test	Goerig Slough - diversion (WA) 45°-52.200'N 122°-46.905'W	Diversion - Prevent oil from moving down stream.	Low flow	700'	Deploy boom at an angle from the southwest corner of the islands off Goerig Slough, up-stream into the main channel of the river to divert oil into the area behind the islands for collection.	Stage from St. Helens.	Boat access only. Use ramp at St Helens.	Downstream resources.

4.3.2.1 Lower Columbia River Proposed Booming and Collection Strategies: Matrices									
Strategy	Status	Location	Response Strategy	Flow Level	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
LCR-87.3	New strategy 3/03	Gee Creek (WA) 45°-50.895'N 122°-46.560'W	Exclusion - Keep oil out of the creek and slough up-stream.	Any flow	100'	Deploy boom across the mouth of the creek. Will likely require a shallow-draft boat.	Stage from the Ridgefield Marina or St. Helens.	Boat access only. Use ramp at the Ridgefield Marina or St Helens.	Ridgefield National Wildlife Refuge. Wetlands habitat.
LCR-87.6	Field test 4/97	Ridgefield NWR/ Bachelor Island Slough - north entrance (WA) 45°-50.540'N 122°-46.685'W	Exclusion - Keep oil out of slough	Any flow	600'	Deploy boom across the down-river (north) end of Bachelor Island Slough. Note - oil may collect here naturally. Minimize disturbance of shoreline and back-beach areas. Use established roads only for vehicle access.	Stage from the Ridgefield Marina or St. Helens.	Boat access only. Use ramp at the Ridgefield Marina or St Helens.	Ridgefield National Wildlife Refuge. Waterfowl, sand hill crane wintering, great blue heron spring nesting, bald eagle nests, wetlands habitat. Sensitive shoreline and back-beach.
LCR-91.0	Field test 4/97	Ridgefield NWR/ Bachelor Island Slough - south entrance (WA) 45°-47.625'N 122°-46.385'W	Exclusion - Keep oil out of slough	Any flow	600'	Deploy boom across the up-river (south) end of Bachelor Island Slough. Note - oil may collect here naturally. *Contact the USFWS to have 3 input pumps shut off - pager, 360-971-6000.*	Stage from the Ridgefield Marina or St. Helens.	Boat access only. Use ramp at the Ridgefield Marina or St Helens.	Ridgefield National Wildlife Refuge. Waterfowl, sand hill crane wintering, great blue heron spring nesting, bald eagle nests, wetlands habitat. Sensitive shoreline and back-beach.
LCR-92.3	Field test 4/97	Campbell Lake (WA) 45°-46.972'N 122°-46.083'W	Exclusion - Keep oil out of the lake.	High flow	300'	Deploy boom across the entrance to Campbell Lake.	Stage from the Ridgefield Marina or St. Helens.	Boat access only. Use ramp at the Ridgefield Marina or St Helens.	Ridgefield National Wildlife Refuge. Sandhill crane roost area, waterfowl, wetlands habitat.

4.3.2.1 Lower Columbia River Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Flow Level	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
LCR-94.3	Field visit 6/03	Post Office Lake (WA) 45°-45.275'N 122°-45.303'W	Exclusion - Keep oil out of slough adjacent to lake.	High flow	200'	Deploy boom in a chevron configuration to enclose the entrance to the culvert that connects the river to the lake. The culvert entrance on the river side is a grated concrete structure about 20-30 feet from shore that is nearly flush with the river bottom. *The entrance on the lake side has stop-logs, contact the USFWS at 360-971-6000 (pager) to have someone install the stop-logs.*	Stage from the boat ramp at Caterpillar Island, the Ridgefield Marina or St. Helens.	Vehicle access from the Lower River Road. Boat access from the ramp at Caperpillar Island, the Ridgefield Marina or St Helens.	Ridgefield National Wildlife Refuge. Waterfowl, wetlands habitat.
LCR-94.5	No field visit/test	Willow Bar Islands (OR) 45°-45.140'N 122°-46.060'W	Exclusion or Collection - Keep oil out of slough behind Willow Bar Islands or use for collection.	Any flow	800'	Deploy boom in a chevron configuration by placing one section from the north tip of the primary Willow Bar Island to the small island to the north, and then continuing northwest to Sauvie Island. If no waterfowl are present in the slough, deploy 600' of boom to divert oil into the north end of the slough for collection; deploy 200' of boom across the slough to prevent oil from moving into the south end of the slough.	Stage from the boat ramp at Caterpillar Island, the Ridgefield Marina or St. Helens.	Vehicle access from Brown Road on Sauvie Island. Boat access from the ramp at Caperpillar Island, the Ridgefield Marina or St Helens.	Wetland habitat.
LCR-97.5	Field test 11/97	Caterpillar Island - north end (WA) 45°-42.565'N 122°-45.555'W	Exclusion - Keep oil out of slough behind island.	High flow	500'	Deploy boom from the north tip of Caterpillar Island to the mainland shore.	Stage from the boat ramp at Caterpillar Island.	Boat access only from ramps at Caperpillar Island, Vancouver, or Portland.	Wetland habitat.

4.3.2.1 Lower Columbia River Proposed Booming and Collection Strategies: Matrices

Strategy	Status	Location	Response Strategy	Flow Level	Length of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected
LCR-98.6	Field test 11/97	Caterpillar Island - south end (WA) 45°-41.660'N 122°-45.815'W	Exclusion - Keep oil out of slough behind island.	High flow	500'	Deploy boom from the south tip of Caterpillar Island to the mainland shore.	Stage from the boat ramp at Caterpillar Island.	Boat access only from ramps at Caperpillar Island, Vancouver, or Portland.	Wetland habitat.
LCR-100.8	Field test 10/01	Vancouver Lake/ Flushing Channel (WA) 45°-39.947'N 122°-45.528'W	Deflection/ Collection - Deflect oil into Flushing Channel for collection.	Low flow	800'	Angle a 400' section SW into the river to deflect oil into a collection site in channel. Double boom channel with two 200' sections to protect Vancouver Lake. If necessary, valves can be closed at River Road to prevent oil from entering Vancouver Lake. This strategy is most effective with a south wind at slack water or when oil is moving along the north (east) shore. Sand bars at the mouth of the channel are dynamic and may require modification of the strategy.	Stage from Vancouver, Portland, or the parking area at the west end of the flushing channel.	Vehicle access from Lower River Road. Boat access from Vancouver or Portland.	Vancouver Lake; down river resources.
LCR-108.4	Field visit 9/94	Marine Park Boat Ramp - upriver from Ryan Point (WA) 45°-36.747'N 122°-38.022'W	Collection - Collect oil in small cove.	Low flow	500'	Angle boom off boat ramp into river; divert oil to collection site.	Stage from Vancouver, Portland, or the boat ramp parking area.	Marine Park Boat Ramp access via Marine Parkway; good command post area.	Down river resources.
LCR-109.6	Field visit 9/94	Wintler Park (WA) 45°-36.667'N 122°-36.652'W	Collection - Divert oil to collection sites.	Low flow	500'	Angle boom upstream, off point just down river of Wintler Park (note - may not need full 500').	Stage from Vancouver, Portland, or the boat ramp parking area.	Boat access from the ramp near Lieser Point. Vehicle access off of Highway 14.	Resources down river (may be osprey nests in the area).

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Figure 6.8 – Clean Rivers Co-op Boom Site List

ENVIRONMENTAL RESOURCES	COLUMBIA RIVER MILE	PRE-STAGED BOOM AVAILABLE AT	BOOM FUNCTION & ESTIMATED LENGTH REQUIRED (FEET)
Columbia Slough	0.9 (Willamette River)	RES Portland	400’ deflection & 500’ containment
Multnomah Channel	3.0 (Willamette River)	RES Portland	3,000’ deflection & containment
Vancouver Lake Channel	101	RES Portland	400’ containment
Hathaway Lake Entrance	92.3	St. Helens	300’ protection
Bachelor Island Slough	91.5 & 87.6	St. Helens	1,200’ deflection & containment
West Side of Lewis River	84.0 – 87.0	St. Helens	800’ containment, 1,300’ protection
Deer Island Slough	82.4	St. Helens	300’ containment
Burke Island/Martin Island	81.0 – 81.3	St. Helens	1,600’ deflection & containment
Kalama River	73.0	Rainier	500’ protection
Carroll’s Channel	71.5	Rainier	400’ deflection & 800’ containment
Longview Dock	67.5	Rainier	3,000’ containment
Slaughters Dike Entrance	66.0	Rainier	400’ containment
Cottonwood Island	70.0 – 72.0	Rainier	400’ containment
Brix Marina	67.8	Rainier	800’ protection
Fisher Island	60.4 – 60.0	Stella	800’ deflection
Coal Creek, East	57.0	Stella	1,000’ containment
Coal Creek, West	57.0	Stella	600’ containment
Crims Island	57.0	Stella	1,200’ deflection & 1,700’ containment
Wallace Island	50.0	Stella	1,000’ containment & protection
Cathlamet Channel	47.0	Cathlamet	2,000’ deflection & 3,000’ containment
Elochman Slough	37.0	Skamokawa	200’ containment
Westport Slough	43.3	Wauna	1,000’ deflection & containment
Wauna Channel	42.0	Wauna	1,000’ containment

Figure 6.8 – Clean Rivers Co-op Boom Site List (Continued)

ENVIRONMENTAL RESOURCES	COLUMBIA RIVER MILE	PRE-STAGED BOOM AVAILABLE AT	BOOM FUNCTION & ESTIMATED LENGTH REQUIRED (FEET)
Puget Island	46.0	Wauna	1,600' containment
Steamboat Slough	35.0	Skamokawa	600' deflection & 600'containment
Brooks Slough	33.0	Skamokawa	300' containment
Skamokawa Marine	33.0	Skamokawa	1,000' containment
Big Creek Entrance	28.0	Tongue Point	200' containment
Karlson Island	27.0	Tongue Point	200' containment
Miller Sands Lagoon	24.0	Tongue Point	2,000 containment
Crooked Creek	23.0	Tongue Point	100' containment
Grays River	22.5	Tongue Point	1,000; protection
Deep River	21.0	Tongue Point	500' containment
Brix Bay Marsh	20.0	Tongue Point	500' containment
Portuguese Pt. Marsh	19.0	Tongue Point	3,00' containment
John Day River Entrance	18.0	Tongue Point	600' containment
Clifton Channel	36.0	Astoria	2,000' deflection & 3,00'containment
West Basin Seal Haulout	15.0	Astoria	1,200' protection
West Basin Marina	13.0	Astoria	200' protection
Lewis & Clark River	13.0	Astoria	1,000' containment
Skipanon Waterway	11.0	Astoria	600' containment
Tansy Point	10.0	Astoria	600' deflection
Hammond Marina	8.0	Astoria	600' containment
Swash Lake Entrance	7.0	Astoria	600' containment
Youngs River	7.0	Astoria	700' containment
Ilwaco Marina	3.0	Astoria	400' containment, 4,100' sorbent & 1,000' deflection

Figure 6.9 – Climatic Information Lower Columbia River Region

Parameter	Unit	Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Yr
Temp[1]	°F	Mean Daily Max	44	50	55	60	67	73	80	79	74	64	52	46	62
	°F	Mean Daily Min	34	36	37	41	46	52	56	56	51	45	39	35	44
Visibility[1]	Mean Number of Days	Heavy Fog Visibility ($^1/_2$ mile or less)	4.2	3.7	2.3	1.1	0.1	0.1	0.1	0.2	2.8	7.6	6.1	4.9	33.2
Precipitation[1]	Inches	Mean	6.16	3.93	3.61	2.31	2.08	1.47	0.46	1.13	1.61	3.05	5.17	6.41	37.39
Wind[1]	MPH	Mean Speed	9.9	9.1	8.3	7.3	7.1	7.2	7.6	7.1	6.5	6.5	8.6	9.5	7.9
		Prevailing Direction	ESE	ESE	ESE	NW	NW	NW	NE	NW	NW	ESE	ESE	ESE	ESE
Daylight[2]	Average Time	Sunrise	07:50	07:15	06:25	06:25	05:39	05:20	05:35	06:11	06:49	07:28	07:12	07:47	
		Sunset	16:53	17:38	18:17	19:59	20:37	21:04	20:59	20:21	19:23	18:26	16:40	16:26	
Current[3]	Average	Speed (kt)	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.9	0.9
		Direction	343°E	343°E	343°E	343°E	343°E	343°E	343°E	343°E	343°E	343°E	343°E	343°E	343°E

1 – Source:1990 Local Climatological Data Annual Summary with Comparative Data, National Oceanic and Atmospheric Administration
2 – Source: Tide and Current Prediction Software, 1994, Micronautics.
3 – Average current speed measured at Kalama, WA 1994.

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7.0 VANCOUVER SUSTAINED RESPONSE ACTIONS

7.1 Response Resources

7.1.1 Firefighting Equipment

Firefighting equipment is installed and maintained throughout the Facility to allow control of fires should they occur. Fire suppression equipment and systems are designed to NFPA and API requirements, the more stringent Factory Mutual Global insurance requirements, and state and local regulations, and include automatic and engineered controls. Buildings are fireproofed, and emergency egress is provided in accordance with applicable fire and building codes. All fire suppression systems are designed to activate automatically and will be equipped with manual trip stations. The design of fire suppression systems for specific proposed project elements is discussed below.

Area 200 – Unloading and Office. The rail car unloading area is served with single interlock, pre-action 3-percent foam/water sprinkler systems designed to activate, as necessary, in five segments of the building. Design density is 0.30 gallon per minute/4,000 square feet with a hose allowance of 500 gallons per minute. The system includes linear heat detectors, gas detectors, temperature monitors, pump monitors, automatic exterior alarm horns and strobes, manual alarm stations, automatic and manual foam release systems, and tamper-resistant systems. Fire hydrants are located along the south side of the building at 300-foot intervals. All systems interface with the rail car unloading building control room.

The office and support buildings are equipped with extinguishers.

Area 300 – Storage. The storage tank area is served by six foam water sprinkler zones, one per storage tank. Each foam water sprinkler zone is designed to discharge into the inside of the storage tank it protects. The system includes linear heat detectors and warning horns and strobes, as well as manual alarm and foam release stations. A fire water loop is provided with hydrants and monitors spaced at a maximum of 300 feet and configured so that each tank can be reached by two hose streams. Each tank is protected by a fixed 3-percent foam/water suppression system on the seal area surface. All systems interface with the tank area control room. The east boiler building in Area 300 is served by adjacent hydrants. Smoke detectors, automatic and manual alarms, and hand held fire extinguishers are located as appropriate inside and outside the boiler building as required by local fire code. Based on the construction type and occupancy classification, sprinkler systems are not necessary for fire control in the east boiler building.

Area 400 – Marine Terminal. Two elevated fire monitors are installed at the marine loading dock, with hydrants connected to the existing on-site water supply. This system is primarily for fires on the berth, but can be used to assist in the event of a vessel fire.

The vessels berthing at the Marine Terminal are required to have on-board systems as well as contracts with commercial marine firefighting companies to respond in the event of a shipboard fire.

Area 500 - Transfer Pipelines. The pipeline area is served by existing and new (as constructed to serve specific Facility areas) hydrants in the vicinity of the pipeline alignment.

Area 600 – West Boiler. The boiler building and area is served by adjacent hydrants. Smoke detectors, automatic and manual alarms, and hand held fire extinguishers are located as appropriate inside and outside the boiler building as required by local fire code. Based on the construction type and occupancy classification, sprinkler systems are not necessary for fire control in the Area 600 boiler building.

Rail Infrastructure. The location of rail infrastructure improvements is served by existing and new (as constructed to serve specific Facility areas) hydrants in the vicinity of the rail loop alignment.

7.1.2 Facility Response Equipment

The TSVEDT and Tesoro maintains an inventory of equipment, which will be immediately available for a spill response. Contracted oil spill response equipment can also be made available almost immediately. A list of equipment at the facility is provided in **Figure 7.1**. A summary of equipment availability is provided in **Figure 7.3**.

On-site response equipment is inspected on a monthly basis by TSVEDT/Tesoro employees. The operability of this equipment is confirmed at least annually through testing and drills. Any inventory discrepancy or inoperable equipment is replaced or repaired when detected. TSVEDT/Tesoro-owned response equipment is maintained according to manufacturer specifications. The inspection checklist and maintenance schedule can be found in the TSVEDT Office. TSVEDT/Tesoro Operations is responsible for retaining information on the operational status of all equipment for a minimum of 5 years and is responsible for ensuring that the following response equipment and testing procedures are implemented:

- **Containment Boom.** During semiannual boom deployment exercises, boom will be inspected for signs of wear or structural deficiencies. If tears in the fabric or rotting are observed, the 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.
- **Response Boats.** Primary response boats are deployed at least bimonthly. If any mechanical problems are detected, they will be repaired in a timely manner.
- **Miscellaneous Equipment.** Other response equipment identified in this plan will be inventoried and inspected to ensure that the stated quantities are in inventory and in proper working order. The equipment inspection and deployment exercises are recorded in a Response Equipment Log and maintained by the Terminal Manager. A blank form is provided in **Appendix A**.

Figure 7.1 – On-site Oil Spill Response Equipment

TYPE	QTY	DATE PURCHASED	LOCATION	OPERATIONAL STATUS	EQUIPMENT DESIGN
CONTAINMENT					
Harbor Boom	TBD	TBD	Marine Terminal	In Operation	TBD
Containment Boom	TBD	TBD	Marine Terminal	In Operation	TBD
Sorbent Boom	TBD	TBD	Marine Terminal	In Operation	TBD
RECOVERY					
Sorbent pads	# bundles TBD	TBD	Marine Terminal	In Operation	TBD
Skimmers	TBD	TBD	Marine Terminal	TBD	TBD
ANCHORS					
Anchor systems	TBD		Marine Terminal	In Operation	N/A
Tow bridals	TBD	TBD	Marine Terminal	In Operation	N/A
TRANSPORTATION					
Aluminum Boat	TBD	TBD	Marine Terminal	In Operation	TBD
FIREFIGHTING					
Fire Foam System	TBD	TBD	Marine Terminal	In Operation	TBD
Fire Foam System	TBD	TBD	Storage Area	In Operation	TBD
Fire Foam System	TBD	TBD	Rail Unloading Area	In Operation	TBD
Fire extinguishers	TBD	TBD	Various	In Operation	20 lbs
COMMUNICATIONS					
Handheld radios	TBD	TBD	Office	In Operation	TBD
Radios	TBD	TBD	Office	In Operation - compatible with Clean Rivers Radio System	TBD
MISCELLANEOUS					
Rain gear	# Sets TBD	Unknown	Various	In Operation	N/A
Gloves	# Sets TBD	Unknown	Various	In Operation	N/A
Boots	# Sets TBD	Unknown	Various	In Operation	N/A

NOTE: Boom containment area will depend upon boom configuration, weather, tide and current conditions. Absorption capacity of sorbent boom and pads will vary depending upon recovery conditions, application, weather, etc. TSVEDT/Tesoro uses sorbents from several different manufacturers. Absorption capacities can be located in the International Spill Response Equipment Catalog.

Deployment of Facility equipment listed in **Figure 7.1** will begin almost immediately upon discovery of a spill while making all considerations for response personnel safety (i.e., inclement weather and water conditions). Equipment deployment guidelines and time frames are illustrated in **Appendix D.**

7.1.3 Contractor Equipment and Manpower

TSVEDT/Tesoro's primary response contractors and telephone numbers for the Facility are noted in Section 3. TSVEDT and Tesoro have 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.

Section 3 also contains a list of additional contractors in the area who provide equipment and services which may be needed during a spill response operation. **Appendix B** describes equipment owned by these contractors. Where available, the response equipment lists contain the following equipment categories:

- Skimmer/Pumps
- Boom
- Sorbents
- Tools and miscellaneous equipment
- Communication equipment
- Firefighting equipment and personal protective equipment (PPE)
- Other heavy equipment and boats
- Chemicals stored and dispersant dispensing equipment

Where applicable and available, the following parameters are provided for response equipment:

- Skimmer/Pumps
- Operational Status
- Type, Model, and Year
- Number
- Capacity
- Daily Recovery Rate
- Storage Location

Evidence of Contracts with these response contractors are located in **Appendix B**.

Contractor's general roles and responsibilities are as follows:

- Providing booms, skimmers, temporary storage tanks, vacuum trucks, construction equipment, and other equipment necessary for containment and recovery of an oil spill.
- Providing trained personnel to operate the aforementioned equipment, and supervising response personnel.

- Interfacing with company Field Supervisors to implement tactical orders relating to the spill response.
- Providing appropriate safety equipment and ensuring personnel are operating according to the Company's safety guidelines and applicable federal, state, and local regulations.
- Providing transportation for necessary contractor personnel and equipment.

7.1.4 Marine Spill Response Corporation

Tesoro is a member of MSRC, a "W3" category oil spill response organization. MSRC is a mutual benefit corporation with regional response centers and various propositioned equipment sites. MSRC is the Company's primary response contractor for containment and clean-up equipment and personnel. As an Ecology-approved PRC, Clean Rivers Cooperative, Inc. (CRCI) and MSRC have the equipment and resources available to meet the (most stringent) planning standard for WAC 173-182-420 Vancouver. Evidence of membership will be provided in **Appendix B**.

The planning standard web page may be found at: http://www.ecy.wa.gov/programs/spills/preparedness/PlanningStandards/planningstandards.html. Also see **Figure 7.2**.

In order to build a more effective oil spill response system with greater accountability, MSRC and the Marine Fire and Safety Association (MFSA) have divided the Columbia River System into three geographic coverage zones:

- Astoria Zone - three miles across and beyond the Columbia River mouth to River Mile 90
- Longview Zone - Columbia River Mile 18 to River Mile 90
- Portland Zone - Columbia River Mile 80 to River Mile 120 and the Willamette River from its mouth

CRCI and MFSA have awarded contracts to NRC for the Portland, Astoria, and Longview Coverage Zones.

Equipment and personnel maintained by NRC Environmental Services (NRCES) may be used by CRCI or MFSA members for response to spills from member vessels or facilities.

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Figure 7.2 – DRAFT Ecology Planning Standard Calculations

WAC 173-182-420 Vancouver planning standard. Those covered vessel and facility plan holders that transit or operate on the Columbia River between statue mile 99 and mile 107.

NOTE: Planning standard calculations shown indicate resources listed on the WRRL and information provided through the Primary Response Contractor applications as of plan approval (conditional) date. This information is subject to change as equipment is acquired and relocated.

NOTE: This equipment does not necessarily represent the equipment that would be deployed in the event of a spill. This is not a response standard, this is only a representation of equipment that would be available based on the guidelines set forth in WAC 173-182 for planning standards, determining effectiveness of recovery systems, documenting compliance with planning standards, and plan evaluation criteria. Actual times and performance will depend on traffic, weather, safety considerations, and operator discretion.

NOTE: WAC 173-182-335 Planning standards for storage: For freshwater environments, shoreside storage can be identified to meet sixty-five percent of the storage requirements in the planning standards if the plan holder can demonstrate that recovered oil can be transported to the shoreside storage. Access to fixed temporary storage is verified through plan review, letters of intent between companies, and primary response contractor applications.

Plan Holder: **Tesoro Savage Petroleum Terminal, LLC**
PRC: **CRC, MSRC**
Worst Case Volume: 7**00,000 bbls crude**
Mutual Aid: **Tesoro Vancouver Terminal and NuStar Vancouver Terminal**
Shoreside storage available: **Facility shoreside storage as necessary**

Category Definitions

Mobilization Times	Boom Type
Dedicated, plan holder owned = 30 mins	**B1**: boom > 42"
Dedicated, PRC owned = 1 hour	**B2**: boom between 18" and 42"
Non-Dedicated = 3 hour	**B3**: boom < 18"

Planning Transit Distance = [(hour benchmark - mobilization time) x transit speed]
Distance to Planning Standard = miles/nautical miles from staging area to the applicable planning standard.
Distance to Planning Standard <1m: The equipment is staged within the planning standard area.
Product: oil group(s) in which skimmers can be effective. Definition - 33CFR155.1020
Assets in italics are available for a response however no transportation or support platform is associated to be counted toward the planning standards.

Benchmark Calculations

Hr 2 — A safety assessment of the spill by work boat with trained crew and appropriate air monitoring, with 1,000 feet of boom could have arrived.

Organization	Asset	Home Base	Mobilization Time (hr)	Planning transit distance	Distance to Planning Standard	Boom Type B1 (feet)	Boom Type B2 (feet)	Boom Type B3 (feet)	EDRC (BPD) shallow / calm capable	EDRC (BPD) open water capable	Product (Group II, III, IV, V)	On Water Storage (BBLS)	People
Tesoro	Containment Boom (8"x12")	Boat House, Terminal 5	0.5	n/a	<1	-	2,800	-	-	-	-	-	-
Tesoro	Workboat, 18'	Boat House, Terminal 5	0.5	n/a	<1	-	-	-	-	-	-	-	3
TSVEDT	Fence Boom	TBD - Marine Terminal	0.5	n/a	<1	-	1,200	-	-	-	-	-	-
TSVEDT	Containment Boom (6"x12")	TBD - Marine Terminal	0.5	n/a	<1	-	-	1,000	-	-	-	-	-
TSVEDT	Containment Boom (6"x12")	TBD - Marine Terminal	0.5	n/a	<1	-	-	2,000	-	-	-	-	-
TSVEDT	Response Boom	TBD - Marine Terminal	0.5	n/a	<1	-	-	-	-	-	-	50	-
TSVEDT	Response Boom	TBD - Marine Terminal	0.5	n/a	<1	-	-	-	-	-	-	50	-
TSVEDT	Disc Skimmer	TBD - Marine Terminal	0.5	n/a	<1	-	-	-	3,940	-	-	-	-
TSVEDT	Disc Skimmer	TBD - Marine Terminal	0.5	n/a	<1	-	-	-	3,940	-	-	-	-
					2 Hour Totals	0	4,000	3,000	7,880	0	0	100	3

Based on location of contracted assets, mobilization time, transit distance, and distance to planning standard, **plan holder is able to meet the 2 hour planning standards.**

Hr 3 — Additional 2,000 feet of boom, or 4 times the length of the largest vessel whichever is less, to be used for containment, protection or recovery could have arrived.

Organization	Asset	Home Base	Mobilization Time (hr)	Planning transit distance	Distance to Planning Standard	Boom Type B1 (feet)	Boom Type B2 (feet)	Boom Type B3 (feet)	EDRC (BPD) shallow / calm capable	EDRC (BPD) open water capable	Product (Group II, III, IV, V)	On Water Storage (BBLS)	People
		Available equipment remaining from 2 hour requirements:				-	3,000	3,000	7,880	-	-	100	-
CRC	OSRV HW ZARLING (22-202)	Fred's Marina, Portland	1	110 nm	4 nm	-	1,000	-	-	3,720	-	24	2
					3 Hour Totals	0	4,000	3,000	7,880	3,720	0	124	2

Based on location of contracted assets, mobilization time, transit distance, and distance to planning standard, **plan holder is able to meet the 3 hour planning standards.**

Hr 6

Requirement	Required
Additional 6,000 feet of boom with at least 3,000 feet of boom being calm water - current capable for containment, protection or recovery could have arrived.	**6,000 feet of boom required**
Capacity to recover the lesser of 3% of worse case spill volume or 12,000 barrels within 24-hour period could have arrived. 10% must be able to work in shallow water environment - depth of 10 feet or less.	**12,000 bbls recovery required including 1,200 bbls shallow water recovery**
1 times the EDRC	**12,000 bbls on water storage required (12,000 bbls total storage)**

Organization	Asset	Home Base	Mobilization Time (hr)	Planning transit distance	Distance to Planning Standard	Boom Type B1 (feet)	Boom Type B2 (feet)	Boom Type B3 (feet)	EDRC (BPD) shallow / calm capable	EDRC (BPD) open water capable	Product (Group II, III, IV, V)	On Water Storage (BBLS)	People
		Available equipment remaining from 3 hour requirements:				-	2,000	3,000	7,880	3,720	-	124	-
CRC	40' Trailer (35-112)	Port of Vancouver	1		<1	-	3,100	-	-	-	-	-	-
CRC	40' Trailer (35-112)	Port of Vancouver	1		<1	-	4,100	-	-	-	-	-	-
CRC	40' Trailer (35-112)	Port of Vancouver	1		<1	-	1,100	-	-	-	-	-	-
CRC	Shallow Water Recovery Barge (29-233)	Tesoro Vancouver	1		<1	-	-	400	2,473	-	-	100	2
CRC	Tidewater Barge 4 (57-302	Tidewater, Vancouver	1		<1	-	-	-	-	-	-	12,958	3
CRC	Douglass 18000	Tidewater Barge 4	1		<1	-	-	-	-	2,057	I, II	-	-
CRC	Douglass 18000	Tidewater Barge 4	1		<1	-	-	-	-	2,057	I, II	-	-
CRC	CounterVac 3315	Tidewater Barge 4	1		<1	-	-	-	-	4,457	-	12	1
CRC	Slickbar "high Capacity Oil Skimmer"	Tidwater Barge 4	1		<1	-	-	-	1,714	-	-	-	-
CRC	OSRV MFSA 1 (20-200)	Chevron Dock, Portland	1	110 nm	7 nm	-	1,000	-	-	3,720	-	24	2
CRC	Trailer	A-1 Moorage	3	105 m	14 m	-	-	3,000	-	-	-	-	-

WAC 173-182-420 Vancouver planning standard

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Figure 7.3 – DRAFT Ecology Planning Standard Calculations (Continued)

CRC	Trailer (41-50)	Portland Base	3	105 m	12 m	-	-	2,000	-	-	-	-	-
CRC	Trailer (29-235)	PFB Fire Station 6	3	105 m	12 m	-	-	2,000	-	-	-	-	-
					6 Hour Totals	**0**	**11,300**	**10,400**	**12,067**	**16,011**	**0**	**13,218**	**8**
Based on location of contracted assets, mobilization time, transit distance, and distance to planning standard, **plan holder is <u>able</u> to meet the 6 hour planning standards.**													
Hr 12	Additional 20,000 feet of boom with at least 5,000 feet of boom being calm water - current capable, for containment, protection or recovery could have arrived.					**20,000 feet of boom required**							
	Capacity to recover the lesser of 10% of worse case spill volume or 36,000 barrels within 24-hour period could have arrived. At least 25% of the skimming capability must be able to work in shallow water environments - depth of 10 feet or less.					**24,000 bbls additional recovery required including 7,800 bbls shallow water recovery**							
	1.5 times the EDRC					**42,000 bbls additional on water storage required (54,000 bbls total storage)**							
Organization	**Asset**	**Home Base**	**Mobilization Time (hr)**	**Planning transit distance**	**Distance to Planning Standard**	**Boom Type B1 (feet)**	**Boom Type B2 (feet)**	**Boom Type B3 (feet)**	**EDRC (BPD) shallow / calm capable**	**EDRC (BPD) open water capable**	**Product (Group II, III, IV, V)**	**On Water Storage (BBLS)**	**People**
					Available equipment remaining from 6 hour requirements:	-	8,300	7,400	10,867	2,811	-	1,218	-
MSRC	CURLEW, Marco Skimmer	Portland	3	105 m	6 nm	-	-	-	3,588	3	-	-	2
MSRC	Trailer - Medium Fenceboom 24"	Portland	3	105 m	6 nm	-	2,000	-	-	-	-	-	-
MSRC	SWB 25 (18"x20") 29' utility boat	Portland	3	105 m	6 nm	-	60	-	-	3,017	-	400	2
CRC	Shallow Water Recovery Barge (29-235)	Portland Base	3	105 m	12 m	-	-	400	2,473	-	-	100	2
NRCES	FRV #6028	Portland, Moorage	1	125 nm	12 nm	-	1,000	-	-	-	-	-	2
NRCES	Boom, Kepner 8x12	Portland Base	3	105 m	11m	-	700	-	-	-	-	-	-
CRC	FRV INDEPENDENCE	Longview	1	45 nm	35 nm	-	-	2,000	-	-	-	-	2
CRC	Boom 48' Trailer (35-105) 8x12	Longview	3	105 m	45m	-	4,200	-	-	-	-	-	-
CRC	Boom 48' Trailer (35-107) 8x12	Longview	3	105 m	45 m	-	5,300	-	-	-	-	-	-
NRCES	SRV 6035 Munson 25'	Rainer, FMC	1	125 nm	35 nm	-	600	-	-	-	-	50	2
NRCES	Boom, American Marine 8x12	Trailer 6168, Rainier, OR	3	105 m	46 m	-	1,300	-	-	-	-	-	-
					12 Hour Totals:	**0**	**23,460**	**9,800**	**16,928**	**5,831**	**0**	**1,768**	**12**
Based on location of contracted assets, mobilization time, transit distance, and distance to planning standard, **plan holder is <u>able/unable</u> to meet the 12 hour planning standards.**													
Hr 24	Additional 20,000 feet of boom with at least 10,000 feet of boom being calm water - current capable for containment, protection or recovery could have arrived.					**20,000 feet of boom required**							
	Capacity to recovery to the lesser of 14% of worse case spill volume or 48,000 barrels within 24-hour period could have arrived.					**12,000 bbls additional recovery required**							
	2 times the EDRC					**42,000 bbls additional on water storage required (96,000 bbls total storage)**							
Organization	**Asset**	**Home Base**	**Mobilization Time (hr)**	**Planning transit distance**	**Distance to Planning Standard**	**Boom Type B1 (feet)**	**Boom Type B2 (feet)**	**Boom Type B3 (feet)**	**EDRC (BPD) shallow / calm capable**	**EDRC (BPD) open water capable**	**Product (Group II, III, IV, V)**	**On Water Storage (BBLS)**	**People**
					Available equipment remaining from 12 hour requirements:	-	8,460	4,800	-	-	-	-	-
NRCES	Marco skimmer, 6160	Portland Base	3	735 m	11 m	-	-	-	1,740	-	-	43	2
NRCES	Boom Kepner (8"x12")	Portland Base	3	735 m	11 m	-	2,300	-	-	-	-	-	-
NRCES	Boom, American Marine (8"x12")	Portland Base	3	735 m	11 m	-	400	-	-	-	-	-	-
NRCES	Boom, American Marine (8"x12")	Portland Base	3	735 m	11 m	-	4,400	-	-	-	-	-	-
NRCES	Boom, American Marine (8"x12")	Portland Base	3	735 m	11 m	-	1,000	-	-	-	-	-	-
NRCES	Boom, American Marine (8"x12")	Portland Base	3	735 m	11 m	-	500	-	-	-	-	-	-
NRCES	Boom, American Marine (8"x12")	Portland Base	3	735 m	11 m	-	1,000	-	-	-	-	-	-
NRCES	Boom, American Marine (8"x12")	Portland Base	3	735 m	11 m	-	400	-	-	-	-	-	-
NRCES	Boom, American Marine (8"x12")	Portland Base	3	735 m	11 m	-	1,200	-	-	-	-	-	-
NRCES	Boom, American Marine (8"x12")	Portland Base	3	735 m	11 m	-	2,200	-	-	-	-	-	-
CRC	Trailer (35-109) (8"x12")	Waura, OR	3	735 m	66 m	-	6,300	-	-	-	-	-	-
MSRC	OSHB 404 Tank Barge	Astoria, OR	3	168 nm	69 nm	-	-	-	-	-	-	40,000	-
					24 Hour Totals:	**0**	**28,160**	**4,800**	**1,740**	**0**	**0**	**40,043**	**2**
Based on location of contracted assets, mobilization time, transit distance, and distance to planning standard, **plan holder is <u>able</u> to meet the 24 hour planning standards.**													
Hr 48	More boom as necessary for containment, recovery or protection					**as necessary**							
	Capacity to recover the lesser of 25% of worst case spill volume or 60,000 barrels within 24-hour period could have arrived.					**Current recovery capacity exceeds 70,000 BPD. Additional units will mobilize as necessary**							
	More as necessary to now slow the response.					**as necessary**							
Organization	**Asset**	**Home Base**	**Mobilization Time (hr)**	**Planning transit distance**	**Distance to Planning Standard**	**Boom Type B1 (feet)**	**Boom Type B2 (feet)**	**Boom Type B3 (feet)**	**EDRC (BPD) shallow / calm capable**	**EDRC (BPD) open water capable**	**Product (Group II, III, IV, V)**	**On Water Storage (BBLS)**	**People**
					Available equipment remaining from 24 hour requirements:	-	-	-	-	-	-	-	-
CRC	Shallow Water Barge (29-234)	Portland Base	3	105 m	12 m	-	-	-	-	-	-	100	-
CRC	Shallow Water Barge (29-232)	Portland Base	3	105 m	12 m	-	-	-	-	-	-	100	-
CRC	Shallow Water Barge (29-228)	Portland Base	3	105 m	12 m	-	-	-	-	-	-	100	-
CRC	SWB (29-230)	Longview, WA	3	105 m	45 m	-	-	-	-	-	-	100	-
CRC	SWRB (29-227)	Longview, WA	3	105 m	45 m	-	-	400	2,473	-	I, II	100	2
CRC	SWRB (29-226(	Longview, WA	3	105 m	45 m	-	-	400	2,473	-	I, II	100	2
CRC	Tidewater Barge	Waura, OR	1	63 nm	50 nm	-	-	-	-	-	-	5,356	3
CRC	Trailer (35-101) (8"x12")	Astoria, OR	3	1575 m	69 nm	-	3,900	-	-	-	-	-	-
CRC	Trailer (35-102) (8"x12")	Astoria, OR	3	1575 m	69 nm	-	3,800	-	-	-	-	-	-
CRC	Trailer (35-103) (8"x12")	Astoria, OR	3	1575 m	69 nm	-	4,100	-	-	-	-	-	-
NRCES	2" skimpak	Portland Base	3	105 m	11 m	-	-	-	178	-	-	-	-
NRCES	2" skimpak	Portland Base	3	105 m	11 m	-	-	-	178	-	-	-	-
NRCES	Brush/DrumSkimmer, AquaGuard/RBS 10	Portland Base	3	105 m	11 m	-	-	-	662	-	-	-	-
NRCES	Disc Skimmer, Vikoma/Komara 12K	Portland Base	3	105 m	11 m	-	-	-	480	-	-	-	-
NRCES	Disc Skimmer, Vikoma/Komara 12K	Portland Base	3	105 m	11 m	-	-	-	480	-	-	-	-
CRC	skimmer, Douglas 18000 - Weyerhaeuser	Longview, WA	3	105 m	45 m	-	-	-	-	2,057	-	-	-
CRC	skimmer, Douglas 18000 - Weyerhaeuser	Longview, WA	3	105 m	45 m	-	-	-	-	2,057	-	-	-
CRC	skimmer, Douglas 18000 - Weyerhaeuser	Longview, WA	3	105 m	45 m	-	-	-	-	2,057	-	-	-
					48 Hour Totals:	**0**	**11,800**	**800**	**6,924**	**6,171**	**0**	**5,956**	**7**
Based on location of contracted assets, mobilization time, transit distance, and distance to planning standard, **plan holder is <u>able</u> to meet the 48 hour planning standards.**													

WAC 173-182-420 Vancouver planning standard

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7.1.5 Clean Rivers Cooperative

Tesoro is a member of Clean Rivers Cooperative, Inc., a "W3" category Oil Spill Response Organization, and an approved primary response contractor with the State of Washington. CRCI has a 2-hour response time to the TSVEDT. Equipment list, contact information and letter of intent to respond can be found in **Figure 7.3** and in **Appendix B**.

7.1.6 NRC Environmental Services

NRCES is one of the primary response action contractors for members of CRCI and the MFSA. NRCES is an approved spill response contractor with the State of Washington.

Tesoro, as a member of CRCI, will be able to use NRCES for response to spills from the TSVEDT. Call out of NRCES will normally be conducted via CRCI. Contracts and current inventories of CRCI and NRCES spill response equipment and 24 hour contact information is provided in **Appendix B**.

7.1.7 Other Resources

The USCG and the U.S. Navy also have stockpiles of equipment available to the private sector. TSVEDT and Tesoro do not maintain contracts with these entities; however, these resources may be contracted if private contractor stockpiles are exhausted. The USCG stores material in Mobile, Alabama; Ft. Dix, New Jersey; and Hamilton Field, California, while the Navy maintains equipment in Stockton, California, and Williamsburg, Virginia. The Navy also has salvage equipment. Requests for federal equipment can be expedited when made through USCG's OSC.

7.1.8 Oil Spill Response Equipment

For the purposes of a worst-case spill scenario, the TSVEDT largest tank has a capacity of 360,000 barrels of crude oil. [1] Pursuant to the Vancouver Planning Standard, WAC 173-182-420, the Company must have oil spill response capability, including boom, oil recovery systems, and storage capacity, available to meet the following milestones:

- 2 hours 1,000 feet of boom
- 3 hours 2,000 feet of boom
- 6 hours 6,000 feet of additional boom
  - 12,000 barrels/day derated recovery capacity
  - 1 x Effective daily recovery capacity (12,000 barrels storage)

- 12-hours 20,000 feet of additional boom
  - 36,000 barrels/day derated recovery capacity
  - 1.5 x Effective daily recovery capacity (54,000 barrels storage)

- 24-hours 20,000 feet of additional boom
  - 48,000 barrels/day derated recovery capacity
  - 2 x Effective daily recovery capacity (96,000 barrels storage)

[1] The shell capacity of approximately 380,000 barrels each; however, the maximum amount of product stored in each tank will be approximately 360,000 barrels, to take into account the presence of the internal floating roof and the additional headspace required to allow product movement in the event of seismic conditions.

- 48-hours Additional boom as necessary
  - 60,000 barrels/day derated recovery capacity
  - Additional storage as necessary

The largest vessel for the TSVEDT is 900 feet long. Therefore, the terminal must have the capability to initiate the deployment of four times the largest vessel (4 x 900 = 326,800 feet) or 2,000 feet of boom, whichever is less, within 3 hours. TSVEDT has 3000 feet of containment boom and a boat stored at the vessel dock, which can be deployed by the TSVEDT Operators within the mandated time frame.

As summarized in **Figure 7.3**, the availability of additional response equipment exceeds the requirements of WAC 173-182-420, the EPA and USCG.

Section 6, appendices D and F, or the Northwest Area Committee Geographic Response Plan may be consulted as planning guidelines for meeting these requirements. If the vessels identified in the Plan are unavailable for response in which a substantial change in the ability to respond may be impacted, the TSVEDT/Tesoro will notify Ecology.

See **Appendix D** for Response Planning Standards calculation based on USCG, EPA, and Ecology criteria. Also see **Figure 7.2**.

Figure 7.4 – Equipment Availability Summary

Response Goal	Equipment	Equipment Location	Derated Skimmer Capacity	Feet of Boom	Accumulated Derated Skimmers	Accumulated Boom	Accumulated Interim Storage Capacity
1 hr Response	18' Response Vessel 8" X 12" Kepner Sea Boom 20" Boom	Tesoro Dock, Vancouver		2,800 ft		2,800 feet	
2 hr Response	Fast Response Vessel with Skimming system and storage capacity 2 X 5,000 bbl Barge	C.R.C., Portland C.R.C., Portland	275 bbls/day	1,000 ft	275 bbls/day	5,600 feet	10,000 bbls
6 hr Response	Co-op Skimmers 8" X 12" Harbor Boom 14 X 500 bbl Storage Tanks 2 "X 100 bbl Barge	C.R.C., Portland C.R.C., Portland C.R.C., Portland	26,380 bbls/day	6,300 ft	26,380 bbls/day	11,900 feet	17,200 bbls
12 hr Response	Co-op Skimmers 8" X 12" Harbor Boom 8" X 12" Harbor Boom 8" X 12" Harbor Boom 8" X 12" Harbor Boom 2" X 100 bbl Barge	C.R.C., Longview C.R.C., St. Helens C.R.C., Longview C.R.C., Beaver C.R.C., Cathlamet C.R.C., Longview	11,047 bbls/day	4,500 ft 6,300 ft 6,300 ft 4,200 ft	37.427 bbls/day	33,200 feet	17,400 bbls
24 hr Response	Co-op Skimmers Co-op Skimmers 8" X 12" Harbor Boom 8" X 12" Harbor Boom 8" X 12" Harbor Boom 8" X 12" Harbor Boom 8" X 12" Harbor Boom 12" X 18" Ocean Boom Storage Tank (120,000 bbls)	C.R.C., Cathlamet C.R.C., Astoria C.R.C., Cathlamet C.R.C., Wauna C.R.C., Skamokawa C.R.C., Tongue Point C.R.C., Astoria C.R.C., Tonque Point Portland (POP)	275 bbls/day 13,599 bbls/day	1,000 ft 3,600 ft 2,500 ft 4,100 ft 7,700 ft 2,000 ft	58,127 bbls/day	54,100 feet	137,400 bbls
48 hr Response	MSRC Oregon Responder MSRC Barge 404	Astoria, Oregon	10,560 bbls/day	MA	68,687 bbls/day	54,100 feet	137,400 bbls

7.1.9 Communications Equipment

Initial Spill Communications

The TSVEDT Manager is responsible for initially setting up communications and issuing radios during a spill response. Communications with Ecology, the EPA, and USCG will be initiated and maintained by telephone. The following telephones connections are available at the TSVEDT:

Telephone	**TBD**	**Fax**	**TBD**
Telephone	**TBD**	**Cellular**	**TBD**
Telephone	**TBD**		

Terminal Communications Equipment

The Facility maintains nine portable radios. They are stored in the terminal office, and are used in daily operations at the terminal.

- 6-each Motorola hand-held FM Radios
- 3-each Motorola MT 2000 hand-held VHF Radios – one truck mounted (compatible with Clean Rivers Communication System)

Field Spill Communication Systems

Communications between field operations and the command post will primarily use compatible portable radio systems that have been purchased by CRCI members and the Clean Rivers response vessels. Clean Rivers also maintains an inventory of radios available to members.

Several members have equipped their boats with marine radios that can communicate with hand-held radios using Working Channel 81 (157.1000). CRCI has response vehicles and boats in the Portland area equipped with VHF-FM transceivers capable of operating on several frequencies. CRCI and MFSA pre-assigned radio frequencies are on file at the Terminal and are available through CRCI.

The MFSA and CRCI radio system is believed to have an adequate range to fully support the early phases of spill response. Through MFSA, CRCI has access to four radio repeaters for extended spill communications coverage.

TSVEDT and Tesoro may supplement the radio communications system through the use of cellular telephones purchased within 24 hours of initiation of the spill response.

7.2 Site Security Measures

Site security and control is necessary to provide safeguards needed to:

- Protect personnel and property from loss or damage.
- Ensure that the general public does not interfere with the spill cleanup operation.
- Ensure adequate access for personnel and equipment to the access/staging areas and command centers.

Guidelines for site security during an oil spill are listed below.

Security personnel should be prepared to:

- Establish a perimeter (zone of safety) around the spill.
- Establish a system for controlled access to the spill site (within the safety zone) for key spill response personnel and equipment.

- Establish a relationship with the general public, to:
  - Ensure that public safety is a priority.
  - Eliminate potential interference to spill clean-up operations.
  - Ensure that all response equipment is safeguarded.
  - Develop a site security plan.

An effective spill site security operation should include a coordinated effort with local and state law enforcement agencies, as well as the USCG (dependent on the size and location of the spill).

The USCG may assist in security efforts by controlling water traffic in the spill zone, and by acting as a liaison with the FAA to restrict air space over the safety zone. It may be necessary to restrict air traffic over the spill zone due to air traffic from aerial spill site surveillance, response, and news-media coverage. Rescue activities will be undertaken by qualified local police, fire, ambulance and rescue crews as dispatched through 911 emergency.

Request assistance from the Port of Vancouver or local law enforcement agencies, or in the event that traffic control is required, contact the Washington Highway Patrol to:

- Set up roadblocks and/or beach closures where necessary to secure the safety zone.
- Provide access for spill cleanup equipment and personnel.

Consider the following spill site security measures:

- Use barricades to establish a spill-site safety zone.
- Contract for additional security personnel or utilize local law enforcement agencies.
- Establish a pass system and distribute pre-prepared security passes to all spill-related personnel.
- Maintain a liaison with local and state police, as well as the EPA.
- Maintain a log that documents all security-related incidents and observations made at the spill site.

In addition, maintain strict control of all personnel and vehicular traffic entering the spill site by:

- Positioning security personnel to effectively control nonresponder access to the spill site.
- Barricading lesser traveled points with appropriate warnings against entry.

- Establishing periodic and regular checks at barricaded points to verify that site security is not compromised.
- Procuring additional security personnel when needed.

The TSVEDT Manager is initially responsible for overseeing security matters, handling the media, and answering outside calls until the arrival of the Security Officer and Public Affairs Officer.

Security services would need to be provided at the following locations:

- Terminal
- Dock
- Spill site
- Field operations sites
- Command post(s)
- Staging areas
- Warehouses

When an emergency occurs at the Facility, all roads should be cleared and traffic carefully regulated and monitored to:

- ensure that emergency crew vehicles have clear access to all critical areas;
- prevent unauthorized and excessive traffic at the facility; and
- direct personnel and resources to the desired locations.

Frequent communication between security and management enhances the effectiveness of on-site security efforts.

There is adequate facility lighting to conduct all necessary operations on a 24-hour basis. Facility operations are described in **Appendix C**.

Site security and control during an oil spill incident at the Facility is the responsibility of the Security Officer. Guidelines for monitoring site security and control are included in the job description for the Security Officer located in **Figure 4.4**.

7.3 Alternative Response Strategies

Non-mechanical methods for cleanup operations could involve chemical cleaning and in situ burning. Through contractual arrangement with MSRC, the Company's primary response contractor (PRC), the Company has access to dedicated aircraft, vessels, dispersant stockpile, application gear, fire boom, igniters, associated equipment, and resources to meet the planning standards provided in WAC 173-182-325 and 173-182-330.

Bioremediation and natural recovery are two nonmechanical methods that could have high success rates.

7.3.1 Dispersants

Mechanical removal may be limited by equipment capability, weather, sea conditions, and spill magnitude. An alternative spill response strategy is to disperse the oil into the water by breaking it into small droplets and suspending them in the water. This process occurs naturally very slowly, but can be accelerated by the application of a dispersant.

A dispersant is an agent (surfactant) that reduces the surface tension of the oil and water and allows them to mix more readily. In the presence of sufficient mixing energy supplied by waves, wind, or man-made turbulence, the oil can remain suspended in the water column and can resist resurfacing and re-coalescing. Dispersants may be effective in areas where environmental or logistical considerations do not allow the deployment of cleanup equipment and personnel, and may reduce the amount of equipment and personnel necessary for response.

The success of a dispersant operation depends on many variables, including:

- type of dispersant used,
- dosage of dispersant,
- application technique,
- type and condition of oil,
- size of area to be treated,
- weather and water conditions, and
- time available to complete the operation.

The most important element for successful implementation of a dispersant is time. The moment oil is spilled in the water, it begins to weather.

Evaporation removes the lighter components of the oil, leaving the more viscous fractions. As oil viscosity and other properties change, it becomes less likely that dispersant use will be successful.

Checklists for gathering information and for requesting approval from the state and federal OSCs are provided in **Section 5.3**. For more information regarding the federal OSC approval process, consult the Northwest ACP.

The use of dispersants and other chemicals for oil spill control is strictly regulated by the state and the federal government. The National Oil and Hazardous Substance Pollution Contingency Plan (NCP), and the Northwest ACP provide guidelines for streamlining the approval process for use of dispersant and other chemicals.

7.3.2 Bioremediation

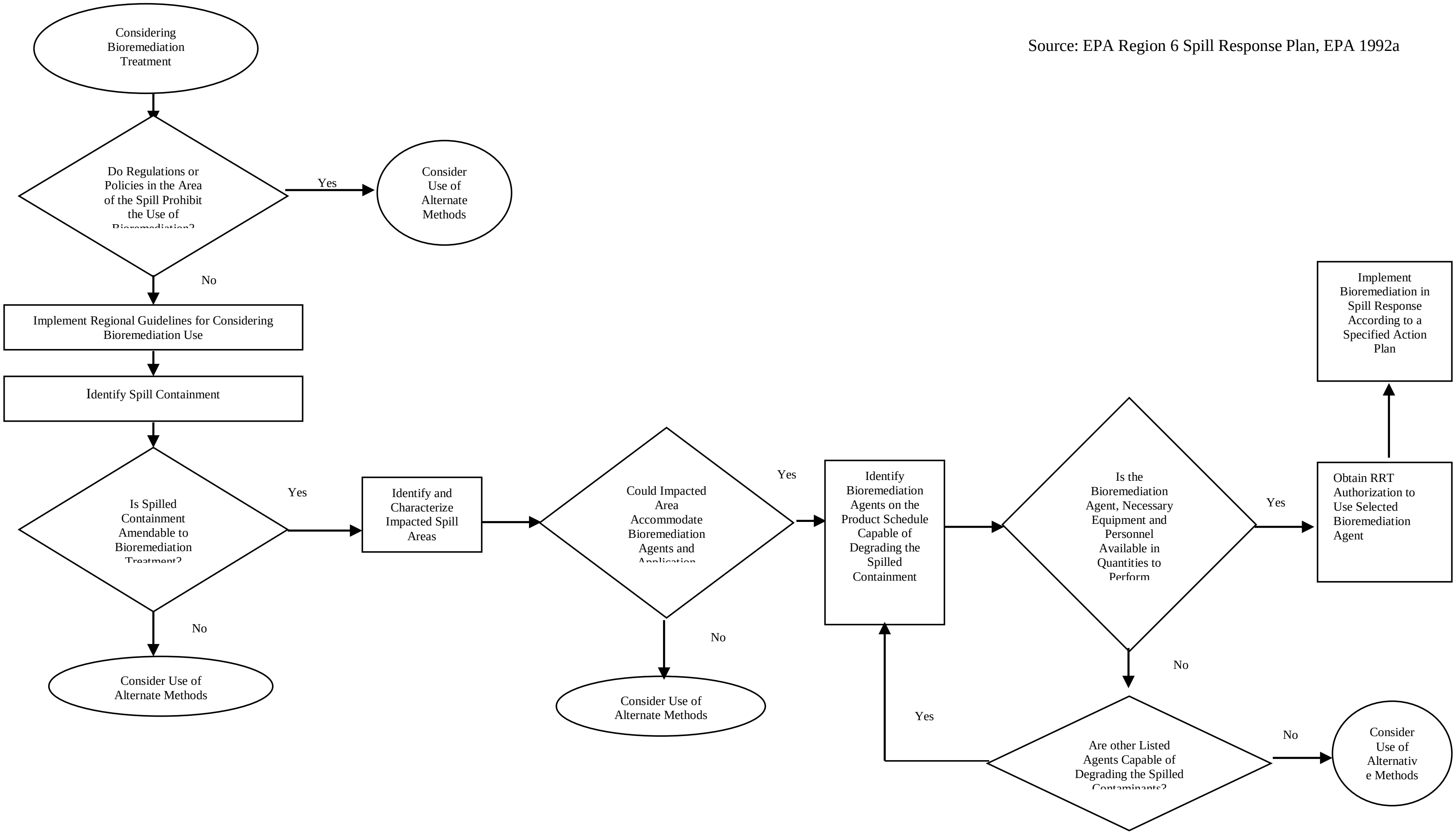
Bioremediation is the process of stimulating the growth and activity of microorganisms, such as bacteria and fungi, that naturally feed on hydrocarbons. Bioremediation is conducted as a means of accelerating the natural biodegradation rates of stranded or floating oil. Biodegradation is a natural process by which the above microorganism, in the presence of nutrients an oxygen, chemically breakdown hydrocarbons and other substances and produce by-products including carbon dioxide, water, biomass, and partially oxidized products.

Biodegradation, together with physical processes such as evaporation and dispersion, are the primary natural mechanisms for the removal of hydrocarbons (oil spills) from the environment. This process generally occurs at a very low rate but can often be enhanced by the application of nutrients such as nitrogen, phosphorus, and potassium.

Bioremediation may be a viable response option and should be considered for use where standard recovery or cleanup techniques are not practical or will result in additional environmental impact. **Figure 7.4** provides a federal decision guide for bioremediation consideration. A Bioremediation Checklist is provided in **Section 5.3**.

Figure 7.5 – Decision Guide for the Federal Bioremediation Approval Process

Source: EPA Region 6 Spill Response Plan, EPA 1992a



7.3.3 In situ Burning

Use of In Situ Burning in the Northwest-Philosophy

Under the circumstances specified in this section, it is the policy of the Northwest Area Committee to use, and in certain cases encourage, in situ burning in the Northwest. 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 (UC), who must determine that an application to burn conforms to these guidelines. The decision to burn or not burn must be made expeditiously.

Preapproval 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 (wg/m^3) of air averaged over one hour. The concentrations should never exceed 150 wg/m^3 averaged over 24 hours.

<u>Authorization Procedures</u>

These guidelines provide a common decision-making process to evaluate the use of in situ burning. A rapid decision is essential if in situ burning is to be used since oil emulsifies and becomes 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 UC. The decision process is greatly expedited by the use of the Unified Command structure, by the establishment of a single application (i.e. review checklist), and mutually agreed upon operational controls. **Figure 7.5** depicts the In Situ Burn Authorization Process.

Authorization procedures will differ depending upon whether the spill location is in a preapproval area or is decided on a case-by-case basis. **Section 5.4** provides checklists to determine if in situ burning is an appropriate method.

Once the UC determines that the application to burn conforms to the PM-10 standard, then the UC determines if the spill location is in a "preapproval area." Preapproval areas include any area that is further than 3 miles from human population. Human population is defined as 100 people per square mile. If a potential burn site is in a preapproval area, then the meteorologist, appropriate air pollution control authority, local emergency manager, and the public are notified. Preparations will be made for monitoring the burn immediately following notification.

(Note: Preapproval refers to certain locations where burning is allowed with minimal steps to be taken to conduct the burn. Several prior procedures must still be under taken, including application submittal and approval, and notifications.)

If the UC determines that the application conforms to the guidelines, but is not in a preapproval area, then approval to burn is considered on a case-by-case basis. The UC notifies the Regional Response Team (RRT) and will consult with them if necessary. The

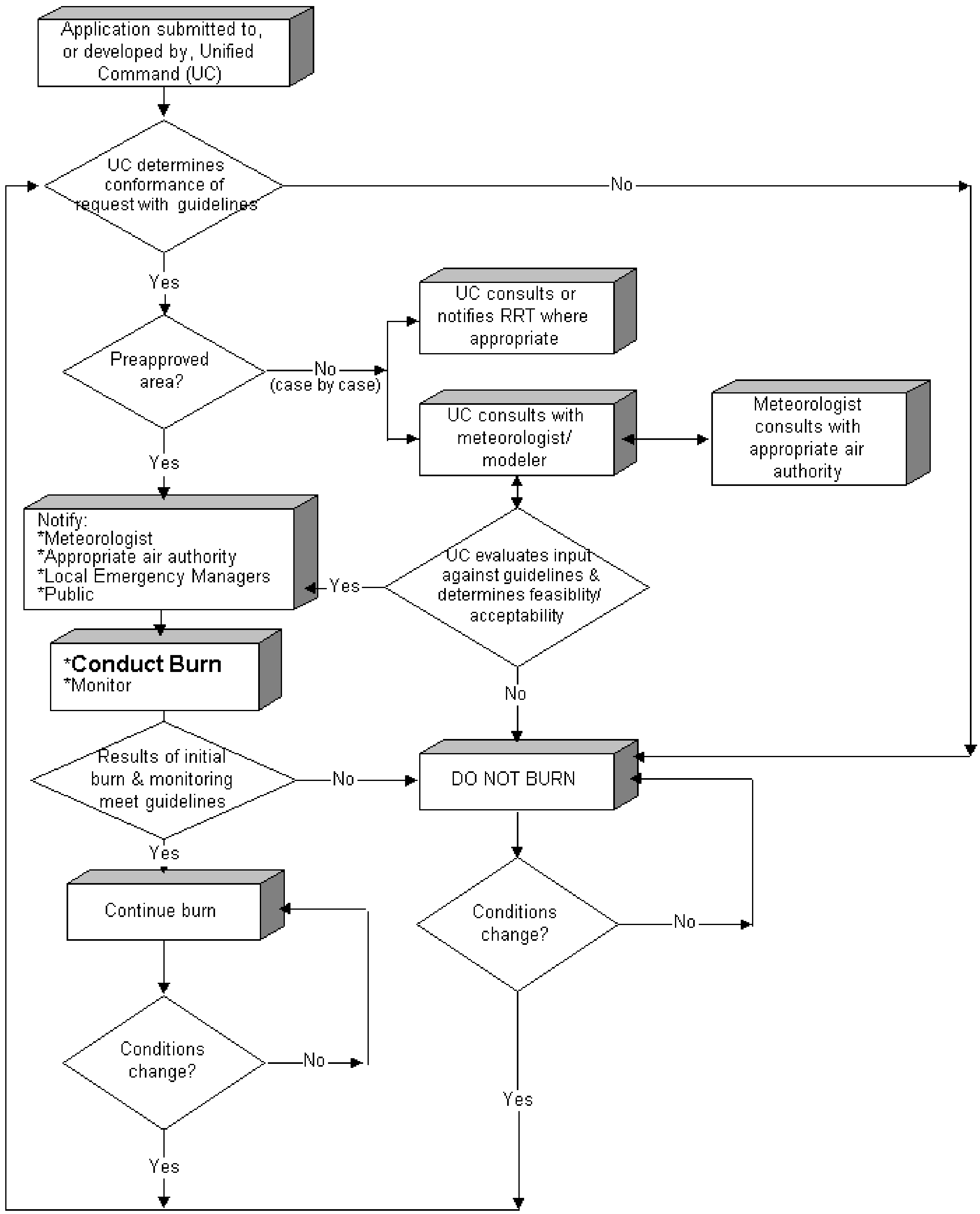
UC then consults with a meteorologist to obtain weather data and information on the potential concentrations of pollutants that may reach a populated area from both burned and unburned oil. The meteorologist consults with the appropriate air pollution control authority for more information.

Data will also be obtained from a predictive smoke plume model whenever possible. Modeling information will not be relied upon exclusively but will be considered as part of the information package. The UC then evaluates all available information and determines the feasibility and acceptability of in situ burning. If the decision is yes, then the same procedures apply as those for preapproval areas. If the decision is no, then the burn will not be conducted. If conditions change, the application will be reevaluated.

7.3.4 Group 5 Oils

The TSVEDT does not handle Group 5 oils.

Figure 7.6 – In-Situ Burn Decision Process



7.4 Decontamination

One or more decontamination areas would be set up during response operations. These areas are to be used only for decontamination at the work site; they are not to be used as a substitute for personal hygiene at home.

Decontamination areas are designed to protect the worker's health and to prevent the spread of contamination into "clean" areas. In the field, it is not possible for a worker to remove all contaminated clothes each time they take a break from work. It is essential, however, that a worker clean hands and face to avoid ingesting oil or spreading oil to otherwise protected body parts. In the field, a worker will be provided with:

- Soap, water, paper towels, waterless hand cleaner, and/or other materials for washing their hands and face,
- An impermeable surface to sit on,
- Refuse containers, and
- An eyewash station.

Particular attention should be paid to personal hygiene prior to eating, drinking, or smoking.

At the end of a daily shift, the worker will be required to go through full decontamination. Normally, the worker will report to a "dirty" zone where they will remove all soiled protective clothing. The worker should do this carefully to avoid contaminating clean clothing. Next, the worker will move to the "transition" zone where they will remove their work clothes and clean themselves to remove all traces of oil. Finally, the worker will proceed to the "clean" zone to put on clean clothing and leave for home. If work clothes are contaminated, they should be left at the site for cleaning. If they cannot be properly cleaned; they will be disposed of. Therefore, it is important that the worker bring an extra set of clean work clothes to the site. The worker should not wear clothes that will be missed if they cannot be cleaned.

Decontamination facilities should be positioned prior to employee/contractor entrance to areas where potential for exposure to contamination exists. A separate emergency decontamination area should be established to allow for decontamination of personnel requiring lifesaving medical attention. The appropriate Material Safety Data Sheets (MSDS) should be stored in this area at all times to aid health professionals treating the injured parties.

Decontamination facilities should be designed to prevent further contamination of the environment and should have a temporary storage area for items that will be reused in the contaminated area.

7.5 Oil Handling, Storage, and Disposal

Strict rules designed to ensure safe and secure handling of waste materials govern the Company's waste disposal activities. To ensure proper disposal of recovered oil and oiled debris, the following guidelines should be followed:

- In the event of a spill at the Facility, CRCI will respond within 2 hours to begin on-water recovery operations.
- It is recognized that both shoreside and on-water storage capability is necessary. Immediate on-water storage will include a 10,000-barrel Tidewater barge adjacent to the Facility. Several 100-barrel SWBs and 8,000 gallons of bladder storage from CRCI. MSRC can provide over 40,000 barrels of floating storage. For shoreside storage, the terminal capacities will vary and dedicated CRCI member storage will be used as available.

The TSVEDT/Tesoro will use only licensed transporters and approved (or permitted) treatment and disposal facilities for waste handling and disposition, unless otherwise directed by Ecology.

Permanent disposal of oil recovered and oily waste generated during response and cleanup operations will be conducted in accordance to guidelines provided in the Northwest ACP, Washington State Disposal Guidance, Section 9620.

Incident specific disposal plans will be developed in accordance with the Northwest ACP, Washington State Disposal Guidance, Section 9620 and follow the "Sample Disposal Plan" format provided in **Section 5.6**.

The Disposal/Waste Management Specialist will coordinate activities and obtain necessary permits to ensure proper disposal or recycling of recovered product and debris. Key issues to be addressed during a spill to ensure proper handling and effective disposal of recovered product and debris are included as checklist items in the Disposal/Waste Management Specialist checklist.

Recovered oil and oily wastes will be accounted for within the first 24 hours of the spill. Management and quantification will be accomplished by adhering to the Recovered Oil and Water Management Plan found in **Section 5.7** and the Recovered Oil Quantification Plan in **Section 5.8**.

Upon request, waste disposal records will be made available to Ecology.

A spill from the Facility could involve crude oil. For a spill on land, it is anticipated that crude oil would be recoverable. Recovered crude oil would either be returned to tanks at the Facility or stored in bulk tank trucks, rail cars, or vessels until the crude oil can be recycled. Waste materials associated with a spill on land will include contaminated absorbent materials, PPE, and soil.

For a spill on water, it is anticipated that crude oil and significant amounts of contaminated water will be recovered.

The largest crude oil tank at the terminal may contain up to 360,000 barrels of product. For planning purposes, it will be assumed that 100 percent of this tank spills into the Columbia River.

For planning purposes, it will further be assumed that 10 percent, or approximately 36,000 barrels of crude is actually recovered along with an additional 78,000 barrels of contaminated water. Ten percent recovery was chosen based on typical spill recovery data. The remaining crude oil will evaporate or disperse into the river.

The amount of contaminated sorbents and personal protective equipment that will be generated is unknown, but will be significant. For planning purposes, an estimated 1,000 cubic yards of contaminated solid debris may be generated. Contamination of shoreline materials will also occur, but it is likely that these materials will be treated or cleaned in place.

7.5.1 Model Disposal Plan

The Northwest ACP establishes oily waste disposal guidelines. The Company will work closely with Ecology to develop a plan for the disposal of oily waste. Recovered oil and oily debris will be recycled and reused to the extent feasible to reduce the amount of oily waste that must be incinerated or taken to landfill.

A "Model Disposal Plan for Oil Spills in Washington State" was included in the Northwest ACP. That model has been modified and adopted by Tesoro. Tesoro's waste disposal plan is included in **Section 5.6**. This model plan can be used to speed the waste disposal approval procedure during a spill response.

7.5.2 Recovered Oil and Water Storage

CRCI has a limited amount of storage available for their initial oil spill response. Additional temporary storage capacity of approximately 150,000 barrels has been identified by CRCI for its member companies. **Appendix B** contains a summary of CRCI's storage resources.

The TSVEDT/Tesoro will seek to supplement storage capacity (if necessary) with available oil barges, tank trucks, rail cars, and tankage from the TSVEDT. Oil barges are frequently the most readily available asset for storage of recovered liquids. NRCES has access to five 10,000- to 12,000-barrel oil barges routinely in service on the Columbia River. TSVEDT/Tesoro will seek these and any other barges that may be available at the time of the spill to contain recovered liquids. Recovered oil and water will be trucked to the Facility or the liquid oil recycling facilities identified in the Northwest ACP for separation and recycling. Excluding the largest tank volume, the Facility has a storage capacity of 1,850,000 barrels.

7.5.3 Contaminated Solids Storage Area

Tesoro has a truck turnaround area that could be used as a short-term contaminated solids storage area. This land is cleared and level. A series of temporary solid waste holding sites could be constructed by laying 4- to 6-inch-thick sand pads, 10 feet wide and 100 feet long, and surrounding them with 2-foot-high berms. Two layers of seamless visqueen, each a minimum of 6 mils thick could be placed on top of the sand pads and covered with an additional layer of 4 to 6 inches of sand to protect the visqueen from damage. Each of these units could contain 300 to 500 cubic yards of oily debris. Once a pad was filled with oily debris it could be covered with another layer of visqueen to keep rain from flooding the storage area.

TSVEDT/Tesoro will seek approval for the construction of these temporary oily debris storage sites from Ecology, the EPA, and the Port of Vancouver, as required.

7.5.4 Temporary Storage and Ultimate Disposal of Contaminated Debris

Contaminated debris will consist primarily of oiled absorbents and used PPE. It will be segregated into oily and non-oily debris, then placed into plastic bags for storage. Once the bags are filled, they will be transported by truck to the TSVDT or other approved location for temporary storage.

The oily solids will be sampled and tested to determine if they are hazardous as determined by provisions of WAC 173-303-070 and the EPA Toxicity Characteristic Leaching Procedure (TCLP). They will then be disposed of within 90 days as permissible by state and federal regulations. If testing indicates the material is not a hazardous waste, it may be disposed of under the Solid Waste Management Act, RCW 70.95. If the waste is designated as a hazardous waste, it must be disposed of under the provisions of the Hazardous Waste Management Act, RCW 70.015.

7.5.5 Decanting

Separation or "decanting" of water from recovered oil and return of excess water into the response area allows for maximum use of limited storage capacity, thereby increasing recovery operations. Decanting is currently recognized as a necessary and routine part of response operations and is appropriately addressed in ACPs (see National Contingency Plan Revisions, 59 F.R. 47401, September 15, 1994).

Criteria

During spill response operations, mechanical recovery of oil is often restricted by a number of factors, including the recovery system's oil/water recovery rate, the type of recovery system employed and the amount of tank space available to hold recovered oil/water mixtures. In addition, the longer oil remains on or in the water, the more it emulsifies. Emulsifications may contain as much as 70 percent water and 30 percent oil, thus consuming significant storage space. Decanting is the process of draining off recovered water from portable tanks, internal tanks, collection wells or other storage containers to increase the available storage capacity of recovered oil. When decanting is conducted properly, most of the petroleum can be removed from the water.

Decanting should be considered and authorized as appropriate by the federal OSC and/or state OSC in cases where the discharged water will be less harmful to the environment than allowing the oil to remain on the water and be subject to spreading and weathering.

During a response, it will likely be necessary to request authority to decant from the federal and/or state OSC so that response operations do not cease or become impaired. An Oil Spill Decanting Authorization Form is provided in **Figure 5.7**. Expeditious review and approval, as appropriate, of such requests is necessary to ensure a rapid and efficient recovery operation.

The federal OSC and state OSCs will consider each request for decanting on a case-by-case basis. Prior to approving decanting, the OSCs should evaluate the potential effects of weather, including the wind and wave conditions, the quantity and type of oil spilled as well as available storage capacity. The OSCs should also take into account that recovery operations enhanced by decanting will reduce the quantity of pollutants in a more timely and effective manner.

The following criteria should be considered by the federal and/or state OSC 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 federal OSC and/or state OSC 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 will 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 used for shore cleanup will be subject to the same rules as vessels.

The Company will seek approval from the federal OSC and/or state OSC 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. The federal OSC and/or state OSC will review such requests promptly and render a decision as quickly as possible. Federal OSC authorization is required in all cases and state OSC authorization is also required for decanting in state waters. **Section 5.7** provides guidance on developing a decanting plan.

7.6 Public Affairs

Properly handling media relations is an important facet of Company operation at all times. During normal operations, this function will be handled by the Supervisor of Contingency Planning or designee. During emergency situations, media relations become more complex and a number of other personnel become involved. The Company will use the Washington Joint Information Center (JIC) Manual as a guideline to media relations.

8.0 DEMOBILIZATION/POST-INCIDENT REVIEW

8.1 Demobilization/Post Incident Review

This section provides checklists and guidelines for demobilization and post incident reviews.

8.1.1 Equipment Demobilization

TSVEDT can reduce response costs considerably by developing demobilization plans. Therefore, emphasis must be placed on establishing efficient demobilization procedures. A demobilization checklist and plan is contained in **Figure 8.1**.

8.2 Post Incident Debriefing and Critique

TSVEDT will schedule a post spill review session within two weeks of completing the response to an oil spill. Representatives of the USCG, EPA, Ecology, and other agencies who participated in the response will be invited to attend. Representatives of any spill response contractors that worked on the spill, such as responders from NRCES, MSRC, and Global Environmental, will also be invited. The purpose of this meeting is to review the response and identify ways to improve TSVEDT's spill prevention policies, spill response plans, and this contingency plan.

It is anticipated that topics to be discussed will include

- Cause of the spill and prevention measures that could be used to prevent the reoccurrence of a similar spill.
- Discussion of post-incident critique (**Section 8.2.1**).
- Recommendations for modifications to the TSVEDT Contingency Plan.

A Post Incident Critique (PIC) is designed to evaluate Company emergency response actions, not the cause of the incident. A Post Incident Critique form is provided in **Figure 8.2.** A post-spill review is also designed to identify potential deficiencies in the Plan and determine the changes required to correct the deficiencies. The post-spill review is also intended to identify which response procedures, equipment, and techniques were effective and which were not and the reason(s) why. Response plans can then be revised to eliminate or modify those response procedures that are less effective and emphasize those that are highly effective. This process should also be used to evaluate exercises.

Figure 8.1 – Demobilization Plan

Incident Name: ________________ **Plan 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 collection site will require a decontamination area. Decontaminated equipment will be returned to appropriate staging area for release or redeployment. Transports for equipment will be required if remote from staging area.
- The Planning Section will document all demobilization and decontamination activities.
- Equipment designated for reassignment will be mobilized to the appropriate staging area.
- The Operations Section Chief will maintain a log documenting that proper decontamination procedures were performed for each piece of equipment.
- The Operations Section Chief will ensure that redeployed personnel receive proper rest prior to return 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 demobilization plans prior to decontamination, release, or redeployment of any resources.

8.2.1 Outline of Post Spill Critique

The following items should be examined by a team composed of outside people knowledgeable in oil spill response and key members of the response teams. These questions are intended as guidelines only; many other questions are likely to be appropriate at each stage of a critique.

Detection

- Was the spill detected promptly?
- How was it detected? By whom?
- Could it have been detected earlier? How?
- Are any instruments or procedures available to consider which might aid in spill detection?

Notification

- Were proper procedures followed in notifying government agencies?
- Were notifications prompt?
- Was management notified promptly?
- Was management response appropriate?
- Was the Company notified properly? If so, why, how, and who? If not, why not?

Assessment/Evaluation

- Was the magnitude of the problem assessed correctly at the start?
- What means were used for this assessment?
- Are any guides or aids needed to assist spill evaluation?
- What sources of wind and water currents information were available?
- Is our information adequate?
- Was this information useful (and used) for spill trajectory forecasts?
- Were such forecasts realistic?
- Was adequate information available on oil properties?
- Was additional information needed on changes of oil properties with time, i.e., as a result of weathering and other processes?

Mobilization

- What steps were taken to mobilize oil spill countermeasures?
- What resources were used?
- Was mobilization prompt?
- Could it have been speeded up or should it have been?
- What about mobilization of manpower resources?
- Was the local oil spill cooperative used appropriately?
- How could this be improved?
- Was it appropriate to mobilize Company resources and was this promptly initiated?
- What other corporate resources are available and have they been identified and used adequately?

Response – Strategy

- Is there an adequate spill response plan for the location?
- Is it flexible enough to cope with unexpected spill events?
- Does the plan include clear understanding of local environmental sensitivities?
- What was the initial strategy for response to this spill?
- Is this strategy defined in the spill plan?
- How did the strategy evolve and change during this spill and how were these changes implemented?
- What caused such changes?
- Are there improvements needed? More training?

Response – Resources Used

- What resources were mobilized?
- How were they mobilized?
- How did resource utilization change with time? Why?
- Were resources used effectively?
  - Contractors
  - Government Agencies
  - Company resources
  - Cooperatives
  - Volunteers
  - Consultants
  - Other (e.g., bird rescue centers)
- What changes would have been useful?
- Do we have adequate knowledge of resource availability?

Response – Effectiveness

- Was containment effective and prompt?
- How could it have been improved?
- Should the location or the local cooperative have additional resources for containment?
- Was recovery effective and prompt?
- How could it have been improved?
- Should the location or the local cooperative have additional resources for recovery of spilled oil?

Command Structure

- Who was initially in charge of spill response?
- What sort of organization was initially set up?
- How did this change with time? Why?
- What changes would have been useful?
- Was there adequate surveillance?
- Should there be any changes?
- Were communications adequate?
- What improvements are needed? Hardware, procedures, etc.
- Was support from financial services adequate? Prompt?
- Should there be any changes?
- Is more planning needed?
- Should financial procedures be developed to handle such incidents?

Measurement

- Was there adequate measurement or estimation of the volume of oil spilled?
- Was there adequate measurement or estimation of the volume of oil recovered?

- Should better measurement procedures be developed for either phase of operations?
- If so, what would be appropriate and acceptable?

Government Relations

- What are the roles and effects of the various government agencies that were involved?
- Was there a single focal point among the government agencies for contact?
- Should there have been better focus of communications to the agencies?
- Were government agencies adequately informed at all stages?
- Were too many agencies involved?
- Are any changes needed in procedures to manage government relations?
- Examples of affected U.S. agencies (there may be others):
  - U.S. Coast Guard
  - U.S. Environmental Protection Agency
  - National Oceanographic Atmospheric Administration
  - Department of Fish and Wildlife
  - State Parks
  - Harbors and Marinas
  - States
  - Cities
  - Counties
- Was there an adequate agreement with the government agencies on criteria for cleanup?
- How was this agreement developed?
- Were we too agreeable with the agencies in accepting their requests for specific action items (e.g., degree of cleanup)?
- Should there be advance planning of criteria for cleanup, aimed at specific local environmentally sensitive areas? (Such criteria should probably also be designed for different types of oils).

Public Relations

- How were relations with the media handled?
- What problems were encountered?
- Are improvements needed?
- How could public outcry have been reduced? Was it serious?
- Would it be useful to undertake a public information effort to “educate” reporters about oil and its effects if spilled?

These areas should be investigated shortly after the incident to assure that actions taken are fresh in peoples’ minds.

Figure 8.2 – Post Incident Critique (PIC) Form

The purpose of the PIC is to review overall incident response not a fault finding session.

General Information:

Date: (Incident)
Location:
Type of Incident: (fire, rescue, medical, hazmat)
Cause of Incident: (mechanical, electrical, human)

Incident Command System (personnel who filled the following functions)**:**

Incident Commander:
Safety Officer:
Team Captain(s):
Mutual Aid/Outside Agencies:

Incident Command ('Command'):

Did 'Command' announce over the radio "Who was in charge." (YES/NO)
If no, explain.
Did 'Command' announce Command Post location. (YES/NO)
If no, explain.

Figure 8.2 –Post Incident Critique (PIC) Form (Continued)

Location of Incident Command Post: (include scene map or drawing)
Did 'Command' and other officers don command vests. (YES/NO)
If no, explain.
Action Items:
Recommended Corrective Action:

Evacuation:

What areas were evacuated:
Were buses used: (YES/NO)
Were all personnel accounted for: (YES/NO)
If yes, How?
If no, explain.
Action Items:
Recommended Corrective Action:

Figure 8.2 –Post Incident Critique (PIC) Form (Continued)

Response Activation:

How was the system activated: (radio emergency channel, radio emergency button, phone, other)
Who was the reporting party:
Who performed initial dispatch:
Action Items:
Recommended Corrective Action:

Safety:

Were PPE requirements clearly identified: (YES/NO)
If yes, How?
If no, explain.
If PPE was required and not used, Why not?
Was HOT, WARM, COLD Zones marked by flagging and/or landmarks: (YES/NO)
If yes, How?
If no, explain.
Was area monitoring performed: (YES/NO)
If yes, What kind?
If no, explain.
Action Items:
Recommended Corrective Actions:

Figure 8.2 –Post Incident Critique (PIC) Form (Continued)

Initial Response:

How was the initial incident handled by incipient responders: (incipient firefighting, fixed systems, hazard control, first aid)
Action Items:
Recommended Corrective Actions:

Communications:

What radio channels were used:
Were radio communications clear and concise: (YES/NO)
If yes, How?
If no, explain.
Did communications follow a clear command path: (YES/NO)
If yes, How?
If no, explain.
Action Items:
Recommended Corrective Action:

Equipment:

List equipment used: (company, contractor, etc.)
Was there enough equipment: (YES/NO)

Figure 8.2 –Post Incident Critique (PIC) Form (Continued)

If yes, How?
If no, explain.
Did the equipment work correctly: (YES/NO)
If yes, How?
If no, explain.
Did equipment operators use equipment correctly: (YES/NO)
If yes, How?
If no, explain.
Action Items:
Recommended Corrective Action:
Injuries:
Did incident cause any injuries: (YES/NO)   # of injured:
Who provided initial care:
Were paramedics (911) activated: (YES/NO)
Were injured transported: (YES/NO)
Where were injured transported:
Action Items:
Recommended Corrective Action:

Figure 8.2 –Post Incident Critique (PIC) Form (Continued)

Outside Agencies:

What agencies were activated and why:
Action Items:
Recommended Corrective Action:

Post Incident:

What areas of response need corrective action:

Individuals who performed beyond the call of duty:

Figure 8.2 –Post Incident Critique (PIC) Form (Continued)

PIC Attendees:

1.	6.
2.	7.
3.	8.
4.	9.
5.	10.

This critique is to be completed within two weeks of the incident and submitted to the ____________________.

The PIC was held on the ______ day of _______________________ in 20 ____. The PIC was completed by ____.

8.2.2 Final Spill Cleanup Report

A final, comprehensive report for internal use should be prepared by the Incident Commander or his designee after completion of spill cleanup activities. The report should be written in narrative form and should include information listed below, as appropriate:

1. Time, location, and date of discharge.
2. Type of material discharged.
3. Quantity discharged (indicate volume, color, length and width of slick, and rate of release if continuous).
4. Source of spill (tank, flowline, etc.) in which the oil was originally contained, and discharge path.
5. Detailed description of what caused the discharge and actions taken to control or stop the discharge.
6. Description of damage to the environment.
7. Steps taken to clean up the spilled oil, and dates and times steps were taken.
8. The equipment used to remove the spilled oil, dates, and number of hours the equipment was used.
9. 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.
10. Actions by the Company or contractors to mitigate damage to the environment.
11. Measures taken by the Company or contractors to prevent future spills.
12. 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.
13. Description of the effectiveness of equipment and cleanup techniques and recommendations for improvement.
14. The names, addresses, and titles of people who played a major response role.
15. A section identifying problems and deficiencies noted during the response. A follow-up section should include recommendations for more effective and efficient response procedures.

16. All other relative information.

17. A final signature as follows:

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

Name:

Title:

Signature:

Date:

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Appendix A
Training and Exercises

APPENDIX A
TRAINING AND EXERCISES

A.1 EXERCISE REQUIREMENTS AND SCHEDULES

The TSVEDT and Tesoro participate in the National Preparedness for Response Exercise Program (PREP) in order to satisfy the exercise requirements of the EPA and USCG. Additionally, TSVEDT and Tesoro are committed to Ecology's drill program, as outlined in WAC 173-180-700 & 710. The facility meets all applicable drill components established in the Spill Drill Evaluation Checklist in Ecology's Publication #98–251/June 1998. During each triennial cycle, all components of the Plan must be exercised at least once. The 15 core components listed in **Figure A.1** are the types of components that must be exercised.

Response exercise will be designed to:

1. Provide an opportunity for SMT personnel to practice responding to a spill.
2. Test FRP for shortcomings or errors.
3. Improve Company personnel's spill response expertise in specified ICS positions.

Comply with PREP guidelines.

TSVEDT/Tesoro supplies the IRT and SMT with initial 8-hour spill response training and annual refresher training, including review of ICS/US, ICS Forms, with emphasis placed on the greatest exposure for a given group.

Training is accomplished through video, written and oral presentation as well as hands on. Annual refresher training is intended to be approximately 8 hours.

Training in the NIMS ICS used by TSVEDT/Tesoro is given to all team members during an initial training session designed to cover ICS positions and ICS Forms.

Review of the NWACP and Area GRP location and use are included in annual ICS refresher training.

Individuals with no previous experience with the SMT will receive 8 hours of ICS training prior to being assigned to a position. Newly assigned individuals will normally have a coach working with them.

SMT positions are assigned and will only be filled by the experienced individuals. It's recognized that IC and Section Persons assigned into these roles will receive 8-hours initial ICS training and 8-hours refresher training, and will be expected to complete an additional 16 hours of position-specific training prior to being permanently assigned. Additional training may include off-site workshops, actual drill or spill exposure, job-related experience, or other relevant training specific to the position.

The Supervisor of Contingency Planning is responsible for scheduling, maintaining records, implementing and evaluating this drill program, and ensuring that post-drill evaluation improvements are implemented. Descriptions of these exercises are listed in **Figure A.2**.

Figure A.1 – Prep Response Plan Core Components

Core Components	Description
1. Notifications	Test the notifications procedures identified in the Area Contingency Plan and the associated Responsible Party Response Plan.
2. Staff Mobilization	Demonstrate the ability to assemble the spill response organization identified in the Area Contingency Plan and the associated Responsible Party 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. 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 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 the discharged product.
8. Protection	Demonstrate the ability of the spill response team 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 establish 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 response.
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.2 – Exercise Requirements

Exercise Type	Exercise Characteristics
Facility/QI Notification	• Conducted quarterly • Facility initiates mock spill notification to QI • Terminal Manager documents time/date of notification, name and phone number of individual contacted • Document in accordance with form in **FIGURE A.3**
Equipment Deployment	• Conducted semiannually • Response contractors listed in FRP must participate in annual deployment exercise • Document in accordance with form in **FIGURE A.3**
SMT Tabletop	• Conducted annually • Tests SMT's response activities/responsibilities • Documents plan's effectiveness • Must 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.3**
Unannounced	• Company will either participate in unannounced tabletop exercise or Facility equipment deployment exercise on an annual basis, if selected • Company may take credit for participation in government initiated unannounced drill in lieu of drill required by PREP guidelines • Plan holders who have participated in a PREP government-initiated unannounced exercise will not be required to participate in another one for a least 36 months from the date of the exercise. • If equipment is deployed during this exercise, it may be counted as one of the "semi-annual" deployment drills.
Area	• Company will participate in a minimum of one area exercise per six-year period
Other Exercise Considerations	
Drill Program Evaluation Procedures	• Company conducts post-exercise meetings to discuss positive items, areas for improvement and to develop action item checklist to be implemented later
Records of Drills	• Company will maintain exercise records for five years following completion of each exercise • Records will be made available to WDOE, EPA, USCG and other applicable agencies upon request • Company will verify appropriate records are kept for each spill response contractor listed in Plan as required by PREP guidelines (annual equipment deployment drill, triennial unannounced drill, etc.)

Figure A.3 – Preparedness for Readiness Exercise Form

PREPAREDNESS FOR READINESS EXERCISE PROGRAM

TSVEDT/TESORO EXERCISE DOCUMENTATION FORM

Exercise Year:____________

TESORO

Vessel / Facility Name:____________________________

☐ Announced ☐ Unannounced
A. Name of Qualified Individual: _______________________________ Title: _________________________
B. Is Qualified Individual identified in Contingency Plan? ☐ Yes ☐ No
C. Notification method: ☐ Telephone ☐ Pager ☐ In Person ☐ Radio ☐ Other
D. Did notification procedure follow C-Plan? ☐ Yes ☐ No
E. Comments:____
F. Self-Certification: Name:_____________________________ Title:___________________________

1.1.2 Second QuarterQUALIFIED INDIVIDUAL NOTIFICATION EXERCISE

☐ Announced ☐ Unannounced
A. Name of Qualified Individual: _____________________________ Title: _________________________
B. Is Qualified Individual identified in Contingency Plan? ☐ Yes ☐ No
C. Notification method: ☐ Telephone ☐ Pager ☐ In Person ☐ Radio ☐ Other
D. Did notification procedure follow C-Plan? ☐ Yes ☐ No
E. Comments:____
F. Self-Certification: Name:_____________________________ Title:___________________________

1.1.3 Third QuarterQUALIFIED INDIVIDUAL NOTIFICATION EXERCISE

☐ Announced ☐ Unannounced
A. Name of Qualified Individual: _____________________________ Title: _________________________
B. Is Qualified Individual identified in Contingency Plan? ☐ Yes ☐ No
C. Notification method: ☐ Telephone ☐ Pager ☐ In Person ☐ Radio ☐ Other
D. Did notification procedure follow C-Plan? ☐ Yes ☐ No
E. Comments:____
F. Self-Certification: Name:_____________________________ Title:___________________________

1.1.4 Fourth QuarterQUALIFIED INDIVIDUAL NOTIFICATION EXERCISE

☐ Announced ☐ Unannounced
A. Name of Qualified Individual: _______________________________ Title: _________________________
B. Is Qualified Individual identified in Contingency Plan? ☐ Yes ☐ No
C. Notification method: ☐ Telephone ☐ Pager ☐ In Person ☐ Radio ☐ Other
D. Did notification procedure follow C-Plan? ☐ Yes ☐ No
E. Comments:____
F. Self-Certification: Name:_____________________________ Title:___________________________

Figure A.3 – Preparedness for Readiness Exercise Form (Continued)

1.1.5 First EMERGENCY PROCEDURES EXERCISE

Date:______________________ ☐ **Announced** ☐ **Unannounced**

A. Emergency Procedures Tested: ______________________

B. Drill Location on site: ______________________

C. List Personnel Participating: ______________________

____

D. Describe objectives and how they were exercised: ______________________

____

____

E. Descriptions of lessons learned: ______________________

____

____

____

F. Self Certification: **Name:** ______________ **Title:** ______________

*** Note: Emergency Procedure Exercises are optional for facilities**

1.1.6 Second EMERGENCY PROCEDURES EXERCISE

Date:______________________ ☐ **Announced** ☐ **Unannounced**

A. Emergency Procedures Tested: ______________________

B. Drill Location on site: ______________________

C. List Personnel Participating: ______________________

____

D. Describe objectives and how they were exercised: ______________________

____

____

E. Descriptions of lessons learned: ______________________

____

____

F. Self Certification: **Name:** ______________ **Title:** ______________

*** Note: Emergency Procedure Exercises are optional for facilities**

Figure A.3 – Preparedness for Readiness Exercise Form (Continued)

First EQUIPMENT DEPLOYMENT EXERCISE

Date:______________________________ ☐ **Announced** ☐ **Unannounced**

A. **Equipment Ownership:** **Facility** ☐ **OSRO** ☐ **Both** ☐

B. **Provide attachment listing Equipment and Personnel**

C. **Was equipment deployed in its inteded operating environment?** **Yes** ☐ **No** ☐

D. **Describe objectives and how they were exercised:** ______________________________

____

____

____

E. **Descriptions of lessons learned:** ______________________________

____

____

____

F. **Is Spill Response Equipment in a Preventative Maintenance Program?** **Yes** ☐ **No** ☐

G. **Self Certification:** **Name:** ______________________________ **Title:** ______________________________

Second EQUIPMENT DEPLOYMENT EXERCISE

Date:______________________________ ☐ **Announced** ☐ **Unannounced**

A. **Equipment Ownership:** **Facility** ☐ **OSRO** ☐ **Both** ☐

B. **Provide attachment listing Equipment and Personnel**

C. **Was equipment deployed in its inteded operating environment?** **Yes** ☐ **No** ☐

D. **Describe objectives and how they were exercised:** ______________________________

____

____

____

E. **Descriptions of lessons learned:** ______________________________

____

____

____

F. **Is Spill Response Equipment in a Preventative Maintenance Program?** **Yes** ☐ **No** ☐

G. **Self Certification:** **Name:** ______________________________ **Title:** ______________________________

Figure A.3 – Preparedness for Readiness Exercise Form (Continued)

SPILL MANAGEMENT TEAM TABLETOP EXERCISE

RESPONSE CATEGORY

- ☐ **Announced**
- ☐ **Unannounced**
- ☐ **Average Most Probable Discharge**
- ☐ **Maximum Most Probable Discharge**
- ☐ **Worst Case Discharge**
- ☐ **Simulated** ☐ **Real ____________bbls**

PREP CORE REQUIREMENTS COMPLETED THIS CALENDAR YEAR

- ☐ **Notifications**
- ☐ **Assessment**
- ☐ **Protection of Sensitive Areas**
- ☐ **Staff Mobilization**
- ☐ **Containment**
- ☐ **Personnel Support**
- ☐ **Response Management System**
- ☐ **Recovery**
- ☐ **Equipment Maintenance**
- ☐ **Unified Command**
- ☐ **Disposal**
- ☐ **Procurement**
- ☐ **SMT Operations**
- ☐ **Communications**
- ☐ **Documentation**
- ☐ **Discharge Control**
- ☐ **Transportation**

Figure A.3 – Preparedness for Readiness Exercise Form (Continued)

EXERCISE OBJECTIVES

LESSONS LEARNED

APPROVED BY:

RESPONSIBLE PARTY	DATE
FEDERAL ON-SCENE COORDINATOR	DATE
STATE ON-SCENE COORDINATOR	DATE
LOCAL ON-SCENE COORDINATOR	DATE

LIST OF ATTACHMENTS:

- ☐ **Incident or Scenario & Objective of Exercise/Incident**
- ☐ **ICS 201 Initial Incident Briefing**
- ☐ **List of Equipment Operational Problems**
- ☐
- ☐ **Incident Action Plan (IAP)**
- ☐ **Critique/Lessons Learned**
- ☐ **ICS 211P (OS) Check-in List**
- ☐

Attachments on file with Supervisor Contingency Planning and Emergency Response, TSVEDT

A.2. TRAINING PROGRAM

The TSVEDT Manager and TSVEDT Supervisor are trained to the following level:

1. 40 hour HAZWOPER;
2. 8 hour ICS;
3. 16 hour Specialized ICS;
4. 8 hour oil spill response;
5. 40 hour Coastal Oil Spill Control Course at Texas A&M.

The Supervisor, Contingency Planning is designated as the Training Supervisor. The Training Supervisor prepares and conducts a spill prevention training session in conjunction with safety meetings. **Figure A.4** lists training requirements for spill responders.

At a minimum, all TSVEDT Operators will receive training adequate to satisfy HAZWOPER level 3 (24-hour) requirements.

The TSVEDT will comply with the requirements of WAC 173-180(C), Ecology's Facility Personnel Oil-Handling Training and Certification Program and WAC 296-62-3112. Tesoro's Training manual and documentation were approved by the Department of Ecology on June 15, 1995 and recertified in June 2000.

The objectives of the training program are to prevent oil spills caused by human error, promote job competency and environmental awareness, and certify the competency of all terminal personnel. The training program is on file at the TSVEDT. The training program elements include:

1. a training topic core program,
2. a trainer qualification section,
3. a competency-based training program,
4. a training and certification program, and
5. a training manual and materials section. Recertification of the training program is required every 3 years.

Daily, weekly, monthly and annual inspection and maintenance routines and examples of record keeping and inspection forms for the TSVEDT are presented in **Appendix G**.

FIGURE A.4 – Training Elements

Training Type	Training Characteristics
Training in Use of Oil Spill Plan	• All terminal personnel will be trained to properly report/monitor spills • Plan will be reviewed annually with all employees and contract personnel • The Personnel Response Training Log is provided in **FIGURE A.6**.
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 8 hours of actual field experience ◦ Spill 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 8 hours of specialized hazardous waste management training ◦ Managers/employees require 8 hours of annual refresher training
Spill Management Team Personnel Training	• See recommended PREP Training Matrix (**FIGURE A.5**)
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 five years for all personnel following completion of training • Company will retain training records indefinitely for individuals assigned specific duties in Plan • Training records will be retained at the Terminal. Training Supervisor will document all applicable training.

Figure A.5 – Training Program Matrix

(Based upon the Training Reference for Oil Spill Response-USCG, RSPA, EPA, MMS, 1994)

TRAINING ELEMENT	QUALIFIED INDIVIDUAL (QI)	SPILL MANAGEMENT TEAM (SMT)	FACILITY RESPONDERS
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 (OSRO's) 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, special handling procedures, health and safety hazards, spill and firefighting 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 procedures for use of facility equipment which may be available to mitigate or prevent an oil discharge.	X	X	X
Operational capabilities of the contracted OSRO's to respond to the following: • Average most probable discharge (small discharge); • Maximum most probable discharge (medium discharge); and • Worst-case discharge.	X	X	X
Responsibilities and authority of the Qualified Individual as described in the facility response plan and company response organization.	X	X	X

Figure A.5 – Training Program Matrix (Continued)

(Based on the Training Reference for Oil Spill Response - USCG, RSPA, EPA, MMS, 1994)

TRAINING ELEMENT	QUALIFIED INDIVIDUAL (QI)	SPILL MANAGEMENT TEAM (SMT)	FACILITY RESPONDERS
The organizational 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; and □ Finance.	X	X	X
The responsibilities and duties of each oil spill management team within the organizational structure.	X	X	
The drill and exercise program to meet federal and state regulations as required under OPA.	X	X	X
The role of the Qualified Individual 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
Available response resources identified in response plan.	X	X	
Contracting and ordering procedures to acquire oil spill removal organization resources identified in the response 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	

□ Applicable to designated job responsibilities.

Figure A.5 – Training Program Matrix (Continued)
(Based upon the Training Reference for Oil Spill Response - USCG, RSPA, EPA, MMS, 1994)

TRAINING ELEMENT	QUALIFIED INDIVIDUAL (QI)	SPILL MANAGEMENT TEAM (SMT)	FACILITY RESPONDERS
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 response plan for members of the spill management team		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 clean-up technology including: - Oil containment; - Oil recovery methods and devices; - Equipment limitations and uses; - Shoreline clean-up and protection; - Spill trajectory analysis; - Use of dispersants, in-situ burning, bioremediation; and - 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.			

Figure A.5 – Training Program Matrix (Continued)
(Based upon the Training Reference for Oil Spill Response - USCG, RSPA, EPA, MMS, 1994)

TRAINING ELEMENT	QUALIFIED INDIVIDUAL (QI)	SPILL MANAGEMENT TEAM (SMT)	FACILITY RESPONDERS
Specific procedures to shut down affected operations.			x
Procedures to follow in the event of discharge, potential discharge, or emergency involving the following equipment or scenarios: - Tank overfill; - Tank rupture; - Piping or pipeline rupture; - Piping or pipeline leak, both under pressure or not under pressure, if applicable; - Explosion or fire; - Equipment failure; and - Failure of secondary containment system.			x
Name of the Qualified Individual and how to contact him or her.			x

Figure A.6 – Personnel Response Activities Training Log

NAME	RESPONSE TRAINING/DATE AND NUMBER OF HOURS	PREVENTION TRAINING/DATE AND NUMBER OF HOURS

Figure A.7 – Discharge Prevention Meeting Log

Date: ______________________________

Subject / Issue Identified: ______________________________

____

____

Required Action Item Identified:

1. ______________________________
2. ______________________________
3. ______________________________
4. ______________________________

Date of Implementation of Action Items:

	WO # Issued
1. ______________________________	______________
2. ______________________________	______________
3. ______________________________	______________
4. ______________________________	______________

Meeting Attendee Name/Dept:

______________________________	______________________________
______________________________	______________________________
______________________________	______________________________
______________________________	______________________________
______________________________	______________________________
______________________________	______________________________

Figure A.7 – Discharge Prevention Meeting Log (Continued)

Meeting Attendee Name/Dept:

Figure A.8 – TSVEDT Safety Meeting Minutes

Subsidiary ____ Meeting Date ____/____/____

Address/Location __________________________________ Time Meeting Opened __________ A.M. P.M.

Personnel Present _________________________________ Time Meeting Closed __________ A.M. P.M.

____ Next Meeting Date ____/____/____

____

____

____

ORDER OF BUSINESS: (1) Introduce visitors and/or new personnel: (2) Review recent safety activities: (3) Discuss accident reports, inspection reports, etc.: (4) Review overall activities, recommendations, and facility conditions.

MINUTES

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The undersigned does/do certify that the date above accurately presents the attendees and proceedings of the safety meeting covered by these minutes.

Supervisor ____ Date ____________________

Figure A.9 – TSVEDT Spill Prevention & Response Training Activity Report

DATE OF TRAINING: ____________________

LOCATION: ____________________

INSTRUCTOR/COMPANY: ____________________

COURSE/TOPICS/HOURS: ____________________

SOURCE/TYPE OF TRAINING MATERIALS ____________________

NAME OF PARTICIPANTS

LAST NAME	FIRST NAME	SIGNATURE

This form shall be completed for all spill prevention and response related training except for monthly safety/prevention meetings, which are documented on a separate form.

OPA 90 "PREP" training shall be recorded on this form and on the documentation form provided by the Coast Guard.

To comply with State requirements, annual training will include a practice exercise on spill prevention during abnormal operations.

This form shall be maintained at the Terminal for a period of five years.

Tesoro Savage Vancouver Energy Distribution Terminal
5501 NW Lower River Road
Vancouver, Washington 98660

Table of Contents

Appendix B
TSVEDT Contractor Response Equipment

APPENDIX B
TSVEDT CONTRACTOR RESPONSE EQUIPMENT

B.1 COOPERATIVES AND CONTRACTORS

- TSVEDT and Tesoro are members of the Clean Rivers Cooperative, Inc. (CRCI) As a member of Clean Rivers, TSVEDT/Tesoro may also have access to equipment and personnel resources from NRC.

- The Clean Rivers contractor response time to the facility is estimated as two hours. Mobilization times for CRCI equipment resources are summarized in **Figure 7.2**.

- Clean Rivers is classified as a "W3" OSRO by USCG. The response organization for Clean Rivers and their relationship with the Company and with subcontractors, NRCES, described in **Section 7.1.4**.

- Ecology has approved CRCI as a Primary Response Contractor (PRC). CRCI's response time to the Facility is 1 hour. Primary Response Contractors are private companies or cooperatives that are in partnership with plan holders to act as required response support teams. The PRCs have equipment and crews that are trained and equipped to mitigate leaks and spills when they occur. CRCI's equipment lists can be found in **Figure B.2** and **Figure B.3**. CRCI's Equipment Map can be found in **Figure B.4**.

- CRCI's contact information is as follows:
- ***Clean Rivers Cooperative, Inc.***
- Address: 9420 NW St. Helens Rd.
  - Portland, Oregon 97231
- 24-hour hotline: (503) 220-2040

Office: (503) 735-1687

B.1.1 OSRO Classification

- An OSRO Classification process was developed by the USCG to evaluate an OSRO's potential to respond to and recover oil spills. Plan holders who arrange for USCG classified OSRO services do not have to list their response resources in their plans.

- CRCI is classified by the USCG as a category W3 OSRO for the inland/nearshore operating area in the Columbia River Captain of the Port (COTP).

B.1.2 Other Oil Spill Response Organizations

- TSVEDT and Tesoro are also members of MSRC. A letter of intent to respond can be found in **Figure B.1**. The Company has also obtained permission from Global Diving & Salvage Inc., a PRC in the State of Washington, to list its respond resources for the Washington facilities. See **Figure B.1** for documentation.

- **Figure B.1** summarizes contractor contact information. **Figure B.2** contains evidence of contracts **Figure B.3** contains response contractor equipment maps.

B.2 NON-DEDICATED VESSELS

- Through contractual agreements, non-dedicated work boats and operators will be available to deploy geographic response plans, enhance skimming, provide platforms as vessel of opportunity skimming systems, logistical support, or other uses during a spill. Such resources could arrive on scene beginning at 48 hours.

- In addition to Clean Rivers and MSRC may also provide non-dedicated vessels to support spill response.

-

Figure B.1 – TSVEDT Response Action Contractors

CONTRACTOR AND POINT OF CONTACT	ADDRESS	PHONE/FAX NUMBERS	CONTRACTOR CERTIFICATION	CONTRACT IN PLACE WITH FACILITY?	RESPONSE TIME
Clean Rivers Cooperative Ernie Quesada	200 SW Market Street, Suite 190 Portland, OR 97201	(503) 220-2040 (24 hr.) (503) 295-3660 (fax)	• USCG classification W3, River/Canal, Inland and Oceans • State of Washington approved primary response contractor	YES	2 hours
MSRC	455 Spring Park Place Suite 200 Herndon, VA 20170	(703) 326-5600 (Office) (703) 326-5660 (Fax) (800) 645-7745 (24 hr.) (425) 252-1300 (Everett)	• USCG classification W3, River/Canal, Inland and Oceans • State of Washington approved primary response contractor	YES	2 hours

FIGURE B.2 – EVIDENCE OF CONTRACTS

EVIDENCE OF CONTRACTS
CLEAN RIVERS COOPERATIVE
OIL SPILL RESPONSE EQUIPMENT-NUSTAR/TESORO
MARINE SPILL RESPONSE CORPORATION

CLEAN RIVERS
COOPERATIVE, INC.

200 S.W. Market Street
Suite 190
Portland, Oregon 97201
Phone: 503-220-2040
Fax: 503-295-3660

www.cleanriverscooperative.com

January 15, 2010

Mike Alleyn
Tesoro Refining & Marketing Co.
2211 St. Francis Lane
Vancouver, WA 98660

RE: Letter of Intent 2010

Dear Mike:

The purpose of this letter is to confirm that Tesoro Refining & Marketing Co. is a member of Clean Rivers Cooperative, Inc., 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 2010 calendar year for the purposes of meeting the requirements set forth in 33 CFR 154.1028, and shall be renewed each calendar year upon request. However, as a member of Clean Rivers Cooperative, there is no "end date" to your coverage under the Bylaws. Coverage is terminated upon member request or at the discretion of the Clean Rivers Board of Directors and membership. For specific terms of coverage and effective periods, please reference the Bylaws.

If you have any questions or concerns please feel free to contact me by telephone at (503) 220-2087 or by e-mail at quesada@pdxmex.com.

Sincerely,
Clean Rivers Cooperative, Inc.

Ernie Quesada

Ernie Quesada
General Manager

MC

MSRC

Marine Spill Response Corporation®

Judith R. Norell
Marketing & Customer Service Manager
(703) 326-5617

July 21, 2005

Mr. John Schumacher
Tesoro Refining & Marketing Company
P.O. Box 1176
2211 St. Francis Lane
Vancouver, Washington 98666

Re: Letter of Intent

Dear Mr. Schumacher:

This letter certifies that Tesoro Petroleum Corporation has entered into an Agreement with the Marine Spill Response Corporation (MSRC). Pursuant to this Agreement the Tesoro Vancouver Terminal and its accompanying facilities are (1) entitled by contract to MSRC response services, and (2) have the right to cite the capability of MSRC in its Facility Response Plan, in accordance with the terms and conditions of the Standard Form MSRC Service Agreement.

The enclosed Execution Instrument to the MSRC Service Agreement dated June 3, 1999 between Tesoro Petroleum Corporation and MSRC is proof that such a contract exists. In addition, MSRC's contract is an evergreen contract and continues automatically until such time that Tesoro Petroleum Corporation ceases to be a member of the Marine Preservation Association (MPA).

Please let me know if I may provide further assistance to you in the future.

Sincerely,

Judith R. Norell

Enclosure

220 Spring Street Suite 500 Herndon, VA 20170 Telephone 703 326 5600 Fax 703 326 5660

MARINE SPILL RESPONSE CORPORATION
SERVICE AGREEMENT

EXECUTION INSTRUMENT

The **MSRC SERVICE AGREEMENT** attached hereto (together with this execution instrument, the "Agreement"), a standard form of agreement amended and restated as of September 27, 1996, is hereby entered into by and between

Tesoro Petroleum Corporation
[Name of **COMPANY**]

a Delaware Corporation
[Type of entity and place of organization]

with its principal offices located at 8700 Tesoro Drive, San Antonio, Texas 78217

(the "**COMPANY**"), and **MARINE SPILL RESPONSE CORPORATION**, a nonprofit corporation organized under the laws of Tennessee ("**MSRC**"), and shall be identified as

SERVICE AGREEMENT No. UMPA 090 [This is to be provided by **MSRC**.]

IN WITNESS WHEREOF, the parties hereto each have caused this Agreement to be duly executed and effective as of June 3, 199~~8~~.9

Tesoro Petroleum Corporation [**COMPANY**]

By: ______________ [signature]

James C. Reed, Jr. [print name]

Title: Executive Vice President,
General Counsel and Secretary

Address: 8700 Tesoro Drive
San Antonio, Texas 78217

Telephone: 210-828-8484 Fax: 210-283-2400

MARINE SPILL RESPONSE CORPORATION:

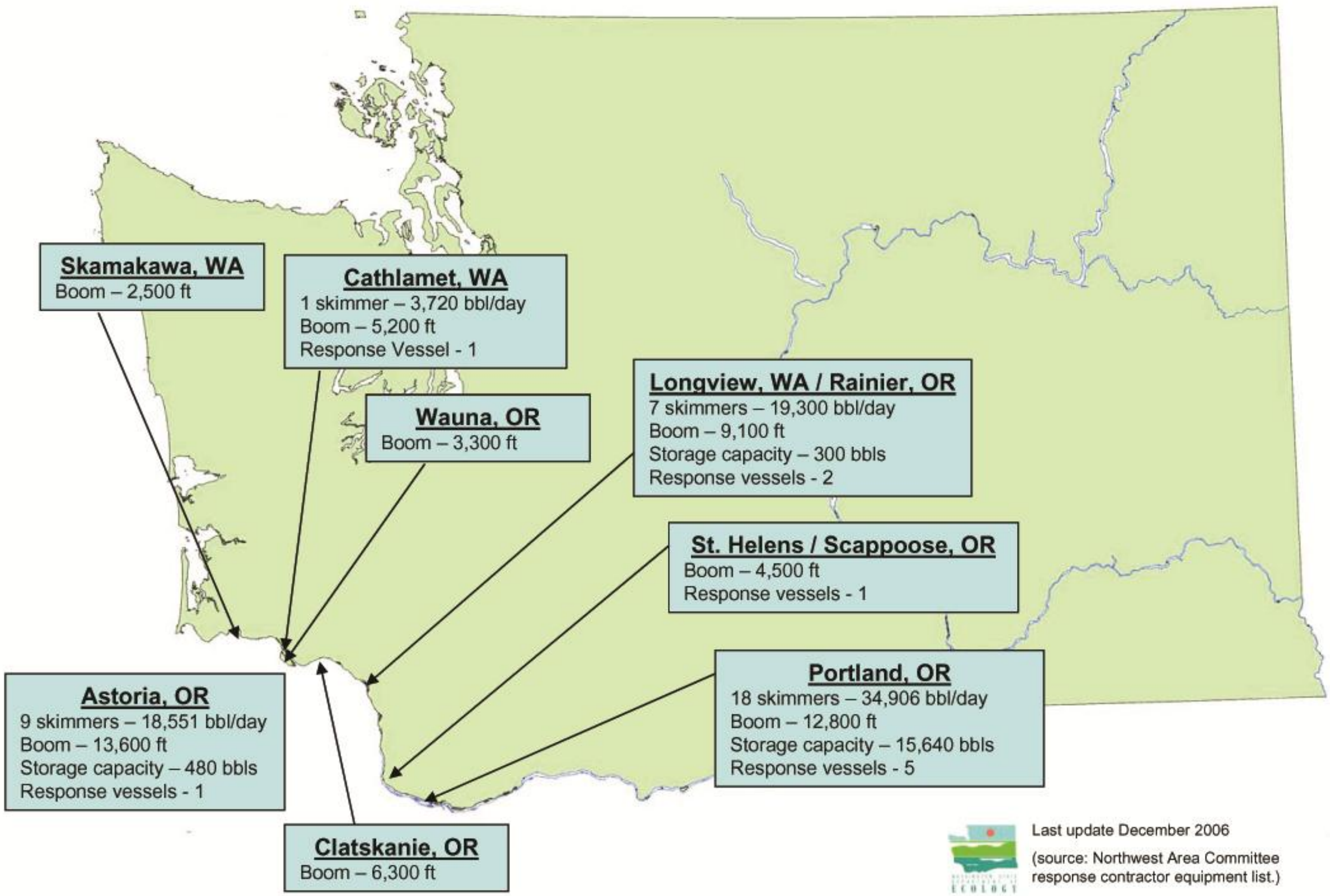
By: ______________
Judith A. Roos
Marketing & Customer Service Manager
455 Spring Park Place, Suite 200
Herndon, Virginia 20170

703/326-5617; Fax: 703/326-5660

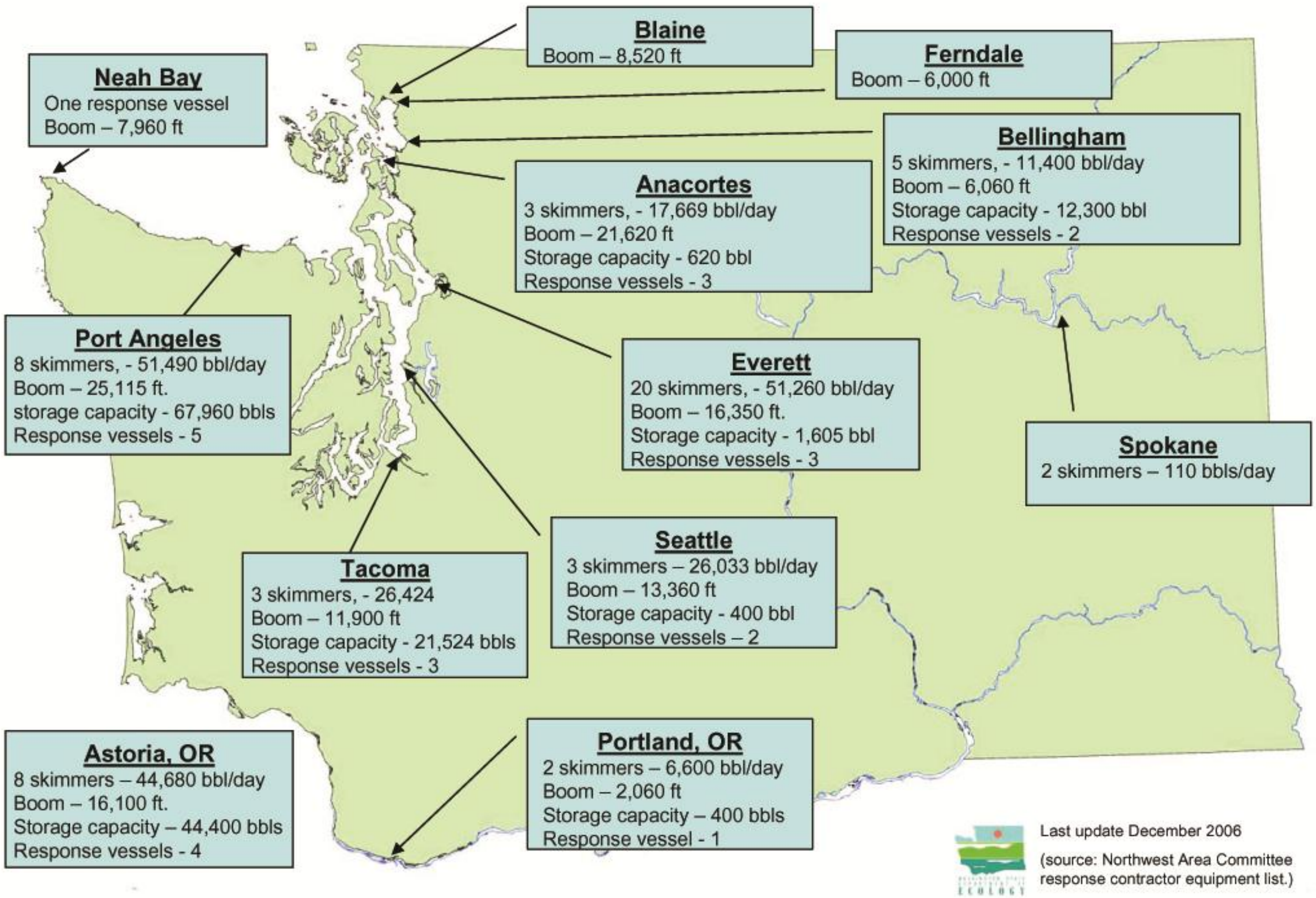
Figure B.3 Equipment Maps

EQUIPMENT MAPS
CLEAN RIVERS COOPERATIVE MARINE SPILL RESPONSE CORPORATION NATIONAL RESPONSE CORPORATION (Equipment available through Clean Rivers' Contract with NRC)

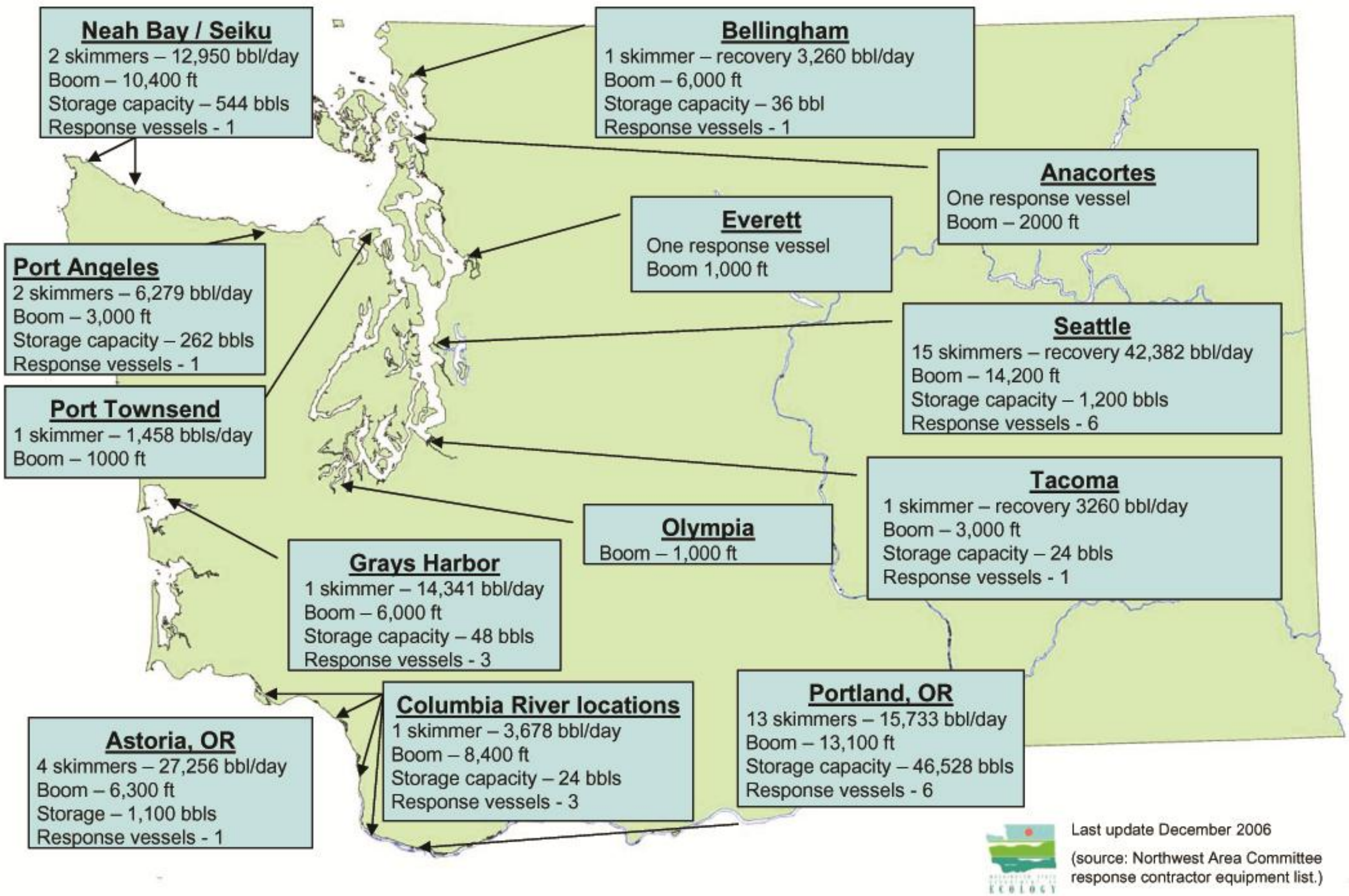
Clean Rivers Cooperative



Marine Spill Response Corporation



National Response Corporation



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Appendix C
Vancouver Facility Operations

APPENDIX C
TSVEDT OPERATIONS

C.1 OVERVIEW

The Facility in the Port of Vancouver, Washington, is located in different “Areas” of the Port. **Figure C-1** presents a Facility Site Plan. The site address is 5501 NW Lower River Road, Vancouver, Washington 98660. The marine dock is located at Terminal No. 4, on the north side of the Columbia River, at River Mile 103.5, approximately 2.5 miles downriver of the I-5 bridge. The facility is located at latitude 45° 39’ 6” N and longitude 122° 43’ 52” W.

C.2 DESIGN AND OPERATIONS

C.2.1 General Operations Description

The TSVEDT receives crude oil by rail, stored it on site, and loads it on vessels for shipment. Unit trains arrive at the Facility and are stationed on the Facility rail loops. The trains are “indexed” through the unloading area (Area 200), where the crude oil is gravity-drained into the transfer pipeline system (Area 500). The crude oil is pumped through the transfer pipelines to the crude oil storage tanks (Area 300) where it is held until the marine vessel loading operation. Marine vessels arrive and moor at the dock (Area 400) where they are preboomed. Crude oil is pumped from the storage tanks to the loading area, and loaded to the marine vessels.

Physical properties of these products are provided in **Figure C.2**. Material Safety Data Sheets (MSDSs) are on file in the Facility office.

C.2.2 Physical Description

The Facility occupies approximately 41.5 acres located in different areas within the Port of Vancouver. The terrain is mostly flat, but drops off toward the south. Facility drainage outside of the various containment areas flows to existing surface water conveyance and treatment systems prior to the eventual release of water to the Columbia River. All of the downstream outfalls are permitted and regulated by Ecology. There are three separate conveyance systems in which surface discharges are released from the Facility to eventual aquatic discharges.

Terminal 5 stormwater system

Terminal 4 stormwater system

Combined Marine Terminal and Subaru lot treatment swales

A portion of the Facility lease boundary is located within areas determined by the Port to be within its general use area, which the Port defines as areas in which it is not feasible that individual tenants collect and treat their own stormwater discharges. Areas in this Facility that fall under that designation are limited to rail improvements located within the master plan rail corridor, transfer pipeline alignment, and non-pollution-generating rail yard area on the north side of the rail unloading building.

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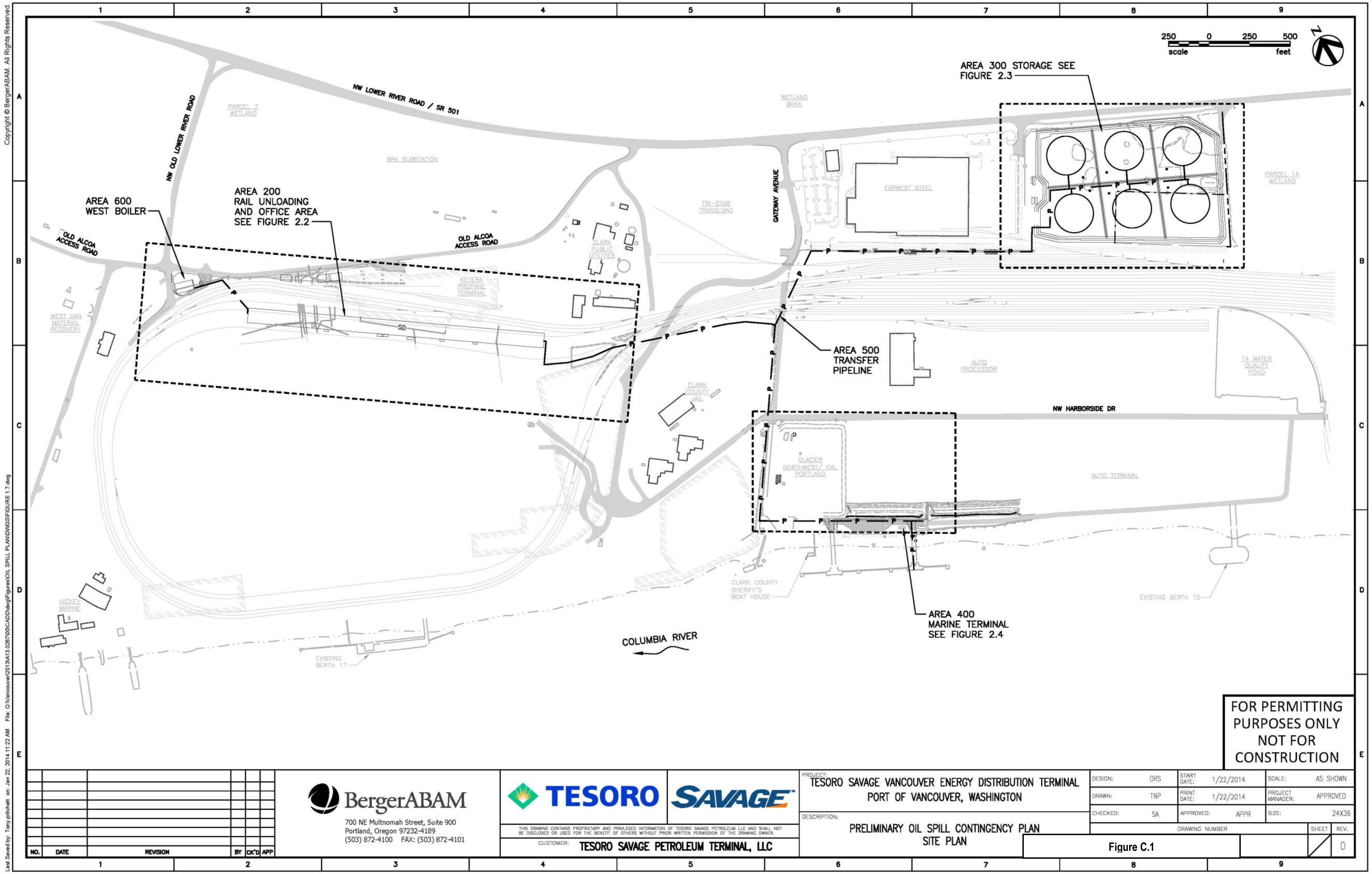
Figure C.1 – Facility Site Plan



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The following discussion summarizes the project site areas.

Area 200 – Administrative/Support and Rail Unloading
Area 200 is located at 5501 NW Lower River Road in Vancouver. The following Facility elements are located in Area 200: administrative and support buildings, parking, rail access to the rail unloading facility, and the rail unloading facility. Area 200 is accessible from an unnamed private road owned and maintained by the Port.

Area 300 – Product Storage
Area 300 is located at the Port's Parcel 1A on the south side of NW Lower River Road just east of the existing Farwest Steel facility. The following Facility elements are located in Area 300: product storage tanks and associated secondary containment, the Area 300 Boiler Building, and associated control and ancillary systems. Area 300 is accessible from NW Gateway Avenue and NW Lower River Road via a shared private drive.

Area 400 – Marine Terminal
Area 400 is located at existing Port berths 13 and 14 on the Columbia River south of the current Subaru facility. The following Facility elements are located in Area 400: product conveyance and loading facilities located on the dock, the marine vapor combustion units (MVCUs), emergency containment and response equipment, and control and ancillary facilities associated with vessel loading. This area is accessed from Gateway Avenue and Harborside Drive by a driveway to be constructed with the project.

Area 500 – Transfer Pipelines
Area 500 consists of a non-exclusive easement located within Terminal 5, Parcel 1A, berths 13 and 14, and corridors adjacent to existing private port roads. Area 500 includes the corridors for the approximately 26,400 = 5 miles lineal feet of transfer pipelines that will connect the Unloading (Area 200), Storage (Area 300), and Marine Terminal (Area 400) portions of the project. These transfer pipelines include:

(1) A 36-inch marine transfer pipeline that extends approximately 4,600 feet from the product storage tanks to the marine terminal.

(2) Three 24-inch transfer pipelines that extend approximately 4,500 feet from the rail unloading area to the product storage tanks.

(3) A 6- to 12-inch return line/pressure release

All transfer pipelines are pressure tested annually. Pipelines are tested according to API RP 1110, ASME B31.4 or B31.3 as appropriate. Test dates and results are recorded and maintained at the Facility.

Area 600 – West Boiler
Area 600 is located at the northwest corner of Terminal 5, and is composed of the Area 600 Boiler Building and its associated parking.

Area 600 is accessed from Old Lower River Road and a private road owned and maintained by the Port.

Rail Facilities
The project uses up to three main rail loops (tracks 4105, 4106, and 4107) at Terminal 5, and associated bad order car and departure tracks.

Hours of Operation
The Facility is planned to operate 24 hours a day, seven days a week. Marine terminal operations are scheduled on a 24-hour, seven-day-a-week basis, as required by a particular vessel's schedule.

Figure C.2 - Properties of Petroleum Products Handled

Product	Boiling Point (°F)	Specific Gravity (H_2O=1)	Density	API	Oil Group	Sulfur Content	Construction Type
Crude Oil	94 to 1330	0.8 to < 1.0	0.8 to < 1.0	10-45	2, 3, 4	Trace to 5%	Welded steel

MSDS Sheets on products listed are located in the Facility office and are available 24 hours per day.

C.2.3 Drip and Discharge Collection

A minimum three-barrel capacity collection pan is located below the transfer header at the hose crane at the marine terminal. The collection pan is covered with openings to allow drips and incidental discharges to drain into the pan. Additional drip pans are located at all fittings, connection points, and at hose ends.

C.2.4 Secondary Containment

All crude oil storage tanks are surrounded by compacted earthen dikes that meet EPA volumetric guidelines. Secondary containment capacity is sufficient to contain 110 percent of largest tank volume plus a 100-year rainfall event and freeboard.

All crude oil storage tanks are equipped with automatic gauging systems and high level alarms. **Figure C.3** provides a summary of tanks at the facility.

C.2.5 Emergency Shutdown System

While unloading rail cars and pumping oil to the Storage Facility, operators can manually stop the process by pressing an emergency shutdown (ESD) push button. When pressed, automated valves will close at each of the rail offload stations, isolating the crude inside the rail cars from the pump header, shut down the rail transfer pumps, and close the 24-inch valves at the beginning of the rail transfer lines, isolating the rail area process from the transfer pipe line.

When an ESD push button has been pressed, the control room will receive an alert stating which stations' push button has been pressed and an alarm will sound throughout the rail unloading area with horns and beacons.

Within the tank storage area the ESD system will be manually activated by pressing an ESD push button. When an ESD is pressed, all automated valves on the storage tanks will close isolating the crude in the tanks, the marine vessel loading pumps will shut down, and the control rooms will receive an alert stating which push button has been pressed and that an ESD occurrence has taken place.

While loading a Marine Vessel at the berth, operators may manually stop the process by pressing one of the ESD push buttons on the dock. When pressed, the Marine Vessel loading pumps will shut down, the automated valve near the dock will close and an alert will be sent to the control rooms stating which ESD button has been pressed.

If a facility-wide emergency is necessary, there will be a facility wide button to press at each of the control rooms. When a facility-wide ESD is necessary, all operations will be stopped as outlined above for all areas of the facility.

C.2.6 Monitoring Devices

Monitoring devices as described in 33 CFR 154.525 are not required at the TSVEDT dock or terminal.

> ***§ 154.525 Monitoring devices.***
> *The COTP may require the facility to install monitoring devices if the installation of monitoring devices at the facility would significantly limit the size of a discharge of oil or hazardous material and either:*
>
> *(a) The environmental sensitivity of the area requires added protection;*
>
> *(b) The products transferred at the facility pose a significant threat to the environment; or*
>
> *(c) The size or complexity of the transfer operation poses a significant potential for a discharge of oil or hazardous material.*
>
> *[CGD 75–124, 45 FR 7172, Jan. 31, 1980, as amended by CGD 86–034, 55 FR 36253, Sept. 4, 1990]*

C.2.7 Relief Valve Setting

For transferring product from the rail unloading area (Area 200) to the storage area (Area 300), a predetermined PLC set point from a pressure transmitter signal will automatically power off the facility pump at approximately 100 psi. The pressure transmitter is located on the 10-inch pump discharge pipeline at the pump basin. In addition to the pump shutdown, the system has a pressure relief valve downstream of each pump that will recirculate the crude in the event that the pump discharge piping is blocked and the pressure transmitter fails. This pressure relief valve is set at approximately 110 psi. The system also has thermal pressure relief valves relieving thermal expansion in blocked portions of the piping between the rail unloading area (Area 200) and the storage area (Area 300). These valves are set at varying pressures depending on their location in the piping system.

For transferring product from the storage area (Area 300) to the marine terminal area (Area 400), a predetermined PLC set point from a pressure transmitter signal will automatically power off the facility pump at approximately 100 psi. The pressure transmitter is located on the 36-inch pump discharge pipeline at the pump basin. In addition to the pump shutdown, the system has a pressure relief valve on the pump discharge header that will recirculate the crude in the event that the pump discharge piping is blocked and the pressure transmitter fails. This pressure relief valve is set at approximately 110 psi. The system also has thermal pressure relief valves relieving thermal expansion in blocked portions of the piping between the storage area (Area 300) and the marine terminal are (Area 300). These valves are set at varying pressures depending on their location in the piping system.

Figure C.3 – Oil Storage Tank Information

TANK	PRODUCT	VOLUME (bbl)	BUILT	API 653 INSPECTION	MAJOR TYPE OF FAILURE/ CAUSE	CATHODIC PROTECTION
0300-TK-001	Non-heated Crude Oil	380,000	TBD	Upon Construction Completion	Leak/Rupture	Yes
0300-TK-002	Non-heated Crude Oil	380,000	TBD	Upon Construction Completion	Leak/Rupture	Yes
0300-TK-003	Non-heated Crude Oil	380,000	TBD	Upon Construction Completion	Leak/Rupture	Yes
0300-TK-004	Non-heated Crude Oil	380,000	TBD	Upon Construction Completion	Leak/Rupture	Yes
0300-TK-005	Heated Crude Oil	380,000	TBD	Upon Construction Completion	Leak/Rupture	Yes
0300-TK-006	Heated Crude Oil	380,000	TBD	Upon Construction Completion	Leak/Rupture	Yes

Total Terminal Storage Shell Capacity = 2,280,000 bbl (six tanks at shell capacity of 380,000 bbl each)
Total Terminal Storage Capacity = 2,160,000 bbl (fill capacity of the six tanks is 360,000 bbl each)
Total Secondary Containment Volume = 606,020 bbl. (157% of largest tank volume)

C.3 Transfer Procedures

There are loading arms located at the marine terminal. Transfers are from manifold to vessel via hose connections using the crane and loading arms.

Product can be transferred at the terminal by two different methods:

1. Railcar (receive only).
2. Vessel (dispense only).

Product receiving and completion of product pumping procedures are described for each of these methods below.

C.3.2 Vessel Transfers

Upon confirmation of product delivery/receipt involving either barge or ship, the following procedures are followed:

1. Notify the Port of Vancouver of the scheduled transfer in advance. Verify availability of dock space.
2. Notify USCG and state of Washington via the Ecology website:

   Name of ship/barge company
   Barge number or ship name
   Product type and volume
   Date of transfer
   Estimated start and finish times

This information is then logged in the terminal log book, along with the initials of the employees making the call, initials of person receiving the call, and the date and time this information was transmitted.

3. Physical inventory is then collected on the receiving or dispensing tank involved. Hand gauging will occur. Beginning meter readings are taken, as well as temperature of the product and the level of condensate water on the bottom of the tank. This information is recorded in the terminal log book. Hourly gauges are logged as in a pipeline receipt.
4. The Tesoro employee on dock duty will be responsible for:
   a. Preparing and checking the transfer site.
      (1) The dock and surrounding area are inspected for oil slicks, debris, and proper condition of the dolphins.
      (2) The pipeline, valves and hose are inspected. Any oil slicks, damage, leaks, etc. must be reported to the Terminal Manager.
      (3) The valve in the shoreline (which is located at the northeast corner of the building just north of the dock) is then opened. The by-pass valves to the shoreline valve are closed.
   b. Inspecting the vessel for proper alignment with the hose header, holding a face-to-face Pre-Transfer Conference with the Vessel Person In Charge, following directions outlined on the Declaration of Inspection2, signing the Declaration of Inspection and checking for hazardous conditions that might exist.
   c. Ensuring that when the hose is passed to the vessel that the end of the hose is capped.
   d. Begin transfer by opening valves to start the flow to the vessel. Starting with low flow and checking for proper connections, valve alignments and leaks. After a thorough system check, slowly bringing the flow rate to a normal operating rate.
   e. During the transfer operation the operator will monitor the transfer operation continuously. Checking transfer pressure and adjusting as necessary. Checking

[2] An explanation of Declaration of Inspection Procedures and a blank Declaration of Inspection Form are contained in Appendix F.

valves, fittings and connections for leaks and checking the water surface for signs of oil in the water.

f. Transfer operation will be stopped should any of the following occur:
   (1) Oil is spilled outside of the containment onto the ground or into the water.
   (2) Communications or power is lost.
   (3) Lighting becomes inadequate.
   (4) Weather turn bad (such as during an electrical storm).

g. Upon completion of product transfer, the terminal dock operator assists vessel personnel in draining the hose, disconnecting the hose and capping the end of the hose prior to the hose being passed over water for storage.

h. h. The terminal dock operator closes all valves and secures the main valves with a chain and lock.

5. The plant operator, upon completion of the transfer, will ensure hand gauging is conducted on the receiving/shipping tank. A bill of lading (BOL) is then prepared.
6. Rack delivery tickets from all previous transactions are kept isolated. Product dispensed through the rack while the dock transfer is occurring is noted.
7. For dispensing product, it is necessary to open the proper valves in the pumping station manifold. The valve to the cargo pump and the valve into the shoreline are opened.
8. All tanks on the vessel (whether it is being loaded or unloaded) are to be gauged to determine the amount of product capacity.

C.3.4 Railcar Transfers

The facility receives rail cars on three rail loops located at Terminal 5. Up to three unit trains of 100 to 120 cars each can be simultaneously accommodated on the rail loops at full operation of the Rail Unloading Area. Unit trains are indexed 30 cars at a time through the unloading building. There is one unloading header at each railcar position. Rail cars are gravity drained. Each railcar position is protected by a spill containment system.

During railcar unloading, the following procedures are followed:

1. The railroad will provide at least one-day notice of a railcar delivery. The railroad will spot the railcar, block its wheels and set the brakes.
2. At least one terminal operator is required to monitor railcar-unloading operations.
3. Operators wear protective clothing, including hard hats, goggles, rubber gloves and appropriate outerwear.
4. Before unloading, the grounding cable to the railcar is connected.
5. The contents of the railcar are verified by reviewing the bill of lading.
6. The railcar, transfer equipment and surrounding area is inspected to assure that everything is in normal operating conditions.

7. Bolts on the railcar dome covers are slowly loosened to relieve possible pressure build-up.
8. Each product compartment is inspected for debris or foreign matter.
9. Volume is verified by BOL. The tank that is to receive the product is also gauged.
10. The product is sampled. The product is then verified by visual inspection and testing for specific gravity.
11. The railcar's bottom outlet cap is removed and the terminal's transfer hose camlock is connected to the railcar fitting.
12. The railcar valve and the pipeline valve are then opened, followed by the railcar manifold. The transfer pump is then activated.
13. Upon completion of transfer, the pump is turned off, valves are turned off, the hose is removed, the railcar dome hatch is re-bolted, and the railcar bottom outlet cap is closed and tightened.
14. The amount of product on the bill of lading from the railcar is verified against the inventory change in the receiving tank.
15. Finally, the railroad is notified that the railcar unloading has been completed.

C.4 EMERGENCY SHUT DOWN PROCEDURES

The Facility uses the international recognized signals for emergencies. If an emergency occurs on the marine terminal, the ship will be notified by portable radio or voice.

IN ALL EMERGENCY SITUATIONS, SHUTDOWN ALL PRODUCT TRANSFERS IMMEDIATELY AND SECURE VALVES

If any abnormal situation is detected during a product transfer, stop all activities. Shut the associated pump down immediately. Close all valves on the railcar, pump, pipeline, or tank. Transfer operations are not resumed until the system has been inspected and repaired, and the TSVEDT Manager has deemed the system fit for continued operations.

If leakage or uncontrolled discharge is detected, the transfer is immediately terminated or not initiated. A safety perimeter is established. When the TSVEDT Manager has deemed conditions are safe, necessary and practical remediation actions are initiated. The first available qualified individual, the emergency response contractor, and appropriate agencies and organizations as described in **Section 2** and **Section 3** are alerted. If necessary, the Tesoro response away-team is alerted.

Product transfer will not resume until the oil is cleaned up, removed from the deck of the vessel and/or from the surface of the water (if possible) and damage is repaired and no further danger exists.

Emergency shutdown systems are described in **Appendix C.2.5**.

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Figure C.4 - Facility Drainage and General Sewer Plan

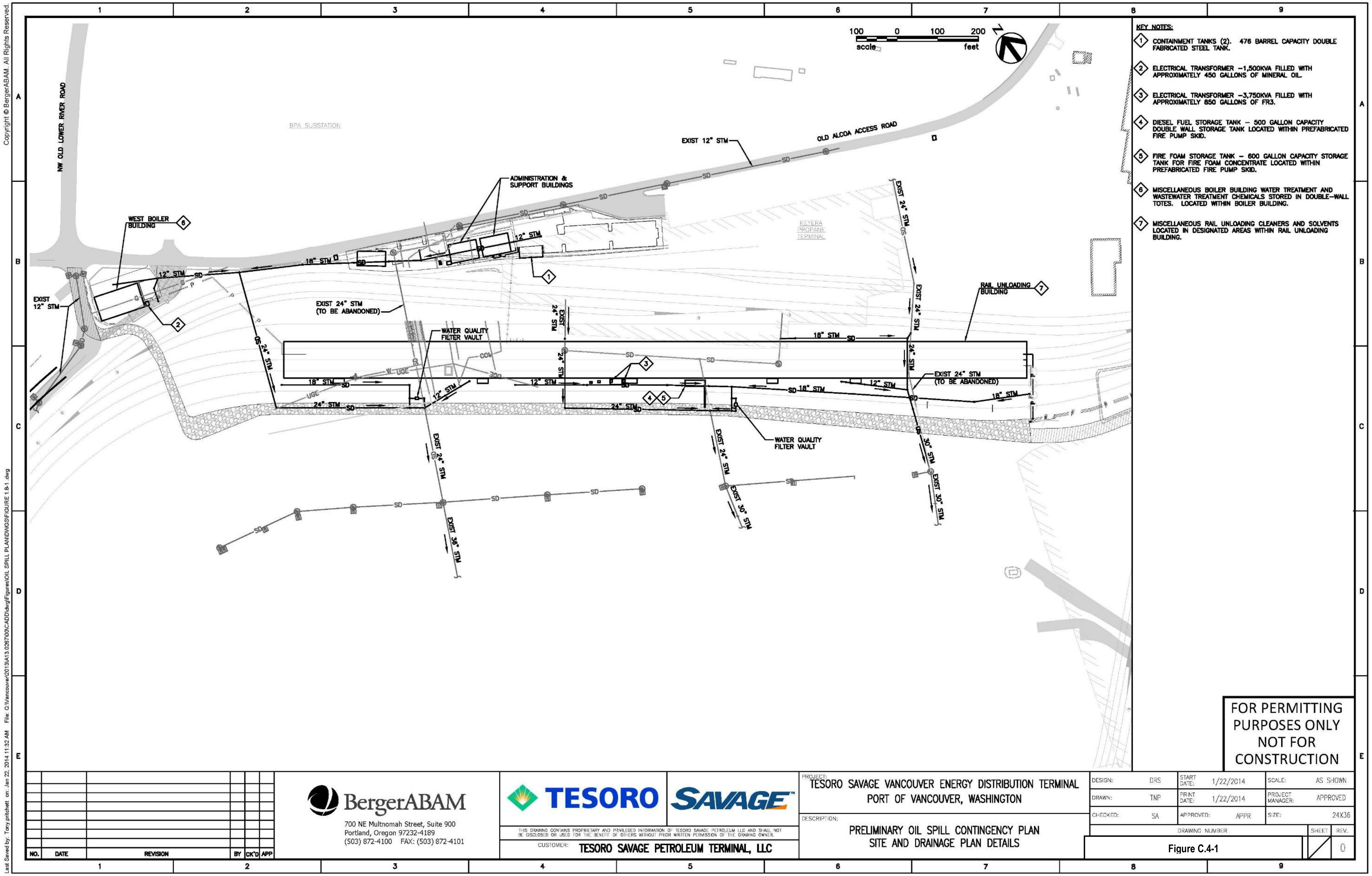

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Figure C.4 - Facility Drainage and General Sewer Plan (Continued)

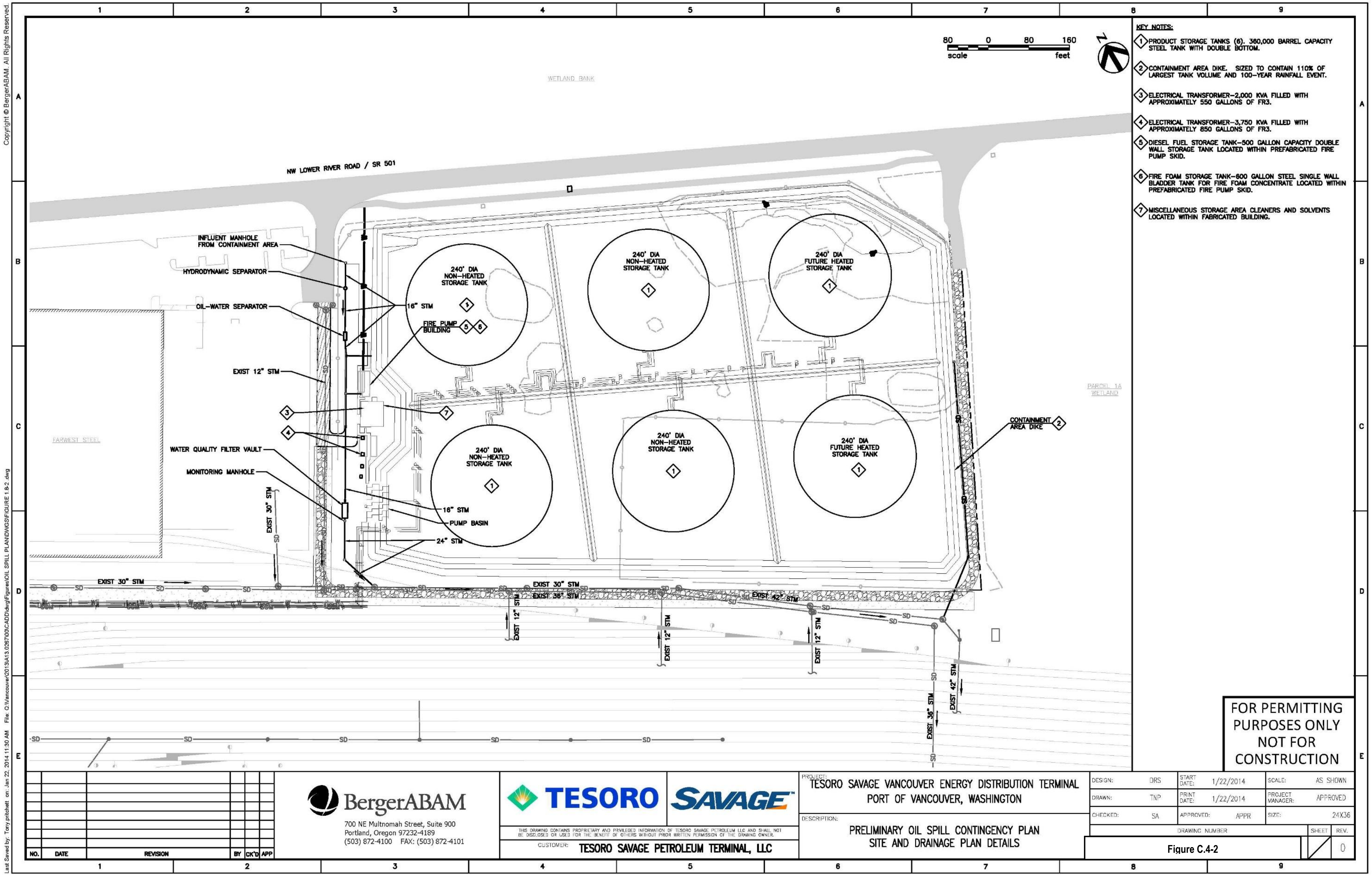

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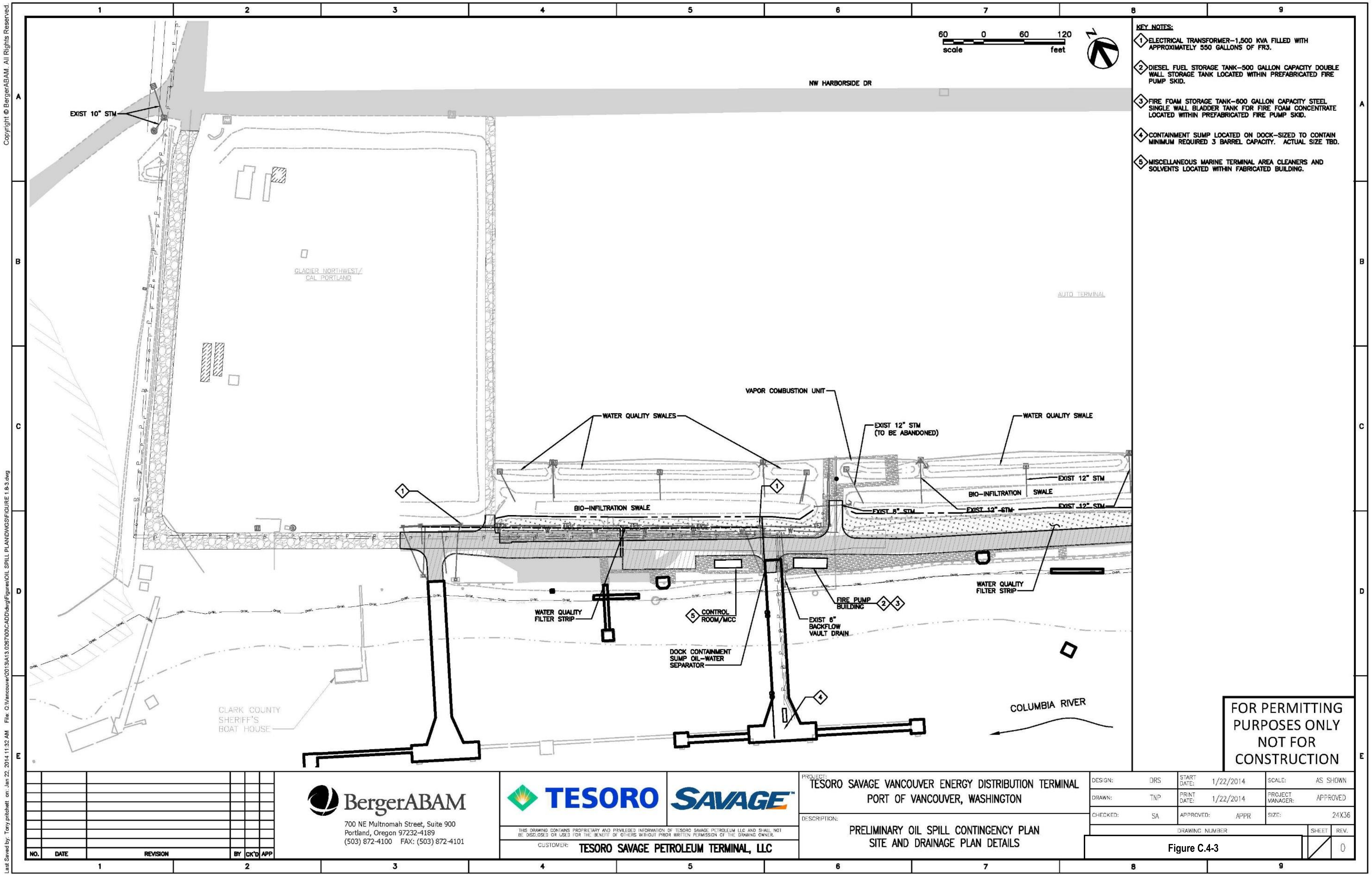
Figure C.4 - Facility Drainage and General Sewer Plan (Continued)



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Appendix D
Hazard Evaluation/Risk Analysis

APPENDIX D
HAZARD EVALUATION/RISK ANALYSIS

D.1 INTRODUCTION

An evaluation of the major components of the oil transfer and storage system at the terminal has been completed for the purpose of identifying the potential risk of oil spills associated with each component. The analysis is focused on identifying the components or areas that pose the greatest overall risk of spills.

The spill prevention measures for any components/areas identified as having a significant spill risk were then evaluated to ensure that the best achievable technologies are in place based on industry standards. In the unlikely event that additional protection measures should be taken, recommendations will be made for additional measures.

D.2 FACILITY OIL SPILL RISK ANALYSIS

D.2.1 Scope

The oil spill risk analysis identifies potential oil spill risks and evaluates the frequency and severity of such risks. For the purposes of the risk analysis, the storage and transfer facilities are grouped into the following areas.

Area 200 - Rail transfer facilities

Area 300 - Storage tanks and their containment

Area 400 - Marine transfer facilities

Area 500 – Transfer pipeline leak outside of secondary containment

All of these facilities are operated in an integrated fashion by Savage and Tesoro. Therefore, any risks that transcend the artificial boundaries established by the above grouping were an integral part of the analysis.

The risk analysis was primarily intended to identify hazards that could lead to oil spills that could reach the waters of the State. Small spills on land that cannot impact the waters of the State were not to be analyzed in detail.

The preceding sections of this plan discuss the measures taken to prevent oil spills from the facility. In many cases, these measures are not repeated in this section.

D.2.2 Method

Hazard identification was done using the checklists in Ecology’s Facility Risk Analysis Guidelines as the starting point. The checklists were made site-specific by adding items that have resulted in past spills at other facilities, items that are discussed in the prevention plan, and other items that could present potential oil spill risks.

From the oil spill hazards identified by the checklist review, oil spill scenarios that could conceivably lead to oil reaching the river were developed. The frequency and severity of these spill scenarios were identified qualitatively. This identification was based primarily on the operating history of the facility and a detailed knowledge of the operating procedures, inspection program and results, and maintenance schedules of the oil storage and transfer facilities. A "Frequency-Severity Matrix" similar to the one shown in Ecology's guidelines was used to identify the risk category into which each scenario fell.

D.2.3 Analysis of Past Spills

The Facility is not yet constructed and therefore there are no past spills to evaluate.

D.2.4 Risk Estimation and Scenario Development

Risks from the hazards identified in completing the checklists were addressed by developing spill scenarios that contained one or more of the identified hazards. Low probability spills with high potential severities also were addressed.

Scenarios were not developed for every possible combination of events or hazards. The following guidelines were used in developing the scenarios:

Cover the range of hazards identified, even the ones viewed as unlikely.

For a group of related scenarios, use the one representing the worst combination of frequency and severity, yet still plausible.

As determined using the Hazard Identification Checklist (**Figure D.1**) and this risk analysis, a risk of a significant discharge exists in the terminal tank yard, at the truck and rail transfer areas, from pipelines, and at the marine header/dock.

The possibility of a catastrophic discharge impacting state or navigable waters is extremely low due to the location of the terminal and strict adherence to established operating and maintenance procedures. The terminal is located approximately 1,800 feet inland from the Columbia River. There is limited direct drainage from the terminal to the river, and several roads and naturally occurring impoundments are located between the terminal and river which should provide containment and collection sites.

The single marine transfer pipeline that extends from the Storage Area to the Marine Terminal is equipped with three valves that are closed and locked when transfers are not in progress. The total volume of the pipeline from the Storage Area to the Marine Terminal is approximately 5,505 barrels. The total volume of the pipeline from the Rail Unloading Area to the Marine Terminal is approximately 3,802 barrels. The volume between the dock header valve and first inline valve is approximately 314 barrels. All marine transfers are continuously monitored by trained and qualified personnel. A Tesoro Operator is positioned on the dock and maintains radio contact with the vessel and the Storage Area. Marine transfers can be terminated within 60 seconds of notice, and valves closed immediately thereafter.

Figure D.1 – Hazard Identification Checklist

STATE OF WASHINGTON DEPARTMENT OF ECOLOGY OIL SPILL PREVENTION PLAN FACILITY OIL SPILL RISK ANALYSIS HAZARD IDENTIFICATION CHECK LIST					
FACILITY: TSVEDT DATE:				Spill Potential Ratings: **High (H) Medium (M) Low (L)**	
"No" answers with high to medium spill potential require further investigation. Formal risk analysis methods should be considered for situations with high to medium spill potential.					
	YES	**NO**	**SPILL POTENTIAL**	**COMMENTS**	**RESPONSE**
A. MARINE LOADING/UNLOADING AREA					
Fire Related Spill Hazards					
1. Is the fire extinguishing system adequate?	X				
2. Are sufficient fire extinguishers nearby?	X				
3. Are block valves, check valves, pumps, filters, etc... made of steel?	X				
4. Are pipe supports fire proofed?		X		Pipeline supports are constructed of steel and concrete	
5. Have flammable material ignition sources been eliminated?	X				
6. Does all electrical equipment meet explosion proof requirements?		X		Where required by NEC, API, and NFPA electrical equipment is explosion proof	

Figure D.1 – Hazard Identification Checklist (Continued)

STATE OF WASHINGTON DEPARTMENT OF ECOLOGY **OIL SPILL PREVENTION PLAN** **FACILITY OIL SPILL RISK ANALYSIS** **HAZARD IDENTIFICATION CHECK LIST**					
FACILITY: TSVEDT DATE:				Spill Potential Ratings: **High (H) Medium (M) Low (L)**	
"No" answers with high to medium spill potential require further investigation. Formal risk analysis methods should be considered for situations with high to medium spill potential.					
	YES	**NO**	**SPILL POTENTIAL**	**COMMENTS**	**RESPONSE**
Material Handling Related Spill Hazards					
7. Are remotely operated controls installed for emergency shutdown?	X				
8. Are barricades and/or shields installed to protect equipment?	X				
9. Are unloading lines equipped with check values allowing one way flow?	X				
10. Are hoses in good repair and pressure tested on a regular basis?	X				
11. Is the over-pressure prevention system adequate?	X				
12. Are there spill collection facilities?	X				

Figure D.1 – Hazard Identification Checklist (Continued)

STATE OF WASHINGTON DEPARTMENT OF ECOLOGY OIL SPILL PREVENTION PLAN FACILITY OIL SPILL RISK ANALYSIS HAZARD IDENTIFICATION CHECK LIST					
FACILITY: TSVEDT DATE:				Spill Potential Ratings: **High (H) Medium (M) Low (L)**	
"No" answers with high to medium spill potential require further investigation. Formal risk analysis methods should be considered for situations with high to medium spill potential.					
	YES	**NO**	**SPILL POTENTIAL**	**COMMENTS**	**RESPONSE**
13. Is oil spill containment equipment on hand and adequate?	X				
14. Is there an oil spill response plan?	X				
15. Are vessel overfill devices and/or procedures adequate?	X				
B. DOCK TRANSFER PIPELINES					
Material Handling Related Spill Hazards					
1. Is the corrosion protection and inspection program adequate?	X				
2. Are external coatings used and in good condition?	X				
3. Is right-of-way clear and patrolled on a regular basis? Is it effective?	X X				
4. Are pipelines protected from impact damage (Barricades/depth of cover)?		X	L	Pipelines where adjacent to traffic have barricades. DOT standards have been used to determine barricade placement based on road configuration and permitted vehicle speeds.	
5. Are surge and fatigue loadings acceptable?	X				

Figure D.1 – Hazard Identification Checklist (Continued)

STATE OF WASHINGTON DEPARTMENT OF ECOLOGY OIL SPILL PREVENTION PLAN FACILITY OIL SPILL RISK ANALYSIS HAZARD IDENTIFICATION CHECK LIST					
FACILITY: TSVEDT DATE:				Spill Potential Ratings: **High (H) Medium (M) Low (L)**	
"No" answers with high to medium spill potential require further investigation. Formal risk analysis methods should be considered for situations with high to medium spill potential.					
	YES	**NO**	**SPILL POTENTIAL**	**COMMENTS**	**RESPONSE**
6. Is there an effective leak detection system?	X				
7. Are pipelines susceptible to soil movement? (Landslides, washouts, etc.)	X			Pipelines are designed for soil movements resulting from static settlement and liquefaction.	
8. Have lines been hydrostatically tested? What level and frequency?	X			Dock lines are hydrostatically tested prior to start-up and annually thereafter in accordance with USCG requirements 33 CFR 154 and WAC 173-180-420.	
C. BULK STORAGE TANK FARM					
Fire Related Spill Hazards					
1. Is fire protection adequate? Does system meet industry codes and A.P.I. standards?	X				
2. Is there adequate fire water?	X				
3. Are tank valves made of steel?	X				
4. Are pipe supports fire proofed?		X		Pipeline supports are constructed of steel and concrete	
5. Are firewalls (dykes) in place and sized to meet industry standards?	X				

Figure D.1 – Hazard Identification Checklist (Continued)

STATE OF WASHINGTON DEPARTMENT OF ECOLOGY OIL SPILL PREVENTION PLAN FACILITY OIL SPILL RISK ANALYSIS HAZARD IDENTIFICATION CHECK LIST					
FACILITY: TSVEDT DATE:				Spill Potential Ratings: **High (H) Medium (M) Low (L)**	
"No" answers with high to medium spill potential require further investigation. Formal risk analysis methods should be considered for situations with high to medium spill potential.					
	YES	**NO**	**SPILL POTENTIAL**	**COMMENTS**	**RESPONSE**
6. Do oil lines inside fire walls have welded joints?	X				
Material Handling Related Spill Hazards					
7. Do tanks have high level alarms?	X				
8. Is there an automatic shutdown system on high level?	X				
9. Are there ground level or remote fill level gauges?	X				
10. Do pipelines penetrate dykes and fire walls?		X		Pipelines do not penetrate dikes or fire walls.	
Containment/Control Related Spill Hazard					
11. Is tank farm lot impervious to oil spill penetration?	X				
12. Is there a spill collection system inside tank lot?	X				
13. Are containment dykes sized to meet codes?	X				

Figure D.1 – Hazard Identification Checklist (Continued)

STATE OF WASHINGTON DEPARTMENT OF ECOLOGY OIL SPILL PREVENTION PLAN FACILITY OIL SPILL RISK ANALYSIS HAZARD IDENTIFICATION CHECK LIST					
FACILITY: TSVEDT DATE:				Spill Potential Ratings: **High (H) Medium (M) Low (L)**	
"No" answers with high to medium spill potential require further investigation. Formal risk analysis methods should be considered for situations with high to medium spill potential.					
	YES	**NO**	**SPILL POTENTIAL**	**COMMENTS**	**RESPONSE**
D. PUMP STATION					
Fire Related Spill Hazards					
1. Are pumps, valves and other vessels fire rated?	X				
2. Is fire protection system adequate?	X				
3. Are all ignition sources eliminated?	X				
Material Handling Related Spill Hazards					
4. Is over-pressure system adequate?	X				
5. Is there an emergency shutdown system?	X				
6. Is there a spill collection system (pump slab, dykes, collection drains, sump tank, etc..)?	X				
E. TRUCK/RAIL LOADING/UNLOADING					
Fire Related Spill Hazards					
1. Is fire protection adequate?	X				
2. Is there adequate fire water? Does it meet codes and industry standards?	X				

Figure D.1 – Hazard Identification Checklist (Continued)

STATE OF WASHINGTON DEPARTMENT OF ECOLOGY OIL SPILL PREVENTION PLAN FACILITY OIL SPILL RISK ANALYSIS HAZARD IDENTIFICATION CHECK LIST					
FACILITY: TSVEDT DATE:				Spill Potential Ratings: **High (H) Medium (M) Low (L)**	
"No" answers with high to medium spill potential require further investigation. Formal risk analysis methods should be considered for situations with high to medium spill potential.					
	YES	**NO**	**SPILL POTENTIAL**	**COMMENTS**	**RESPONSE**
3. Are block valves fire rated?	X				
4. Does electrical equipment meet explosion proof requirements?	X				
Material Handling Related Spill Hazards					
5. Is system manual or automatic?				BOTH	
6. Do trucks/rail cars have overfill protection?				Not Applicable	
7. Is there an emergency shutdown system?	X				
8. Are there pressure relief devices on system?	X				
9. Are block valves secure and safe from the public?	X				
10. Are public access areas fenced and lighted?	X				
Containment/Control Related					
11. Is there a spill collection system around loading/unloading areas?	X				

Figure D.1 – Hazard Identification Checklist (Continued)

STATE OF WASHINGTON DEPARTMENT OF ECOLOGY OIL SPILL PREVENTION PLAN FACILITY OIL SPILL RISK ANALYSIS HAZARD IDENTIFICATION CHECK LIST					
FACILITY: TSVEDT DATE:				Spill Potential Ratings: **High (H) Medium (M) Low (L)**	
"No" answers with high to medium spill potential require further investigation. Formal risk analysis methods should be considered for situations with high to medium spill potential.					
	YES	NO	**SPILL POTENTIAL**	**COMMENTS**	RESPONSE
F. PROCEDURES					
1. Does facility have an up-to-date operating procedures manual?	X				
2. Does facility have an oil spill response plan and procedures?	X				
3. Is there a system to ensure compliance with applicable codes?	X				
4. Is there a quality management system in place to ensure compliance with above procedures and programs?	X				
5. Is there a program for monitoring/controlling third party activities?	X				
G. GENERAL					
1. Is there a fitness for purpose testing program in place for critical oil movement lines (hydrostatic pressure testing, internal inspection, external inspection, coating inspection, etc.)?	X				
2. Have natural hazards been investigated and monitored (landslides, slope instability, bed scouring on flowing water, soil subsidence, etc.)?	X				

Figure D.1 – Hazard Identification Checklist (Continued)

STATE OF WASHINGTON DEPARTMENT OF ECOLOGY OIL SPILL PREVENTION PLAN FACILITY OIL SPILL RISK ANALYSIS HAZARD IDENTIFICATION CHECK LIST					
FACILITY: TSVEDT DATE:				Spill Potential Ratings: **High (H) Medium (M) Low (L)**	
"No" answers with high to medium spill potential require further investigation. Formal risk analysis methods should be considered for situations with high to medium spill potential.					
	YES	NO	**SPILL POTENTIAL**	**COMMENTS**	RESPONSE
3. Are leak detection surveys conducted and records maintained for two years min? Is a material balance maintained for the facility?	X X				
4. Are changes to equipment critical set points controlled adequately?	X				
5. Are pipeline crossings by third parties controlled? Are crossing agreements in use?	X				
6. Is there a training program for employees on safe operation and maintenance of all oil movement systems?	X				

D.3 HAZARD EVALUATION AND IDENTIFICATION

A completed Ecology's Hazard Identification Check List is provided in **Figure D.1**. None of the "no" answers on the checklist contribute to high or medium spill risk, therefore the following qualitative discharge risk analysis is provided:

D.3.1 Storage Tank Leak or Failure

All storage tanks are constructed to API 650 and Uniform Fire Code specifications. The tank yard and surrounding area is cathodically protected. The entire area is visually inspected daily. Future tank inspections will be made in compliance with API 653 guidelines.

The maximum quantity of crude oil which could be discharged is based on the capacity of the largest single tank which is 360,000 barrels. The rate of flow would be variable depending on the size and location of the leak or failure. The total quantity of crude oil which could be discharged would not exceed 360,000 barrels.

Spilled crude oil would be contained in the tank yard impoundment area. The impoundment area is fully diked and provides storage volume in excess of the capacity of the largest tank.

D.3.2 Tank Overflow

During crude oil receipt there is potential for tank overflow due to operator error or equipment failure. Tanks are equipped with high level audible alarms which are set at approximately 95% of capacity. A redundant high level emergency shutdown level alarm is additionally included. Due to the large storage capacity, tanks are seldom "topped-off," and normally are filled to only 70% of capacity.

During all bulk transfers to or from the crude oil storage tanks operators are on duty. Continuous communication is maintained between the receiving and delivering operator. At a minimum at least one operator will be monitoring operations at the storage area and another operator at either the rail unloading operation when loading the tanks, or at the dock when unloading the tanks.

The total quantity of crude oil that could be discharged is proportional to the length of time the tank is overflowing. It is estimated that 250 barrels could be discharged based on transfer monitoring procedures, delivery rates, and shutdown procedures.

Spilled crude oil would be contained in the storage area impoundment area.

D.3.3 Rail Unloading Rack

At the rail unloading area there is potential for discharge due to operator error or equipment failure. The area is attended during all transfers activities. The rack is equipped with automatic and manual shutdown capability. Emergency shutdown switches are located every 6 unloading stations.

Each rail unloading station is capable of unloading 8.33 barrels per minute of crude. The maximum capacity of all 90 unloading stations is 750 barrels per minute.

The total quantity of crude oil that could be discharged is variable. The worst case discharge is based on the capacity of an entire rail car which is approximately 700 barrels.

Spilled crude oil would flow into the containment collection system which consists of continuous drip pans and collection piping that flows into surge tanks and pumped into aboveground containment tanks that have a minimum capacity of 770 barrels.

D.3.4 Marine Transfer Pipeline

A 36-inch transfer pipeline extends approximately 4,600 feet from the storage area marine terminal. A spill could result from a pipeline fracture or leak. The pipeline is constructed of welded steel and cathodically protected. Where underground the pipeline includes secondary containment consisting of either double walled pipe or located within casings. It is hydrostatically pressured tested annually in accordance with API standards. The pipeline is equipped with three isolation valves which are closed and locked when transfers are not in progress.

Maximum rate of flow is 36,000 barrels per hour.

Total volume that could be discharged would be variable depending upon the location and nature of the leak or fracture. The volume between the dock valves and first inline valve is approximately 314 barrels. The total capacity of the pipeline is approximately 5,505 barrels.

Direction of flow from a pipeline discharge would be dependent upon the location of the failure. The pipeline alignment is sloped to direct spills and drainage to storm drain inlets designed to separate and retain oil.

D.3.5 Rail Unloading Transfer Pipeline

Three 24-inch transfer pipelines extend approximately 4,500 feet from the rail unloading area to the storage area. A spill could result from a pipeline fracture or leak. The pipeline is constructed of welded steel and cathodically protected. Where underground the pipeline includes secondary containment consisting of either double walled pipe or located within casings. It is hydrostatically pressured tested annually in accordance with API standards. The pipelines is equipped with three isolation valves each which are closed and locked when transfers are not in progress.

Maximum rate of flow is 11,000 barrels per hour.

Total volume that could be discharged would be variable depending upon the location and nature of the leak or fracture. The total capacity of each pipeline is approximately 2,458 barrels.

Direction of flow from a pipeline discharge would be dependent upon the location of the failure. The pipeline alignment is sloped to direct spills and drainage to storm drain inlets designed to separate and retain oil.

D.3.6 Marine Terminal

A discharge may result from operator error and/or hose or piping failure during marine transfers. All marine transfer personnel are trained and qualified to USCG standards. All transfer equipment is visually inspected, a pre-transfer conference is conducted, and a Declaration of Inspection is completed prior to transfer.

Marine transfer equipment is maintained to USCG requirements (33 CFR Part 154, 155, 156). During marine transfer, a Tesoro Terminal Operator is stationed adjacent to the transfer hose header. He maintains radio communication with the vessel and terminal.

It is estimated that less than 100 barrels could be discharged at the dock based upon operating procedures and the close proximity of shutdown valves.

Drip pans are positioned beneath the header and hose connections to contain leaks and drips. In the event of a spill to water, the movement of crude oil which enters the Columbia River would be determined by the prevailing currents and weather. Containment boom and sorbents, which are maintained at the head of the dock would be deployed within one hour.

Figure D.2 – Facility Spill History

Date:	
Release Description/Cause/Location:	
Material:	
Quantity (spilled/recovered) in barrels:	
Amount Reaching Navigable Water:	
Effectiveness and Capacity of Secondary Containment:	
Clean-up actions taken:	
Steps taken to reduce possibility or reoccurrence:	
Total oil storage capacity of tank(s) or impoundment(s) from which material discharged:	
Enforcement actions:	
Effectiveness of monitoring equipment (describe):	
Spill detection:	

NOTE: The facility has had no spills or releases to date.

D.4 POTENTIAL ROUTES OF DISCHARGE

A spill from the Facility will probably originate in one of three areas. Each has been discussed above.

Rail Unloading Area Spill

Terrain directly adjacent to the Rail Unloading Area is flat and generally slopes to the south. Spilled oil within the rail unloading structure would be captured by the containment system and remain on-site.

Storage Area Spill

Terrain directly adjacent to the Storage Area is flat and generally slopes to the south. Spilled oil within the Storage Area would be retained within the perimeter secondary containment dike.

Transfer Pipeline Spill

A total of 9,100 feet of transfer pipeline alignment exists on site connecting the rail unloading area, storage area, and marine terminal. A rupture of this pipeline where buried would be contained within the casing annular space and receiving vaults at either end. Monitoring is provided to detect any leaks in the below ground portions of the pipeline. A rupture of the pipeline where the pipeline runs above ground would be detected by calibrated flow meters and observations by on-site personnel. A sudden drop of pressure or discrepancy between flow meter data will cause a shutdown of pumping operations and valves will close within 30 seconds. The pipeline alignment is sloped to direct spills and drainage to storm drain inlets designed to separate and retain oil. Oil traps are installed on all drainage inlets and supplemented by downstream water quality vaults that also contain oil/water separating baffles.

Marine Terminal Spill

Crude oil storage tanks at the Facility are connected to the marine terminal by the 36-inch pipeline. In accordance with EPA and USCG contingency planning requirements, a worst-case scenario must be considered for response planning purposes. While highly unlikely, the required worst-case scenario to consider is the loss of the full contents of the largest tank into the Columbia River. Once oil is in the river, it would be transported downstream at a speed that, on a seasonable basis, varies between 1 and 6 knots. For planning purposes, it will be assumed that the average speed of oil moving downstream on the Columbia River is 2 knots.

D.5 PLANNING DISTANCE CALCULATIONS

The planning distance method for tidally-influenced navigable waters is based on worst case discharges of persistent and non-persistent oils.

Planning distance calculations are based on the following factors and guidelines in accordance with 40 CFR 112, Attachment C-III, 4.2:

Persistent oils

Planning distance is 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.

Tesoro will plan to respond to a spill for distance from 5 miles upstream and downstream to the mouth to the Columbia River.

D.6 DISCHARGE SCENARIOS

The equipment and manpower to respond to a spill are available from several sources and are listed with the equipment and contractors in **Section 7** and **Appendix B**.

D.6.1 Average Most Probable Discharge/Major Inland Discharge

Incident

At Time 0 the Facility is transferring crude oil across the dock to a vessel. The crude oil pumping rate is 36,000 barrels per hour. The Tesoro Operator at the dock observes a leak develop at the flange which connects the transfer hose to the dock. The flange separates and oil is pumped into the water. The Terminal Operator, who is standing by in the control room of the Marine Terminal shuts down the transfer pumps and secures all transfer valves. The Vessel Operator closes the valves on the vessel to minimize continued crude oil loss. The Terminal Operator's estimates based on shutdown time and transfer rates that approximately 100 barrels of crude oil were spilled. For the purpose of a small/average scenario, it is assumed that some of the oil was caught in the catch basin on the dock, but 50 barrels (2,100 gallons) flowed into the Columbia River. For the purpose of a medium (major) spill scenario, it is assumed that 100 barrels (4,200 gallons) flowed into the Columbia River.

Conditions

Weather: Light rain, temperature 57 degrees, winds from the north at 10 knots.

Water: Maximum daily current of 2.0 knots with favorable wave conditions for skimming.

Forecast: Cloudy, high temperature of 59 degrees, continued winds from the north at 10 to 15 knots with persistent light rain throughout the day.

Immediate Response

A response to an average/small spill would be much the same as to a medium spill.

The Operator at the TSVEDT Marine Terminal and the Vessel Operator immediately stopped the flow of crude oil from the vessel by shutting down the pump and closing the transfer valves. The Terminal Operator radios the other TSVEDT Operator and Terminal Manager and notifies them of the problem, provides spill assessment information, and requests an on-water response. Initial site characterization will take place to ensure appropriate PPE is used by initial responders either from the vessel or dock crew. The Vessel Operator is directed to spread absorbent pads on areas of the spill on the dock or barge which are not covered by a containment basin to minimize the spill volume which will flow into the Columbia River. Once that task is done, the Vessel Operator is instructed to remain clear of the area and to monitor the vessel to ensure safety of the vessel.

The TSVEDT Facility Manager directs TSVEDT personnel to secure the transfer valves in the tank storage area, and then to drive to the dock to prepare the TSVEDT boat and boom for launching. The TSVEDT Terminal Manager becomes the Facility Incident

Commander. He uses the checklist provided in SECTION 2 and FIGURE 3.4 of this plan and notifies the National Response Center, Washington Emergency Management Division, Oregon Emergency Response System, USCG, MSRC, CRCI, and the Vancouver Police and Fire departments at 911. Notification takes approximately 30 minutes.

The TSVEDT and Tesoro operators are familiar with the properties of crude oil and recognize that it presents little danger of fire and a low health risk for clean-up workers or the community. Both TSVEDT/Tesoro operators meet at the TSVEDT boat house within 15 minutes, don appropriate personal protective equipment and use the boat to initiate deployment of 1,000 feet of boom to begin to contain any crude oil which may still be dripping from the dock. At Time = 1 hour, the leading edge of the spill has moved approximately 2 miles downstream.

The Vessel Operator has the free oil on the dock covered with absorbent pads. The used absorbent will be placed in plastic garbage bags and then into 55 gallon drums.

Containment and Cleanup

At Time = .30 hours CRCI arrives on scene. CRCI's focus will be on recovery and shoreline cleanup operations. Additional contractor personnel arrive with two response vessels, 2 Douglas Skimpack 4200 (Derated Capacity of 275 bbls/day each), 2 - 2" portable pumps, an additional 2,000 feet of boom, and 2-2500-gallon storage bladders.

Small boats with Viscous Sweep are deployed by CRCI along the shoreline. Men with small skimmers and booms also are placed along the shoreline in preparation for oil recovery. Vacuum trucks are ordered by CRCI and will arrive on scene within 30 minutes after notification to begin shoreline recovery operations. NRCES resources are used for additional boom, sorbents, drums, and manpower. Equipment will arrive based on the schedules provided in **Section** 7.

Additional Viscous Sweep is deployed to sweep oil from the surface of the water are removed and placed in drums. Sweeping the spill with Viscous Sweep, skimming operations, and adjustments to the containment boom continue until the oil is contained and recovered or evaporated. Spent sorbents, and viscous sweep are disposed of by CRCI after appropriate testing and the recovered oil/water mixture from skimmer and vacuum trucks is returned to the terminal for storage.

Wildlife Protection

The small spill size, volatility of the crude oil, and immediate response prevented wildlife from being impact by the spill. Some shoreline clean-up may be required. Permits will be sought as necessary.

Command and Control

The TSVEDT Terminal Manager is the Incident Commander and uses CRCI to manage clean-up operations. Planning, Logistics, and Financial Units are not independently activated. Additional Tesoro resources are not required. Tesoro, USCG and Ecology are on-site and set up a Unified Command with all Sections. The Vancouver Police and Fire departments are released from the spill after their initial response to the scene due to the low danger of fire or explosion.

Post Spill Review and Reporting

The Incident Commander convenes a meeting the next day between the Clean Rivers Co-op Manager, USCG Representative, and Ecology Representative to review the cause of the spill and the response. A report is drafted and submitted to the Ecology and USCG.

D.6.2 Worst-Case Discharge

Incident

At midnight on a Friday night before a three-day weekend, an earthquake strikes Vancouver causing TK-001 to spill 360,000 barrels of crude oil, into the Columbia River.

This is a highly unlikely set of circumstances, but there is no other route in which 100 percent of the Worst-Case Discharge (WCD) from the TSVEDT will discharge into the Columbia River. Methods to stop the tank from draining will not be used in this scenario, even though numerous options are available to stop the loss of crude oil from this tank if the event were real.

Conditions

Weather: The sky is overcast, the temperature is 60 degrees F, and the winds variable at 10 miles per hour.

Water: The average current is 2 knots with wave conditions not favorable for skimming.

Forecast: Cloudy with showers. Continued variable winds.

Response

This spill is not discovered for 2 hours until an evening fisherman smells crude oil and sees it floating down the river. He immediately notifies the Vancouver Police Department. The Police Department notifies the Vancouver Fire Department. They discover the source of the crude oil, take immediate action to initiate an area evacuation, and immediately notify the Tesoro Terminal Manager.

The Tesoro Terminal Manager is alerted by the Vancouver Police Department at Time = 3 hours. Once he understands the circumstances, he calls the terminal operators and requests them to go to the terminal to attempt to stop the oil flow. He also makes immediate notification to CRCI and MSRC requesting standby assistance in deploying oil spill equipment downstream of the dock for protection of sensitive areas.

He then notifies the agencies, and responders listed in Incident Commander checklist (**Figure 2.1**) .He makes a call to the TSVEDT Qualified Individual requesting activation of the West Coast Away Team. Notification takes approximately 30 minutes.

At Time = 4 hours the TSVEDT Manager arrives at the TSVEDT. The Chief of the Vancouver Fire Department indicates he will be the Incident Commander who is in control of all emergency actions to protect life and property. The Federal On-Scene Coordinator, State On-Scene Coordinator, and TSVEDT Incident Commander will not be allowed to respond as long as there is danger of fire. The USCG is asked to close the river to all traffic and emergency actions are taken by the police and fire departments to continue to evacuate a corridor on and near the river as the crude oil drifts downstream.

The Unified Command will be allowed to set protective boom sufficiently ahead of the crude oil to attempt to divert it away from sensitive areas. They will not be allowed to attend the boom beginning 4 hours ahead of when the crude oil is expected to reach the boom site. TSVEDT authorizes CRCI to use the equipment and people listed in **Section 7**, and **Appendix B** of this plan. Boom will be set to protect the sensitive areas identified in **Section 6** of this plan unless the Natural Resource Damage Assessment Team proposes alternative strategies.

The TSVEDT Manager working with CRCI personnel prepare a health and safety plan following the format provided in **Section 5**. A Material Safety Data Sheet for crude oil is available at the TSVEDT office.

CRCI has identified 46 potential boom sites, which will require a total of 57,800 feet of boom. A summary of these sites is included in **Section 6**. Assuming a team of four men using two boats can set 1,000 feet of boom an hour, it can be calculated that it would take 60 team-hours to boom all of the sites. TSVEDT requests that CRCI supply six booming teams using a total of twenty-four 40-hour HAZWOPER-trained responders and 12 small boats. Their goal is to boom all sensitive areas that have not already been impacted. Booming is initiated at Time = 5 hours near the confluence of the Lewis and Columbia Rivers (River Mile 86). The booming teams, under the direction of the CRCI Operations Chief, work their way downstream remaining a minimum of 4 hours ahead of the oil.

The entire team (some will arrive within a couple of hours) will arrive on scene at Time = 8 hours. CRCI is asked to establish a command post at their Portland office or nearer location sufficient to house the West Coast Regional Response Team and additional personnel.

Initial site safety is completed before it is determined that the crude oil spill cleanup can begin.

The Tesoro Supervisor of Contingency Planning has access to NOAA's "ADIOS" computer model that is used to calculate evaporation and dispersion rates of oils spills. Several runs are made with this program at Time + 5 hours based on the following assumptions:

A continuous spill of 360,000 barrels of crude oil over 24 hours (15,000 bbls/hr)

Average current is 2 knots

Wind speed is 10 knots

Water temperature is 60 degrees F

The ADIOS Model will predict the percent evaporation and emulsification of the crude oil. Based on this data responders will determine when it is safe to approach the spill to begin skimming oil. This assumption will be tested using flammable gas and benzene meters when actually approaching the crude oil.

CRCI and MSRC will be directed by Tesoro to transport equipment and personnel by truck to St. Helens, Oregon where it should be safe to begin recovery operations. A convenient recovery site will be selected near the boat ramp at St Helens, preferably upstream of the island located at River Mile 86. The ADIOS Model will provide an estimate of volume of oil and oily water that will be available for recovery. Initially skimmed oil will be contained in tankage available from CRCI and co-op members (**Appendix B**). Tesoro Marine Department will charter in any additional on-water tankage. Tesoro would arrange to have up to 20,000 barrels of combined storage available to designated staging and/or deployment areas.

An overflight is made at Time = 6 hours (at first light) to determine the extent of the crude oil distribution. Booming operations will be directed based on frequent aerial observations.

The booming and skimming operations are successful and the weathered crude oil is recovered as it approaches St. Helens. Shoreline impacts have traveled approximately 30 miles downstream from the facility. Recovered oil is recycled for fuel, as described in **Section 7** of this plan. Oil does not escape downstream.

A shoreline damage assessment is made after Tank TK-001 is empty at Time = 24 hours. Injured wildlife are recovered and treated under the direction of the National Marine Fisheries Service and the Washington Department of Wildlife. Permission for access and permits are obtained and the shoreline is cleaned as appropriate.

Treatment will probably include oily debris collection and cold water flushing. Oily debris will be returned to the TSVEDT as discussed in **Section 7** for temporary storage, testing, recycling, and disposal.

A post-spill meeting is held with Savage, Tesoro, CRCI, USCG, EPA, Ecology, and other interested agencies and response contractors. A final report is written by Savage/Tesoro and submitted to the agencies.

D.7 RESPONSE PLANNING STANDARD CALCULATIONS

D.7.1 Washington Department of Ecology Worst-Case Discharge

Ecology requires that the facility plan for the WCD, which is defined as the capacity of the largest above ground storage tank, complicated by adverse weather. Tank 0300-TK-001 may store up to 360,000 barrels of crude oil. Ecology regulations require that it must be assumed that 100% of this volume reaches the Columbia River.

The largest vessel for the Tesoro Vancouver Terminal is 900 feet long. Therefore, the terminal must have capability to initiate the deployment of four times the largest vessel (4x900=3,600 feet) or 2,000 feet of boom, whichever is less, within 3 hours. Tesoro has access to 7,000 feet of boom and a boat stored at the vessel dock, which can be deployed by the three Terminal Operators within the mandated time frame.

Ecology planning milestones include:

2 hours1,000 feet of boom
3 hours2,000 feet of boom
6 hours6,000 feet of additional boom
12,000 bbls/day derated recovery capacity
1 x Effective daily recovery capacity (12,000 barrels storage)

12-hours 20,000 feet of additional boom
36,000 bbls/day derated recovery capacity
1.5 x Effective daily recovery capacity (54,000 barrels storage)

24-hours 20,000 feet of additional boom
48,000 bbls/day derated recovery capacity
2 x Effective daily recovery capacity (96,000 barrels storage)

48-hours Additional boom as necessary
60,000 bbls/day derated recovery capacity
Additional storage as necessary

D.7.2 USCG Planning Standards

When calculating the WCD for the portion of a facility under USCG jurisdiction (i.e., from the dock to the first valves inside secondary containment), the facility must assume that all dock pipelines that could be in service simultaneously are in service and are pumping at their maximum rates. They must also assume that all lines, in service or not, are severed at the same time and that once the pipelines are shut down and isolated, the entire contents of each line drains out into the water.

The scenario that would result in the largest WCD volume involves vessel loading of crude oil from the Facility Marine Terminal. In this case the assumptions are as follows:

Maximum Pumping rate = 36,000 barrels per hour
Draindown volume = 314 barrels
5 minutes for detection, transfer shutdown, and onshore valve closure

Therefore the **WCD** is:

36,000 bph x 1hr/60min x 5min + 314 bbls line vol. **= 3314 bbls**

The **WCD inland on-water planning volume** (Group 1 through 4 oil) is:

3,314 bbls x 1.0 (emulsification) x 0.2 (removal) = **663 bbls**

Planning volume calculations are provided in Figure D.3.

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Figure D.3 – USCG Planning Volume Calculations

Calculation		Groups 2 – 4 Oil (Persistent)
Areas Impacted: Nearshore and Inland		
Pipeline Contents:		Crude Oil (Group II, III, & IV)
Total Pumping Rate: (bbl/hr)		36,000
Total Pumping Loss: (L = Pumping rate x 5 min.) (bbl/hr)		3000
Total Static Pipe Volume: (V = Pipe volume between dock and 1st non-MTR valve) (bbl)		314
Adjustment Factor: (AF)		1.0
Worst Case Discharge: (WCD = V x AF + L) (bbl)		3314
Average Most Probable: (AMP = Lesser of 1% WCD or 50 bbl) (bbl)		50
Maximum Most Probable Discharge: (MMP = Lesser of 10% WCD or 1,200 bbl) (bbl)		331 bbls
On-Water Recovery Factor (OWRF)		0.2
On-Shore Recovery Volume (OSRF)		0.1
Emulsification Factor (EF)		1.0
On-Water Clean-Up Planning Volume (OWRV = WCD x OWRF x EF) (bbl/day)		663
Shoreline Clean-Up Planning Volume (OSRV = WCD x OSRF x EF) (bbl/day)		331
On-Water Recovery Capacity (OWRC = OSRV x Resource Mobilization Factor) (bbl/day)	Tier 1	235 x 0.15 = 35
	Tier 2	235 x 0.25 = 59
	Tier 3	235 x 0.40 = 94
On-water Recovery Response Caps (OWRRC) (bbl/day)	Tier 1	10,000
	Tier 2	20,000
	Tier 3	40,000
Amount needed to be identified, but not contracted for (OWRC – OWRRC) (bbl/day)	Tier 1	< 0
	Tier 2	< 0
	Tier 3	< 0

D.7.3 EPA Planning Standards

The EPA worst-case discharge standard is 100% of the volume of the largest tank at the facility. The EPA planning standard for Tank TK-001 is 360,000 bbls of crude oil, which is Persistent Oil.[3] Based on OPA 90 criteria, response equipment must be available assuming the following:

80 percent of the worst case volume naturally disperses

20 percent of the worst case volume remains floating

10 percent of the worst case volume impacts the shoreline

Based on these assumptions, the following volumes are used to calculate the initial planning standards:

On-water recovery (360,000 bbls) (0.20) = 72,000 bbls

Shoreline recovery (360,000 bbls) (0.10) = 36,000 bbls.

The initial EPA planning standards for this terminal can then be modified by using the following EPA calculation factors:

Emulsification Factor: 1.0

Tier 1 Factor: 0.15 (Response resources to arrive in 12 hrs.)

Tier 2 Factor: 0.25 (Response resources to arrive in 36 hrs.)

Tier 3 Factor: 0.40 (Response resources to arrive in 60 hrs.)

Using these factors the final calculations to determine oil recovery rates become:

Tier 1: (72,000) (1.0) (0.15) = 10,800 bbls/day

Tier 2: (72,000) (1.0) (0.25) = 18,000 bbls/day

Tier 3: (72,000) (1.0) (0.40) = 289,800 bbls/day

Shoreline: (36,000) (1.0) = 36,000 bbls/day.

D.8 OFF-SITE CONSEQUENCES/RESOURCES AT RISK

D.8.1 Oil Movement

Oil moves across the surface of the water as a result of wind and current; therefore, it is important to have knowledge of tides, currents, prevailing winds, and other factors, which will permit the prediction of how and where a slick will move.

D.8.2 Site Conditions

The Facility and Dock are situated in the Port of Vancouver.

The Marine Terminal is located adjacent to the Columbia River.

The lower Columbia River currents will be a determining factor in oil movement.

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[3] The shell capacity of approximately 380,000 barrels each; however, the maximum amount of product stored in each tank will be approximately 360,000 barrels, to take into account the presence of the internal floating roof and the additional headspace required to allow product movement in the event of seismic conditions.

The area surrounding the facility is highly industrial and densely populated. A plot plan of the facility is shown in **Figure 1.5**. Response maps which cover the area may be found in the Northwest ACP.

D.8.3 Climatic Conditions

The prevailing climatic conditions at the time of a spill can influence a variety of response factors and should be quantified to the extent practical and as soon as possible following the discovery of a spill. In general the climatic conditions in the Vancouver area include:

Typically mild temperatures and prevailing summer northwesterly winds and winter southwesterly winds.

Seasonal rains occur during the fall and winter months (October – March), with the summer months being considerably drier.

Local wind speed and direction information can generally be obtained by calling the National Weather Service (**Figure 3.3**) or by using a wind sock or portable anemometer.

If access to these sources is not available, grass or fine sediments can be thrown into the air to estimate wind direction, but wind speed estimates are typically very qualitative.

The key climatic conditions and the response factors that may be affected are:

Wind speed and direction – Evacuation, vapor plume dispersions, worker safety, techniques effectiveness, aircraft safety, and others.

Visibility – Spill surveillance, worker safety, site security, and aircraft safety.

Temperature – Spill volatility, worker productivity and safety, equipment effectiveness, and others.

Visibility is determined by visual estimates concerning both the horizontal and vertical distances within which objects are clearly visible. The vertical visibility, or ceiling, is typically limited by low cloud cover or overcast conditions, but can also be dramatically reduced by heavy fog. Lateral visibility is influenced by fog or heavy rain. In general, normal aircraft operations are restricted to ceilings greater than 500 feet and horizontal visibility in excess of 0.5 mile.

Temperature can be determined using an outdoor thermometer or by calling the weather service or airport. The phone number for the National Weather Service is provided in **Figure 3.3**. Only temperatures below freezing or above 80 to 90 degrees are of concern to oil spill response operations. Temperatures above or below that range can adversely affect productivity and the health and safety of response personnel.

Both the Lower Columbia and Willamette Rivers are tidally influenced. The rise and fall of these tides can create a tidal current, which can create a reversal in the downstream current during low river flow conditions.

A detailed discussion of Lower Columbia River hydrography is provided in **Section 6**.

D.8.4 Geographic Boundaries

The location where oil may be expected to impact during the first day of a spill for the refinery are developed based on:

Past experience with oil spills in the Lower Columbia River.

An average flow rate of 2 knots.

D.8.5 Trajectory Analysis

Oil slicks move as a result of wind and water currents. For the terminal, river flow, tidal currents, and winds are all contributing factors, with river current or flow rate as the predominant factor.

Assumptions

1. Oil moves with the wind at approximately 3 to 4 percent of the wind velocity.
2. When wind velocity is low or wind is absent, oil will tend to move in the same direction as the current at about the same velocity.
3. When the wind is present, oil movement is affected by both water and wind currents.
4. When the wind direction is opposite to the current, the wind may reduce or possibly reverse the oil slick velocity at the surface.

Due to the complex currents of the Lower Columbia River and the many variables involved, it is difficult to accurately predict direction and speed of an oil slick before a spill occurs. This plan addresses response to spills within these geographic boundaries. Booming strategies have been developed for different wind and/or tidal current directions (**Section 6**). These booming strategies identify priorities and lengths of boom required. Additional boom is available if needed.

Although a computer model may be used to estimate oil spill movements, aerial surveillance provides the most effective means of determining spill size, location, and movement.

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Appendix E
Cross Reference/OPA 90 Requirements

APPENDIX E
CROSS REFERENCE/OPA 90 REQUIREMENTS

Figure E.1 – EPA OPA 90 Cross-Reference

EPA OPA 90 REQUIREMENTS (40 CFR 112)			LOCATION IN THIS PLAN
Note: Section numbers indicated below correspond to sections in the model response plan in Appendix F of the Facility Response Plan (FRP) rule.			
1.0	Response Plan Cover Sheet (EPA Sec. 2.0)		Figure E.4
	a.	General Information (Sec. 2.1)	Figure E.4
	b.	Applicability of Substantial Harm Criteria (Sec. 2.2)	Figure E.4
	c.	Certification (Sec. 2.3)	Figure E.4
2.0	Emergency Response Action Plan (ERAP) (Sec. 1.1)		
	a.	Qualified Individual (QI) Information (Sec. 1.2)	Figure 1.3, Section 4.6
	b.	Emergency Notification List (Sec. 1.3.1)	Figure 3.1, Figure 3.2, Figure 3.4
	c.	Spill Response Notification Form (Sec. 1.3.1)	Figure 3.2
	d.	Response Equipment List and Location (Sec. 1.3.2)	Section 7
	e.	Response Equipment Testing and Deployment (Sec. 1.3.4)	Section 7
	f.	Facility Response Team List (Sec. 1.3.4)	Section 4
	g.	Evacuation Plan (Sec. 1.3.5)	Figure 2.4, Section 2.1
	h.	Immediate Actions (Sec. 1.7.1)	Figure 2.1
	i.	Facility Diagrams (Sec. 1.9)	Figures 1.4-1.5,
*The sections above should be extracted from the more detailed corresponding sections of the plan.			
3.0	Facility Information (Sec. 1.2)		Figure 1.3
	a.	Facility name (Sec. 1.2.1)	Figure 1.3
	b.	Street address	Figure 1.3
	c.	City, State, Zip	Figure 1.3
	d.	County	Figure 1.3
	e.	Phone number	Figure 1.3
	f.	Latitude/Longitude (Sec. 1.2.2)	Figure 1.3
	g.	Wellhead protection area (Sec. 1.2.3)	Figure 1.3
	h.	Owner/operator (both names included, if different) (Sec. 1.2.4)	Figure 1.3
	i.	QI Information (Sec. 1.2.5) *(Name, position, street address, phone numbers)*	Figure 1.3

Figure E.1 – EPA OPA 90 Cross-Reference (Continued)

EPA OPA 90 REQUIREMENTS (40 CFR 112) Note: Section numbers indicated below correspond to sections in the model response plan in Appendix F of the Facility Response Plan (FRP) rule.				LOCATION IN THIS PLAN
		1.	Description of specific response training experience	Figure 1.3, Section 4.5, Appendix A.2
	j.	Oil storage start-up date (Sec. 1.2.6)		Figure 1.3
	k.	Facility operations description (Sec. 1.2.7)		Figure 1.3
	l.	Standard Industrial Classification code		Figure 1.3
	m.	Dates and types of substantial expansion (Sec. 1.2.8)		Figure 1.3
4.0	Emergency Response Information (Sec. 1.3)			
	Notification (Sec. 1.3.1)			Figure 3.4, Section 3
	a.	Emergency Notification Phone list		Figure 3.4, Section 3
		1.	National Response Center phone number	Figure 3.4, Section 3
		2.	QI (day and evening) phone numbers	Figure 3.4, Section 3
		3.	Company response team (day and evening) phone numbers	Figure 3.3, Section 3
		4.	Federal On-Scene Coordinator (OSC) and/or Regional response center (day and evening) phone numbers	Figure 3.4, Section 3
		5.	Local response team phone numbers (Fire Department/Cooperatives)	Figure 3.4, Section 3
		6.	Fire marshal (day and evening) phone numbers	Figure 3.4, Section 3
		7.	SERC (day and evening) phone numbers	Figure 3.4, Section 3
		8.	State police phone number	Figure 3.4, Section 3
		9.	LEPC phone number	Figure 3.4, Section 3
		10.	Wastewater treatment facility (s) name and phone number (recommended)	Figure 3.4, Section 3
		11.	Local water supply system (day and evening) phone numbers	Figure 3.4, Section 3
		12.	Weather report phone number	Figure 3.4, Section 3
		13.	Local TV/radio phone number(s) for evacuation notification	Figure 3.4, Section 3
		14.	Hospital phone number	Figure 3.4, Section 3
	b.	Spill Response Notification Form		Figures 3.2 and 3.3

Figure E.1 – EPA OPA 90 Cross-Reference (Continued)

EPA OPA 90 REQUIREMENTS (40 CFR 112)			LOCATION IN THIS PLAN
Note: Section numbers indicated below correspond to sections in the model response plan in Appendix F of the Facility Response Plan (FRP) rule.			
5.0	Response Equipment List (Sec. 1.3.2)		
	a.	Skimmer Pumps	Section 7, Appendix B
		1. Operational Status	Section 7, Appendix B
		2. Type, Model, and Year	Section 7, Appendix B
		3. Number	Section 7, Appendix B
		4. Capacity	Section 7, Appendix B
		5. Daily Effective Recovery Rate	Section 7, Appendix B
		6. Storage Location(s)	Section 7, Appendix B
		7. Date Fuel Last Changed	Section 7, Appendix B
	b.	Boom	Section 7, Appendix B
		1. Operational Status	Section 7, Appendix B
		2. Type, Model, and Year	Section 7, Appendix B
		3. Number	Section 7, Appendix B
		4. Size (length)	Section 7, Appendix B
		5. Containment Area	Section 7, Appendix B
		6. Storage Location	Section 7, Appendix B
	c.	Chemicals Stored	Section 7, Appendix B
		1. Date Authorized	Section 7, Appendix B
	d.	Dispersant Dispensing Equipment	Section 7, Appendix B
		1. Operational Status	Section 7, Appendix B
		2. Type and Year	Section 7, Appendix B
		3. Capacity	Section 7, Appendix B
		4. Storage Location	Section 7, Appendix B
		5. Response Time	Section 7, Appendix B
	e.	Sorbents	Section 7, Appendix B
		1. Operational Status	Section 7, Appendix B

Figure E.1 – EPA OPA 90 Cross-Reference (Continued)

EPA OPA 90 REQUIREMENTS (40 CFR 112)			LOCATION IN THIS PLAN
Note: Section numbers indicated below correspond to sections in the model response plan in Appendix F of the Facility Response Plan (FRP) rule.			
		2. Type and Year Purchased	Section 7, Appendix B
		3. Amount	Section 7, Appendix B
		4. Absorption Capacity	Section 7, Appendix B
		5. Storage Location(s)	Section 7, Appendix B
	f.	Hand Tools	Section 7, Appendix B
		1. Operational Status	Section 7, Appendix B
		2. Type and Year	Section 7, Appendix B
		3. Quantity	Section 7, Appendix B
		4. Storage Location	Section 7, Appendix B
	g.	Communication Equipment	Section 7, Appendix B
		1. Operational Status	Section 7, Appendix B
		2. Type and Year	Section 7, Appendix B
		3. Quantity	Section 7, Appendix B
		4. Storage Location/Number	Section 7, Appendix B
	h.	Fire Fighting and Personnel Protective Equipment	Section 7, Appendix B
		1. Operational Status	Section 7, Appendix B
		2. Type and Year	Section 7, Appendix B
		3. Quantity	Section 7, Appendix B
		4. Storage Location	Section 7, Appendix B
	i.	Other (e.g. Heavy Equipment, Boats, and Motors)	Section 7, Appendix B
		1. Operational Status	Section 7, Appendix B
		2. Type and Year	Section 7, Appendix B
		3. Quantity	Section 7, Appendix B
		4. Storage Location	Section 7, Appendix B
6.0	Response Equipment Testing and Deployment Drill Log (Sec. 1.3.3)		
	a.	Date of Last Inspection or Equipment Test	Section 7, Appendix B

Figure E.1 – EPA OPA 90 Cross-Reference (Continued)

EPA OPA 90 REQUIREMENTS (40 CFR 112)				LOCATION IN THIS PLAN
Note: Section numbers indicated below correspond to sections in the model response plan in Appendix F of the Facility Response Plan (FRP) rule.				
	b.	Inspection Frequency		Section 7, Appendix B
	c.	Date of Last Deployment Drill		Section 7, Appendix B
	d.	Deployment Frequency		Section 7, Appendix B
	e.	OSRO Certification		Section 7, Appendix B
7.0	Personnel (Sec. 1.3.4)			
	a.	Emergency Response Personnel Information		Section 4
		1.	Name	Figures 4.1 and 4.2
		2.	Phone numbers	Figure 3.4, Section 4
		3.	Response time	Section 4
		4.	Responsibility	Figure 4.4
		5.	Type and date of response training	Appendix A
	b.	Emergency Response Contractor Information		
		1.	Name	Appendix B
		2.	Phone numbers	Appendix B
		3.	Response time	Appendix B
		4.	Evidence of contractual agreement	Appendix B
	c.	Facility Response Team Information		Section 4
		1.	Job title/position of emergency response personnel	Figure 3.4, Section 4
			1.1 Response Time	Figure 2.3, Section 4
			1.2 Phone/pager	Figure 2.3, Section 4
		2.	Name of emergency response contractor (Contractors providing facility response team services may be different than contractors providing oil spill response services)	N/A
			2.1. Response time	N/A
			2.2 Phone/pager	N/A
8.0	Evacuation Plan (Sec. 1.3.5)			Figures 2.3 and 2.4
	a.	Facility Evacuation Plan (Sec. 1.3.5.1)		Figure 2.3

Figure E.1 – EPA OPA 90 Cross-Reference (Continued)

EPA OPA 90 REQUIREMENTS (40 CFR 112)			LOCATION IN THIS PLAN
Note: Section numbers indicated below correspond to sections in the model response plan in Appendix F of the Facility Response Plan (FRP) rule.			
		1. Location of stored materials	Figure 2.3
		2. Hazard imposed by spilled materials	Figure 2.3
		3. Spill flow direction	Figure 2.3
		4. Prevailing wind directions and speed	Figure 2.3
		5. Water currents, tides, or wave conditions (if applicable)	Figure 2.3
		6. Arrival route of emergency response personnel and response equipment	Figure 2.3
		7. Evacuation routes	Figures 2.3 and 2.4
		8. Alternative routes of evacuation	Figures 2.3 and 2.4
		9. Transportation of injured personnel to nearest emergency medical facility	Figure 2.3
		10. Location of alarm/notification systems	Figure 2.3
		11. Centralized check-in area for roll call	Figure 2.3
		12. Mitigation command center location	Figure 2.3
		13. Location of shelter at facility	Figures 2.3 and 2.4
	b.	Community Evacuation Plans referenced (Sec. 1.3.5.3)	Figure 2.3
9.0	Description of Qualified Individual's Duties (Sec. 1.3.5)		Section 4.5
	a.	Activate internal alarms and hazard communication systems	Section 4.5
	b.	Notify response personnel	Section 4.5
	c.	Identify character, exact source, amount, and extent of the release	Section 4.5
	d.	Notify and provide information to appropriate Federal, State and Local authorities	Section 4.5
	e.	Assess interaction of spilled substance with water and/or other substances stored at facility and notify on-scene response personnel of assessment	Section 4.5
	f.	Assess possible hazards to human health and the environment	Section 4.5
	g.	Assess and implement prompt removal actions	Section 4.5
	h.	Coordinate rescue and response actions	Section 4.5
	i.	Access company funding to initiate cleanup activities	Section 4.5

Figure E.1 – EPA OPA 90 Cross-Reference (Continued)

EPA OPA 90 REQUIREMENTS (40 CFR 112)	LOCATION IN THIS PLAN
Note: Section numbers indicated below correspond to sections in the model response plan in Appendix F of the Facility Response Plan (FRP) rule.	
j. Direct cleanup activities	Section 4.5
10.0 Hazard Evaluation (Sec. 1.4)	Appendix D
a. Hazard Identification (Sec. 1.4.1)	Appendix D
1. Tank and Surface Impoundment Forms	Figures C.2 and D.1
1.1 Tanks	Figures C.2 and D.1
a. Tanks Number(s)	Figures C.2 and D.1
b. Substance(s) Stored	Figures C.2 and D.1
c. Quantity(s) Stored	Figures C.2 and D.1
d. Tank Type(s)/Year(s)	Figures C.2 and D.1
e. Maximum Capacity(s)	Figures C.2 and D.1
f. Failure(s)/Cause(s)	Figures C.2 and D.1
1.2 Surface Impoundments (SI)	Section D.3
a. SI Number(s)	Section D.3
b. Substance(s) Stored	Section D.3
c. Quantity(s) Stored	Section D.3
d. Surface Area(s)/Year(s)	Section D.3
e. Maximum Capacity(s)	Section D.3
f. Failure(s)/Cause(s)	Section D.3
2. Labeled schematic drawing	Figures 1.5, C.3, and C.4
3. Description of transfers (loading and unloading) and volume of material	Section C.3, Section D.3
4. Description of daily operations	Figure 1.3, Section C.1, Section D.3
5. Secondary containment volume	Figure C.2
6. Normal daily throughput of the facility	Figure 1.3
11.0 Vulnerability Analysis (Sec. 1.4.2) (see Appendix A - Calculation of the Planning Distance)	Section 6.4
a. Analysis of potential effects of an oil spill on vulnerable areas	Section 6.4

Figure E.1 – EPA OPA 90 Cross-Reference (Continued)

EPA OPA 90 REQUIREMENTS (40 CFR 112) Note: Section numbers indicated below correspond to sections in the model response plan in Appendix F of the Facility Response Plan (FRP) rule.	LOCATION IN THIS PLAN
1. Water Intake	Section 6.4
2. Schools	Section 6.4
3. Medical facilities	Section 6.4
4. Residential areas	Section 6.4
5. Businesses	Section 6.4
6. Wetlands or other sensitive environments	Section 6.4
7. Fish and wildlife	Section 6.4
8. Lake and streams	Section 6.4
9. Endangered flora and fauna	Section 6.4
10. Recreational areas	Section 6.4
11. Transportation routes (air, land, and water)	Section 6.4
12. Utilities	Section 6.4
13. Other applicable areas	Appendix D.2
12.0 Analysis of the Potential for an Oil Spill (Sec. 1.4.3)	Appendix D.2
1. Description of likelihood of release occurring	Appendix D.2
a. Oil spill history for the life of the facility	Appendix D.2
b. Horizontal range of potential spill	Appendix D.2
c. Vulnerability to natural disaster	Appendix D.2
d. Tank age	Appendix D.2
e. Other factors (e.g., unstable soils, earthquake zones, Karst topography, etc.)	Appendix D.2
13.0 Facility Reportable Oil Spill History Description (Sec. 1.4.4)	Figure D.2
a. Date of discharge(s)	Figure D.2
b. List of discharge causes	Figure D.2
c. Material(s) discharged	Figure D.2
d. Amount of discharges in gallons	Figure D.2
e. Amount that reached navigable waters (if applicable)	Figure D.2

Figure E.1 – EPA OPA 90 Cross-Reference (Continued)

EPA OPA 90 REQUIREMENTS (40 CFR 112) Note: Section numbers indicated below correspond to sections in the model response plan in Appendix F of the Facility Response Plan (FRP) rule.				LOCATION IN THIS PLAN
	f.	Effectiveness and capacity of secondary containment		Figure D.2
	g.	Clean-up actions taken		Figure D.2
	h.	Steps taken to reduce possibility of reoccurrence		Figure D.2
	i.	Total oil storage capacity of tank(s) or impoundment(s) from which material discharged		Figure D.2
	j.	Enforcement actions		Figure D.2
	k.	Effectiveness of monitoring equipment		Figure D.2
	l.	Spill detection		Figure D.2
14.0	Discharge Scenario (Sec. 1.5)			Appendix D.6
	Small Discharges (Sec. 1.5.1)			Appendix D.6
	a.	Description of small discharge scenario addressing facility operations and components (Sec. 1.5.1.1)		Appendix D.6
		1.	Loading and unloading operations	Appendix D.6
		2.	Facility maintenance operations	Appendix D.6
		3.	Facility piping	Appendix D.6
		4.	Pumping stations and sumps	Appendix D.6
		5.	Oil storage tanks	Appendix D.6
		6.	Vehicle refueling operations	Appendix D.6
		7.	Age and condition of facility and components	Appendix D.6
	b.	Description of factors affecting response efforts (Sec. 1.5.1.2)		Appendix D.6
		1.	Size of spill	Appendix D.6
		2.	Proximity to downgradient water	Appendix D.6
		3.	Proximity to fish and wildlife and sensitive environments	Appendix D.6
		4.	Likelihood that discharge will travel offsite	Appendix D.6
		5.	Location of material spilled (i.e., on concrete pad or soil)	Appendix D.6
		6.	Material discharged	Appendix D.6
		7.	Weather or aquatic conditions	Appendix D.6

Figure E.1 – EPA OPA 90 Cross-Reference (Continued)

EPA OPA 90 REQUIREMENTS (40 CFR 112)	LOCATION IN THIS PLAN
Note: Section numbers indicated below correspond to sections in the model response plan in Appendix F of the Facility Response Plan (FRP) rule.	
8. Available remediation equipment	Appendix D.6
9. Probability of a chain reaction or failures	Appendix D.6
10. Direction of spill pathway	Appendix D.6
Medium Discharge (Sec. 1.5.1)	Appendix D.6
c. Description of medium discharge scenario addressing facility operations and components (Sec. 1.5.1.1)	Appendix D.6
1. Loading and unloading operations	Appendix D.6
2. Facility maintenance operations	Appendix D.6
3. Facility piping	Appendix D.6
4. Pumping stations and sumps	Appendix D.6
5. Oil storage tanks	Appendix D.6
6. Vehicle refueling operations	Appendix D.6
7. Age and condition of facility and components	Appendix D.6
d. Description of factors affecting response efforts (Sec. 1.5.1.2)	Appendix D.6
1. Size of spill	Appendix D.6
2. Proximity to downgradient water	Appendix D.6
3. Proximity to fish and wildlife and sensitive environments	Appendix D.6
4. Likelihood that discharge will travel offsite	Appendix D.6
5. Likelihood of material spilled (i.e., on concrete pad or soil)	Appendix D.6
6. Material discharge	Appendix D.6
7. Weather or aquatic conditions	Appendix D.6
8. Available remediation equipment	Appendix D.6
9. Probability of a chain reaction or failures	Appendix D.6
10. Direction of spill pathway	Appendix D.6
15.0 Worst Case Discharge (Sec. 1.5.2) (See Appendix A)	Appendix D.6
a. Correct Worst Case Discharge calculation for specific type of facility	Appendix D.6

Figure E.1 – EPA OPA 90 Cross-Reference (Continued)

EPA OPA 90 REQUIREMENTS (40 CFR 112)			LOCATION IN THIS PLAN
Note: Section numbers indicated below correspond to sections in the model response plan in Appendix F of the Facility Response Plan (FRP) rule.			
	b.	Description of worst case discharge scenario	Appendix D.6
		1. Loading and unloading operations	Appendix D.6
		2. Facility maintenance operations	Appendix D.6
		3. Facility piping	Appendix D.6
		4. Pumping stations and sumps	Appendix D.6
		5. Oil storage tanks	Appendix D.6
		6. Vehicle refueling operations	Appendix D.6
		7. Age and ccndition of facility and components	Appendix D.6
	c.	Description of factors affecting response efforts (Sec. 1.5.1.2)	Appendix D.6
		1. Size of spill	Appendix D.6
		2. Proximity to downgradient water	Appendix D.6
		3. Proximity to fish and wildlife and sensitive environments	Appendix D.6
		4. Likelihood that discharge will trave offsite	Appendix D.6
		5. Location of material spilled (i.e., on concrete pad or soil)	Appendix D.6
		6. Material discharged	Appendix D.6
		7. Weather or aquatic conditions	Appendix D.6
		8. Available remediation equipment	Appendix D.6
		9. Probability of a chain reaction or failures	Appendix D.6
		10. Direction of spill pathway	Appendix D.6
16.0	Discharge Detection Systems (Sec. 1.6)		Appendix C.2, Appendix G
	Discharge Detection by Personnel (Sec. 1.6.1)		Appendix C.2, Appendix G
	a.	Description of procedures and personnel for spill detection	Appendix C.2, Appendix G
	b.	Description of facility inspections	Appendix G
	c.	Description of initial response actions	Appendix G
	d.	Emergency Response Information (referenced)	Appendix G
17.0	Automated Discharge Detection (Sec. 1.5.2)		Appendix C.2, Appendix G

Figure E.1 – EPA OPA 90 Cross-Reference (Continued)

EPA OPA 90 REQUIREMENTS (40 CFR 112)			LOCATION IN THIS PLAN
Note: Section numbers indicated below correspond to sections in the model response plan in Appendix F of the Facility Response Plan (FRP) rule.			
	a.	Description of automatic spill detection equipment, including overfill alarms and secondary containment sensors	Appendix C.2, Appendix G
	b.	Description of alarm verification procedures and subsequent actions	Appendix C.2, Appendix G
18.0	Plan Implementation (Sec 1.7)		
	a.	Identification of response resources for small, medium, and worst case spills (Sec. 1.7.1)	Appendix D.6
	b.	Description of response actions	Appendix D.6
		1. Emergency plans for spill response	Appendix D.6
		2. Additional response training	Appendix D.6
		3. Additional contracted help	Appendix D.6
		4. Access to additional response equipment/experts	Appendix D.6
		5. Ability to implement plan. Including response training and practice drills.	Appendix D.6
19.0	Disposal Plan (Sec. 1.7.2)		Section 5.6, Section 7.5
	a.	Description of procedures for recovering, reusing, decontaminating or disposing of materials	Section 5.6, Section 7.5
	b.	Materials addressed in Disposal Plan (Recovered product, contaminated soil, contaminated equipment and materials, personnel protective equipment, decontamination solutions, absorbents, spent chemicals)	Section 5.6, Section 7.5
	c.	Plan prepared in accordance with any Federal, State, and/or Local regulations	Section 5.6, Section 7.5
	d.	Plan addresses permits required to transport or disposal of recovered materials	Section 5.6, Section 7.5
20.0	Containment and Drainage Planning (Sec. 1.7.3)		Section 7.5, Appendix C
	a.	Description of containing/controlling a spill through drainage.	Section 7.5, Appendix C
		1. Containment volume	Appendix C.2
		2. Drainage route from oil storage and transfer areas	Figure 1.7 Appendix C.2
		3. Construction materials in drainage troughs	Section 7.5, Appendix C.2
		4. Type and number of valves and separators in drainage system	Appendix C.2

Figure E.1 – EPA OPA 90 Cross-Reference (Continued)

EPA OPA 90 REQUIREMENTS (40 CFR 112)			LOCATION IN THIS PLAN
Note: Section numbers indicated below correspond to sections in the model response plan in Appendix F of the Facility Response Plan (FRP) rule.			
		5. Sump pump capacities	Appendix C.2
		6. Containment capacities of weirs and booms and their location	Section 7, Appendix C.2
		7. Other clean up materials	Section 7, Appendix C.2
21.0	Self-Inspection, Training, and Meeting Logs (Sec. 1.8)		
	Facility Self-Inspection (Sec. 1.8.1)		Appendix G
	a. Records of tank inspections contained or cross-referenced in plan or maintained electronically		Appendix G
	b. Records of secondary containment inspections contained or cross-referenced in plan or maintained electronically		Appendix G
	c. Equipment Inspection Checklist		Appendix G
	d. Response Equipment Checklist (Sec. 1.8.1.2)		Appendix G
		1. Inventory (item and quantity)	Appendix G
		2. Storage location	Appendix G
		3. Accessibility (time to access and respond)	Appendix G
		4. Operational status/condition	Appendix G
		5. Actual use/testing (last test date and frequency of testing)	Appendix G
		6. Shelf life (present age, expected replacement date)	Appendix G
	e. Response Equipment Inspection Log		Appendix G
		1. Inspection records maintained for 5 years	Appendix G
22.0	Facility Drills/Exercise (Sec. 1.8.2)		Appendix A
	a. Description of drill/exercise program based on PREP guidelines or other comparable program		Appendix A
		1. QI notification drill	Appendix A
		2. Spill management team tabletop exercise	Appendix A
		3. Equipment deployment exercise	Appendix A
		4. Unannounced exercise	Appendix A
		5. Area exercise	Appendix A

Figure E.1 – EPA OPA 90 Cross-Reference (Continued)

EPA OPA 90 REQUIREMENTS (40 CFR 112)			LOCATION IN THIS PLAN
Note: Section numbers indicated below correspond to sections in the model response plan in Appendix F of the Facility Response Plan (FRP) rule.			
	b.	Description of evaluation procedures for drill program	Appendix A
	c.	Qualified Individual Notification Drill Log (Sec. 1.8.2.1) (Date, company, qualified individual, emergency scenario, evaluation)	Appendix A
	d.	Spill Management Team Tabletop Drill Log (Sec. 1.8.2.2) (Date, company, qualified individual, emergency scenario, evaluation, changes to be implemented, time table for implementation)	Appendix A
23.0	Response Training (Sec. 1.8.3)		Appendix A
	a.	Description of Response Training program (including topics)	Appendix A
	b.	Personnel Response Training Logs (Name, response training date/and number of hours; prevention training date/and number of hours)	Appendix A
24.0	Diagrams (Sec. 1.9)		
	Site Plan Diagram		Figure 1.5
	a.	Entire facility to scale	Figure 1.5
	b.	Above and below-ground storage tanks	Figure 1.5
	c.	Contents and capacities of bulk oil storage tanks and drum oil storage areas	Figure 1.5
	d.	Process buildings	Figure 1.5
	e.	Transfer areas	Figure 1.5
	f.	Location and capacity of secondary containment systems	Figure 1.5
	g.	Location of hazardous materials	Figure 1.5
	h.	Location of communications and emergency response equipment	Figure 1.5
	i.	Location of electrical equipment that might contain oil	Figure 1.5
25.0	Site Drainage Plan Diagram		
	a.	Major sanitary and storm sewers, manholes, and drains	Figure 1.5
	b.	Weirs and shut-off valves	Figure 1.5
	c.	Surface water receiving streams	Figure 1.5
	d.	Fire fighting water sources	Figure 1.5

Figure E.1 – EPA OPA 90 Cross-Reference (Continued)

EPA OPA 90 REQUIREMENTS (40 CFR 112)			LOCATION IN THIS PLAN
Note: Section numbers indicated below correspond to sections in the model response plan in Appendix F of the Facility Response Plan (FRP) rule.			
	e.	Other utilities	Figure 1.5
	g.	Response equipment transportation routes	Figure 1.5
	h.	Direction of spill flow from discharge points	Figure 1.5
26.0	Site Evacuation Plan Diagram		Figure 2.4
	a.	Evacuation routes	Figure 2.4
	b.	Location of regrouping areas	Figure 2.4
27.0	Site Security (Sec. 1.10)		Section 7.2
	a.	Description of facility security (Emergency cut-off locations, enclosures, guards and their duties, lighting, valve and pump locks, pipeline connection caps)	Section 7.2
28.0	Acronyms and References		Appendix H

Figure E.2 – USCG OPA 90 Cross Reference

USCG OPA 90 REQUIREMENTS (33 CFR 154.1035)	LOCATION IN PLAN
a) *Introduction and Plan Content*	
1. Facility Name and Location address, city, county, state, zip, phone number, fax number.	Fig. 1.5, pp. 1-17 thru 1-18
2. Facility Directions (including but not limited to maps, landmarks and river mile that could aid a responder and reviewer).	Sec. 1.4, p. 1-16; Fig. 1.6 thru 1.8, pp. 1-19 thru 1-21
3. Name, address and procedures for contacting the facility's owner or operator on a 24 hour basis.	Fig. 1.5, p. 1-17
4. Table of contents.	Preface
5. Period when submitted plan does not have to conform to the subpart, a cross index, if appropriate.	App. E, Fig. E.2, p. E-16
6. Record of change(s) to record information on plan updates.	Figure 1.1, p. 1-1
b) *Emergency Response Action Plan*	
1. Notification procedures • Prioritized list of facility response personnel.	Section 3 pp. 3-1 thru 3-9
• Federal, State, or local agencies, as required.	Section 3 Fig. 3.1, p. 3-2; Fig. 3.3, pp. 3-6 thru 3-7
• Notification of the National Response Center.	Fig. 3.1, p. 3-2; Fig. 3.3, p. 3-5; Fig. 3.4, p. 3-10
• Spill response notification forms to Federal, State, local agencies. Form must state that initial notification must not be delayed by collection of data.	Figure 3.2), p. 3-4
2. Facility's spill mitigation procedures (i) Describe volume and oil groups that would be involved in the following: • Average, maximum and worse discharge from the MTR facility.	Section 2.2.4, pp 2-16 thru 2-20; Appendix D 2.7.2, pp D-25-26
• Where applicable, the worst case discharge from the non-transportation-related facility.	Appendix D 2.7.3, pp D-27
(ii) 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	Appendix D 2.4 thru 2.6, pp D- 17 thru D-24
(iii) Listing of equipment and the responsibilities of facility personnel to mitigate an average most probable discharge	Section 7.0 pp 7-1 thru 7-12
3. Facility's response activities	
(i) Responsibilities of facility personnel to initiate a response and supervise response resources pending arrival of qualified individuals.	Fig. 2.1 and 2.2, pp. 2-1 thru 2-4
• Responsibilities and authority of the qualified individual and • Alternate as required in § 154.1026.	Fig. 2.1, p. 2-2; Sec. 4.6, pp. 4-7 thru 4-8

Figure E.2 – USCG OPA 90 Cross Reference (Continued)

USCG OPA 90 REQUIREMENTS (33 CFR 154.1035)	LOCATION IN PLAN
	Vancouver
(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	Fig. 4.1 thru 4.3, pp. 4-9 thru 4-11
(iv) Identify oil spill removal organizations and the spill management teams to be capable of providing the following response resources: • Equipment & 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	Sec. 7.1, pp. 7-1 thru 7-6 and pp. 7-9 thru 7-13
• Job descriptions for each spill management team member within the organizational structure in a response action.	Fig 4.4, pp.4-12 thru 4-16
(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. Sensitive areas	
(i) Identify areas of economic importance and environmental sensitivities as identified in the ACP, which are potentially impacted by a worst case discharge.	Sec. 6.2.1 thru 6.2.2, p. 6-3
(ii) For a worst case discharge the plan must address the following: • List all sensitive elements identified in ACP that are potentially impacted by a discharge	Sec. 6.3 thru 6.4, pp. 6-3 thru 6-11
• Describe all response actions anticipated to protect sensitive elements • Contain map or chart that depicts each response action anticipated.	Sec. 6.5 thru 6.8, pp. 6-11 thru 6-37
(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. (Not applicable)	N/A
• 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.	Section 7 pp. 7-1 thru 7-12
• Non-persistent oils discharged into non-tidal waters, the distance from the facility reached in 24 hours at maximum current. (Not applicable)	N/A
	Section 7 pp. 7- 3 thru 7-6
• 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 may be 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 D.8, pp. D-28 thru D-30

Figure E.2 – USCG OPA 90 Cross Reference (Continued)

USCG OPA 90 REQUIREMENTS (33 CFR 154.1035)	LOCATION IN PLAN
	Vancouver
5. Disposal plan This subsection must describe any actions to be taken or procedures to be used to ensure that all recovered oil and oil contained debris produced as a result of any discharge are disposed according to federal, state, or local requirements.	Sec. 7.5, pp. 7-24 thru 7-29
c) *Training and Exercises*	
1. Training procedures of the facility owner or operator must meet requirements of §154.1050.	App. A, pp. A-1 thru A-22
2. Drill procedures of the facility owner or operator must meet requirements of §154.1055.	App. A, pp. A-1 thru A-22
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.	Introduction Sec. 1.3, pp. 1-7 thru 1-10
e) Appendices	
1. Facility-specific information – principal characteristics	
i) Physical description of the facility must include mooring areas, transfer locations, control stations, locations of safety equipment and location and capacities of all piping storage tanks.	Sec. C.1 thru C.2, pp. C-1 thru C-5; Fig. C.3, p. C-17
ii) Identify sizes, types and number of vessels the facility can transfer oil to or from simultaneously.	Sec. C.2, p. C-3
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.	App.C pp. C-2 thru 3 and Fig. 1.7 p. 1-20
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	Sec. C.2, p. C-1
2. List of contacts must include primary and alternate personnel, personnel from paragraph (b) (3) (iv), and Federal, state and local officials.	Fig. 3.3, pp. 3-5 thru 3-6
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	Appendix D pp. D-18 thru 20
• 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	Fig. 7.1, p. 7-3. Fig. 7.3, p. 7-12, App. B
• 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	Sec. 7.1, pp. 7-1

Figure E.2 – USCG OPA 90 Cross Reference (Continued)

USCG OPA 90 REQUIREMENTS (33 CFR 154.1035)	LOCATION IN PLAN
	Vancouver
• 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, 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, p.7-2
4. Communications plan must describe the primary and alternate method of communication during discharges, including communications at the facility and at remote locations.	Sec. 7.1.9, p. 7-13
5. Site specific safety and health plan must describe the safety and health plan to be implemented. This appendix may reference another existing plan requiring under 29 CFR 1910.120	pp. 5-8 thru 5-10
6. List of acronyms and definitions must include all definitions that are critical to understanding the response plan.	Appendix H

Figure E.3 – Washington Department of Ecology Cross-Reference Index

ECOLOGY REQUIREMENTS (WAC 173-182-230)	
PLAN CONTENT REQUIREMENTS	**LOCATION IN THIS PLAN**
(1) Each plan shall contain a submittal agreement which:	Figure 1.3
(a) Includes the name, address, and phone number of the submitting party;	Section 1
(b) Verifies acceptance of the plan…either signature of the owner or operator or signature by a person with authority to bind the corporation which owns such facility;	Preface
(c) Commits execution of the plan;	Preface
(d) Includes name, location, and address of the facility, type of facility, starting date of operations, types of oil(s) handled, and oil volume capacity;	Figure 1.3
(2) Each plan shall include a log sheet.	Preface, Figure 1.1
(3) Each plan shall include a detailed table of contents.	Preface
(4) Each plan shall describe the purpose and scope of that plan, including:	Section 1
(a) Geographic area;	Section 1.5
(b) Operations covered by the plan;	Figure 1.3
(c) Size of the worst case spill;	Figure 1.3
(5) Each plan shall describe the procedures and time periods corresponding to updates of the plan and distribution of the plan and updates to affected and interested parties.	Section 1.4
(6) Each plan shall present a strategy to ensure use of the plan for spill response and cleanup operations pursuant to requirements in WAC 173-182-145;	Preface, Sections 2, Section 5
(7) Each plan shall describe the organization of the spill response system.	Section 4
(8) (a) For each primary response contractor…the plan shall state that contractors' 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 primary response contractor, the plan shall include a letter of intent signed by the primary response contractor which indicates the contractor's willingness to respond.	Section 7, Appendix B
(b) If a plan holder is a member of an oil spill response cooperative…the plan shall state the cooperative's name, address, phone number, and response capability. The plan shall also include proof of cooperative membership.	Section 7, Appendix B
(c) Plans which rely on primary response contractors shall rely only on primary response contractors approved by the department.	Section 7, Appendix B
(9) Each plan shall briefly describe its relation to all applicable local, state, regional, and federal government response plans.	Figure 1.6, Section 1.4
(10) Each plan shall list procedures which will be used to detect and document the presence and size of a spill.	Sections 3, Section 5, Section 2.2, Section C.3
(11) Each plan shall describe procedures which will be taken to immediately notify appropriate parties that a spill has occurred.	Figure 3.1, Section 3.2
(a) Plan holder shall maintain a notification call out list,	Figure 3.4

Figure E.3 – Washington Department of Ecology Cross-Reference Index (Continued)

ECOLOGY REQUIREMENTS (WAC 173-182-230)	
(ii) Lists the name and phone number of all government agencies which must be notified in the event of an oil spill;	Figure 3.4
(iii) Establishes a clear order of priority for immediate notification;	Figure 3.1, Section 3.2
(b) The plan shall identify a central reporting office or individual who is responsible for implementing the call out process;	Figure 3.1, Section 3.2
(c) The plan shall utilize a system of categorizing incident type and severity.	Appendix D
(12) Each plan shall describe the personnel (including contract personnel) available to respond to an oil spill, including:	
(a) A job description for each type of spill type position,	Figure 4.4
(b) The number of personnel available to perform each type of spill response position;	Figure 4.2
(c) Arrangements for pre-positioning personnel at strategic locations;	Figure 4.2
(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; and	Section 4, Appendix A
(e) The procedures, if any, to train and use volunteers willing to assist in spill response operations. Volunteer procedures for wildlife rescue shall comply with rules adopted by the Washington Department of Wildlife.	Section 4, Appendix A
(13) (a) Each plan shall list the type, quantity, age, location, maintenance schedule, and availability of equipment used during spill response, equipment used for oil containment, recovery, storage, and removal, shoreline and adjacent lands cleanup, wildlife rescue and rehabilitation, and communication.	Section 7
(b) For equipment listed under (a) of this subsection that is not owned by or available exclusively to the plan holder, the plan shall also estimate the extent to which other contingency plans rely on that same equipment.	Section 7, Appendix B
(c) For oil containment and recovery equipment, the plan also shall include equipment make and model, and the manufacturer's nameplate capacity of the response equipment (in gallons per minute), and applicable design limits (e.g., maximum wave height capacity; inland waters vs. open ocean).	Section 7, Appendix B
(d) Based on information described in (c) of this subsection, the plan shall state the maximum amount of oil which could be recovered per twenty-four hour period.	Appendix D
(e) For purpose of determining plan adequacy and to assess realistic capabilities based on potential limitations by weather, sea state, and other variables, the data presented in (c) and (d) of this subsection will be multiplied by an average efficiency factor of twenty percent. The department will apply a higher efficiency for equipment listed in a plan if that plan holder provides adequate evidence that the higher efficiency factor is \warranted for particular equipment. The department may assign a lower efficiency factor to particular equipment listen in a plan if it determines that the performance of that equipment warrants such a reduction.	Appendix D

Figure E.3 – Washington Department of Ecology Cross-Reference Index (Continued)

ECOLOGY REQUIREMENTS (WAC 173-182-230)	
(f) The plan shall provide arrangements for prepositioning of oil spill response equipment at strategic locations.	Appendix D
(14) Each plan shall describe the communication system used for spill notification and response operations, including:	Section 7.1.9
(a) Communication procedures;	Section 7.1.9
(b) The communication function (e.g., ground-to-air) assigned to each channel or frequency used; and	Section 7.1.9
(c) The maximum geographic range for each channel or frequency used.	Section 7.1.9
(15) Each plan shall describe the process to establish sites needed for spill response operations, including location or location criteria for:	Section 4, Section 7.1.9
(a) A central command post;	Section 4.4
(b) A central communication post if located away from the command post; and	Section 4.4
(c) Equipment and personnel staging areas.	Section 4.4
(16) (a) Each plan shall present 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 shall describe the general order and priority in which key spill response activities are performed.	Preface, Figure 2.2
(b) Each plan shall describe all key spill response operations in checklist form, to be used by spill response managers in the event of an oil spill.	Figure 2.1
(17) (a) Each plan shall list the local, state, and other government authorities responsible for the emergency procedures peripheral to spill containment and cleanup, including:	Section 2
(i) Procedures to control fires and explosions, and to rescue people or property threatened by fire or explosion;	Section 2.1, Section 7.1
(ii) Procedures to control ground and air traffic which may interfere with spill response operations; and	Section 2.1, Section 7.1
(iii) Procedures to manage access to the spill response site.	Section 2, Section 7.2
(b) Each plan shall describe the plan holder's role in these emergency operations procedures prior to the arrival of proper authorities.	Section 2.2, Figure 2.1
(18) Each plan shall describe equipment and procedures to be used by the facility personnel to minimize the magnitude of the spill and minimize structural damage which may increase the quantity of oil spilled. Damage control procedures shall include methods to slow or stop pipeline, storage tank, and other leaks, and methods to achieve immediate emergency shutdown.	Section 2.2, Section 7
(19) Each plan shall describe, in detail methods to control spilled oil and remove it from the environment. Methods shall describe deployment of equipment and personnel, using diagrams or other visual aids when possible. Response methods covered must include:	Section 2, Appendix F
(a) Surveillance methods used to detect and track the extent and movement of the spill;	Section 2.4
(b) Methods to contain and remove oil in offshore waters;	Section 7, Appendix F
(c) Methods to contain and remove oil in near-shore waters, including shoreline protection procedures and oil diversion/pooling procedures; and	Section 7, Appendix F

Figure E.3 – Washington Department of Ecology Cross-Reference Index (Continued)

ECOLOGY REQUIREMENTS (WAC 173-182-230)	
(d) Methods to contain and remove oil, including surface oil, subsurface oil, and oiled debris and vegetation, from a variety of shoreline, adjacent land, and beach types.	Section 7, Appendix F
(20) Each plan shall briefly describe initial equipment and personnel deployment activities which will accomplish the response standard	Section 2; Appendix D
(21) If the plan holder will use dispersants, coagulants, bioremediants, or other chemical agents for response operations, conditions permitting, the plan shall describe:	Section 5, Section 7
(a) Type and toxicity of chemicals;	Section 5.2, Section 7
(b) Under what conditions they will be applied in conformance with all applicable local, state, and federal requirements, including the state-wide master oil and hazardous substance spill contingency plan;	Section 5.2, Section 7
(c) Methods of deployment; and	Section 5.2, Section 7
(d) Location and accessibility of supplies and deployment equipment.	Section 5.2, Section 7
(22) If the plan holder will use in-situ burning for response operations, conditions permitting, the plan shall describe:	Section 5.4,.Section 7
(a) Type of burning operations;	Section 5.4,.Section 7
(b) Under what conditions burning will be applied in conformance with all applicable local, state, and federal requirements, including the state-wide master oil and hazardous substance spill contingency plan;	Section 5.4,.Section 7
(c) Methods of application; and	Section 5.4,.Section 7
(d) Location and accessibility of supplies and deployment equipment.	Section 5.4,.Section 7
(23) Each plan shall describe how environmental protection will be achieved, including:	Section 6
(a) Protection of sensitive shoreline and island habitat by diverting or blocking oil movement;	Section 6
(b) Priorities for sensitive area protection in the geographic area covered by the plan as designated by the department in environmentally sensitive area maps referenced in the state-wide master oil and hazardous substance spill contingency plan;	Section 6
(c) Rescue and rehabilitation of birds, marine mammals, and other wildlife contaminated or otherwise affected by the oil spill in compliance with rules adopted by the Washington Department of Wildlife; and;	Section 6
(d) Measures take to reduce damages to the environment caused by shoreline and adjacent land cleanup operations, such as impacts to sensitive shoreline habitat by heavy machinery.	Section 6
(24) (a) Each plan shall 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 shall be designed to prevent contamination by recovered oil and oily wastes.	Section 5.6, Section 7.5, Appendix D
(b) If use of interim storage sites will require approval by local, state, or federal officials, the plan shall include information which 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, Section 7.5, Appendix D
(c) Each plan shall describe methods and sites used for permanent disposal of oil recovered and oily wastes generated during response and cleanup operations.	Section 5.6, Section 7.5, Appendix D

Figure E.3 – Washington Department of Ecology Cross-Reference Index (Continued)

ECOLOGY REQUIREMENTS (WAC 173-182-230)	
(d) Interim storage and permanent disposal methods and sites shall be sufficient to keep with oil recovery operations and handle the entire volume of oil recovered and oily wastes generated.	Section 5.6, Section 7.5
(e) Interim storage and permanent disposal methods and sites shall comply with all applicable local, state, and federal requirements.	Section 5.6, Section 7.5
(25) Each plan shall describe procedures to protect the health and safety of oil spill response workers, volunteers, and other individuals on-site. Provisions for training, decontamination facilities, safety gear, and a safety officer positions shall be addressed.	Section 5.1
(26) Explain post-spill review procedures.	Section 8
(27) (a) Describe the schedule and type of drills and other exercises.	Appendix A
(b) Test of internal call out procedures shall be performed at least once every ninety calendar days and documented by the plan holder.	Appendix A
(28) Each onshore facility and offshore facility plan shall describe measures taken to reduce the likelihood that a spill will occur which exceed or are not covered by existing state and federal requirements, including:	Appendix A
(a) Type and frequency of personnel training on methods to minimize operational risks;	Appendix A
(b) Methods to ensure equipment integrity, including inspection and maintenance schedules;	Appendix G
(c) Methods to reduce spills during transfer operations, including overfill prevention; and	Appendix C
(d) Secondary containment for tanks, pipes, manifolds, or other structures used for storage or movement of oil other than liquefied petroleum gases.	Appendix C.2
(29) Each facility plan shall list the spill risk variable within the geographic area covered by the plan, including:	Appendix D
(a) Types, physical properties, and amounts of oil handled;	Appendix D
(b) A written description of sites or operations with a history of or high potential for oil spills.	Appendix D
(30) List the environmental variables within the geographic area covered by the plan, including:	Section 6
(a) Natural resources.	Section 6
(b) Public resources.	Section 6
(c) Seasonal hydrographic and climatic conditions; and	Section 6
(d) Physical geographic features.	Section 6
(31) List the logistical resources within the geographic area covered by the plan, including:	Figure 3.4
(a) Facilities for fire services, medical services, and accommodations; and	Figure 3.4
(b) Shoreline access areas, including boat launches	Figure 3.4
(32) (a) Describe detailed, plausible, step-by-step response scenarios for:	Appendix D.6
(i) A small oil spill less than five hundred gallons; and	Appendix D.6
(ii) A worst case spill	Appendix D.6
(b) Each scenario description shall include:	Appendix D.6

Figure E.3 – Washington Department of Ecology Cross-Reference Index (Continued)

ECOLOGY REQUIREMENTS (WAC 173-182-230)	
(i) The circumstances surrounding the spill, including size, type, location, climatic and hydrographic conditions, time, and cause;	Appendix D.6
(ii) Estimates of response time and present recovery for each major phase of operations.	Appendix D.6
(c) Plan applies to multiple facilities, each scenario description shall discuss implementation of the plan in the event of simultaneous separate spills.	N/A
(33) Each plan shall include a glossary of technical terms and abbreviations used in the plan	Appendix H

Figure E.4 – Washington Department of Ecology Second Cross Reference

WAC 173-182	Brief Description	Reference
140	Updates and Reporting Obligations	Section 1.3
150	Post-spill Review and Documentation Procedures	Section 8.0
230	Contingency Plan General Content	
(3)(a)	Federal and State Requirements	Section 1.2
(b)	Worst Case Spill Volume	Section 1.1
(c)	Log Sheet	Figure 1.1
(d)	Cross-reference	Figure E.3
(e)(i)	PRC contract	Appendix B
(iii)	Mutual Aid Agreements	Appendix B
(iv)	PRC on SMT	N/A
(f)	Waste Disposal	Sections 5.6, 5,8, & 5.9
(4)	Additional Content	
(a)	Name, location, type, and address	Figure 1.5
(c)	Operations	
(i)	List of Oil Handling Operations	Figure 7.5 & Appendix C
(ii)	Group and Amount of Oil Handled	Figure 1.5
(iii)	Written Description and Maps	Section 1.0
(iv)	48-hour trajectory	Section D.5
240	Field Document	Sections 1-3
(1)	List of Locations of Field Document	Figure 1.2
(2) (a)	Procedures to detect, assess and document spills	Section 2
(b)	Notifications	Section 3.0
(c)	Checklist	Section 2
250	Initial Response Actions	
(1)	Documenting Initial Actions	Figure 3.2
(2)	Initial Assessment Equipment	Section 2.2
(3)	Safety Assessment Procedures	Section 2.4.1 & Section 5
(4)	Spill Assessment Procedures	Section 2
260	Notification and Call-Out Procedures	Section 3
270	Maintenance Records for Response Equipment	Section 7 & Appendix G
280	Spill Management Team	Figure 4.2
(1) (a)	Organizational Chart	Figure 4.1
(b)	List of Primary and Alternate Staff	Figure 4.2
(c)	Job Descriptions	Figure 4.4
(d)	Planning Process	Figure 4.4
(2)	Training	Section 4. & Appendix A
(4)	Transitions	Section 4.3
315	Planning Standards for Non-dedicated Workboats	MSRC PRC Application & Appendix B.2
320	Planning Standards for Aerial Surveillance	Section 2.2.1

Figure E.4 – Washington Department of Ecology
Second Cross Reference (Continued)

WAC 173-182	Brief Description	Reference
325	Planning Standards for Dispersants	Section 5.2 Section 7.3.1
330	Planning Standards for In Situ Burning	Section 5.5 Section 7.3.2
335	Planning Standards for Storage	Section 5.7
345	Determining Effectiveness of Recovery Systems	Section 7
350	Documenting Compliance with the Planning Standards	Section 7
355	Transfer Sites for Covered Vessels at Locations Where Transfers Occur, and for Facilities with a Vessel Terminal	Section 7
420	Vancouver Planning Standard	Section 7
510	Requirements for Response and Protection Strategies	
(1)	Methods to Track and Contain Spilled Oil	Section 2
(2)	Environmental Protection Strategies	Section 6
(3)	GRPs	Section 6.7
(4)	List of Command Posts	Section 4.4
520	Planning Standards for Shoreline Cleanup	Appendix F
530	Planning Standards for Ground Water Spills	Section 6.9
540	Planning Standards for Wildlife Rescue and Rehabilitation	Section 6.6
700 & 710	Drills	Appendix A

WAC 173-182	Brief Description	Tesoro Plan Section
220	Binding Agreement	Preface
230(7)	Description of Claims Process	Section 4, 5
230(4)(c)(iii)	Description of Products Handled	Appendix C
264	How notifications will be made to required government agencies for spills to threatened or confirmed spills to ground water.	Section 3
324	Group V Oils	Appendix B
325	Planning standards for dispersants	Appendix C

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Appendix F
Response Techniques and Guidelines

APPENDIX F
RESPONSE TECHNIQUES AND GUIDELINES

F.1 SHORELINE PROTECTION GUIDANCE

Shoreline protection procedures are conducted to prevent oil impact to shoreline and reduce the impact on wildlife. Mechanical methods, such as use of boom and skimmers are the preferred methods. These methods can be used to control or contain floating oil slicks on the water away from marshes. Sorbents are effective on mudflats when placed on the shoreline before oil contacts the shore. A description of shoreline types is presented in **Figure F.1**. Specific shoreline protection and cleanup measures, for areas possibly impacted by a potential spill from the Facility, are discussed in this subsection. Additional information may be obtained from the *Northwest Area Contingency Plan*. The TSVEDT recognizes CRCI as their primary response contractor and will defer to their expertise in assessment, clean-up methodology, and provision of trained personnel.

F.2 SHORELINE AND TERRESTRIAL CLEANUP

F.2.1 General

In the event that terrestrial areas do become oiled, cleanup operations should be undertaken to minimize the environmental effects of the oil**.** Before terrestrial and shoreline cleanup plans are implemented they require Unified Command approval. Assessment teams comprised of personnel from the appropriate agencies, Company personnel, and consultants can be utilized to determine the most appropriate cleanup method.

In most instances, cleanup efforts are not subject to the same time constraints as containment, recovery, and protection operations. As a result, better planning and greater attention to detail are possible. The exception is where there is a high probability of stranded oil becoming mobilized again and migrating to previously unaffected areas. In this case, implement cleanup operations as soon as possible. If time does permit, consider the following items in detail.

- Documentation of the location, degree, and/or extent of oil conditions
- Evaluation of all environmental, cultural, economic, and political factors
- Selection of optional cleanup technique
- Mitigation of physical/environmental damage associated with cleanup operations
- Cost-effectiveness
- Net environmental benefit assessment

The shoreline or terrestrial oil conditions can range from those which require immediate and thorough cleanup to lightly oiled areas where no cleanup may be the most environmentally sound option. Factors that influence technique selection and whether or not cleanup will be required include:

- Oil type and amount
- Sensitivity
- Substrate or shoreline type
- Intrusive nature of the candidate techniques
- Shoreline accessibility
- Exposure

Therefore, before initiating cleanup activities, an assessment of the net environmental benefits of a proposed cleanup operation should be performed for all affected shorelines.

Figure F.1 – Description of Shoreline Types

TYPES	ESI #	DESCRIPTION	PREDICTED OIL IMPACT	RECOMMENDED CLEANUP ACTIVITY
Exposed Rocky Cliffs	1A	• The intertidal zone is steep (greater than a 30º slope), with very little width. • Sediment accumulations are uncommon and usually ephemeral, since waves remove the debris that has slumped from the eroding cliffs. • They are often found interspersed with other shoreline types. • There is a strong vertical zonation of intertidal biological communities.	• Oil is held offshore by waves reflecting off the steep cliff. • Any oil that is deposited is rapidly removed from exposed faces. • The most resistant oil would remain as a patchy band at or above the high-tide line. • Impacts to intertidal communities are expected to be of short duration. • An exception would be where heavy concentrations of light refined product (e.g. No. 2 fuel oil) came ashore very quickly.	• Cleanup is not usually required • Access can be difficult and dangerous.

Exposed Sea Walls and Piers	1B	• Seawalls and piers are particularly common in developed areas, providing protection to residential and industrial developments.
		• They are also common along inlets, urbanized areas, and developed beachfront sites.
		• They are composed of concrete and stone, wooden, or metal bulkheads and wooden pilings.
			• Oil would percolate between the joints of the structures.
			• Oil would coat the intertidal areas of solid structures.
			• Biota would be damaged or killed under heavy accumulations.
				• High-pressure spraying may be required in order to:
				  • Remove oil;
				  • Prepare substrate for recolonization of barnacle and oyster communities;
				  • Minimize aesthetic damage;
				  • Prevent the chronic leaching of oil from the structure.

Exposed Wave-Cut Platforms	2	• The intertidal zone consists of a flat rock bench of highly variable width. • The shoreline may be backed by a steep scarp or low bluff. • There may be a narrow, perched beach of gravel- to boulder-sized sediments at the base of the scarp. • The platform surface is irregular and tidal pools are common. • Small accumulations of gravel can be found in the tidal pools and crevices in the platform. • Pockets of sandy "tidal flats" can occur on the platform in less exposed settings. • These habitats can support large populations of encrusting animals and plants, with rich tidal pool communities.	• Oil will not adhere to the rock platform, but rather be transported across the platform and accumulate along the high-tide line. • Oil can penetrate and persist in the beach sediments, if present. • Persistence of oiled sediments is usually short term, except in wave shadows or larger sediment accumulations.	• Cleanup is usually not required. • Where the high-tide areas is accessible, it may be feasible to remove heavy oil accumulations and oiled debris.

Figure F.1 – Description of Shoreline Types (Continued)

TYPES	ESI #	DESCRIPTION	PREDICTED OIL IMPACT	RECOMMENDED CLEANUP ACTIVITY
Fine/Medium-Grained Sandy Beaches	3	• These beaches are generally flat, wide, and hard-packed. • They are commonly backed by dunes or seawalls along exposed outer coasts. • Along sheltered bays, they are narrower, often fronted by tidal flats. • Upper beach fauna are scarce.	• 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, although the oil will be lifted off the lower beach with the rising tide. • Maximum penetration of oil into fine-grained sand will be 10 centimeters (cm). • Burial of oiled layers by clean sand within the first few weeks will be less than 30 cm along the upper beach face. • Organisms living in the beach sands may be killed either by smothering or by lethal oil concentrations in the interstitial water. • Shorebirds may be killed if oiled, though they may shift to clean sites.	• These beaches are among the easiest beach types to clean. • Cleanup should concentrate on the removal of oil from the upper swash zone after all oil has come ashore. • Removal of sand from the beach should be minimal to avoid erosion problems; special caution is necessary in areas backed by seawalls. • Activity through oiled and dune areas should be severely limited, to prevent contamination of clean areas. • Manual cleanup, rather than road graders and front-end loaders, 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 being pushed deeper into the sediments by vehicle and foot traffic.
Coarse-Grained Sand/Gravel Beaches	4	• These beaches are moderate-to-steep, of variable width, and have soft sediments. • They are commonly backed by dunes seawalls along exposed outer coasts. • Generally species density and diversity is low.	• Light oil will be deposited primarily as a band along the high-tide line. • Under very heavy accumulations, oil may spread across the entire beach face, though the oil will be lifted off the lower beach with the rising tide. • Penetration of oil into coarse-grained sand can reach 25 cm. • Burial of oil layers by clean sand can be rapid, and up to 60 cm or more. • Burial over one meter is possible if the oil comes ashore at the start of the disposition period. • Biological impacts include temporary declines in faunal populations, which can also affect feeding shorebirds.	• Remove oil primarily from the upper swash lines. • Removal of sediment should be limited to avoid erosion problems. • Mechanical reworking of the sediment into the surf zone may be used to release the oil without removal. • Activity in the oiled sand should be limited to prevent mixing oil deeper into the beach. • Use of heavy equipment for oil/sand removal may result in the removal of excessive amounts of sand; manual cleanup may be more effective.

Figure F.1 – Description of Shoreline Types (Continued)

TYPES	ESI #	DESCRIPTION	PREDICTED OIL IMPACT	RECOMMENDED CLEANUP ACTIVITY
Mixed Sand and Gravel Beaches	5	• Moderately sloping beach composed of a mixture of sand (greater than 20%) and gravel (greater than 25%). • The high-tide berm area is usually composed of sand or fine gravel (pebbles to cobbles), whereas the lower part of the beach is coarser, with cobbles to boulders. • Because of the mixed sediment sizes, there may be zones of sand, pebbles, or cobbles. • Because of the sediment mobility and desiccation of exposed beaches, there are low densities of attached animals and plants. • The presence of attached algae, mussels, and barnacles indicated beaches that are relatively sheltered, with the more stable substrate supporting a richer biota.	• 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%. • 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 waves. • On sheltered beaches, extensive pavements of asphalted sediments can form if there is no removal of heavy oil accumulations, because most of the oil remains on the surface. • Once formed, pavements are very stable and can persist for many years. • Oil can be stranded in the coarse sediments on the lower part of the beach, particularly if the oil is weathered or emulsified.	• Remove heavy accumulations of pooled oil from the upper beach face. • 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. High-pressure spraying should be avoided because of potential for transporting the 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 can be effective in areas regularly exposed to wave activity (as evidence 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 mid-beach on exposed beaches.
Gravel Beaches	6A	• Gravel beaches are composed of sediments ranging in size from pebbles to boulders. • They can be very steep, with multiple wave-built berms forming the upper beach. • Attached animals and plants are usually restricted to the lowest parts of the beach, where sediments are less mobile.	• Deep penetration and rapid burial of stranded oil is likely on exposed beaches. • On exposed beaches, oil can be pushed over the high-tide and storm berms, pooling and persisting above the normal zone of wave wash. • Long-term persistence will be controlled by the depth of penetration versus the depth of routine reworking by storm waves. • On relatively sheltered beaches, formation of asphalt pavements is likely where accumulations are heavy.	• Heavy accumulations of pooled oil should be quickly removed from the upper beach. • All oiled debris should be removed. • Sediment removal should be limited as much as possible. • Low- to high-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 can be effective in areas regularly exposed to wave activity (as evidence 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 mid-beach on exposed beaches.

Figure F.1 – Description of Shoreline Types (Continued)

TYPES	ESI #	DESCRIPTION	PREDICTED OIL IMPACT	RECOMMENDED CLEANUP ACTIVITY
	6B	• Riprap structures are composed of cobble to boulder-size rocks. • Riprap structures are placed for shoreline protection and inlet stabilization. • Biota on the riprap may be plentiful and varied.	• On riprap structures, deep penetration of oil between boulders is likely. • If oil is left uncleaned, it may become asphalted. • Resident fauna and flora may be killed by the oil.	• It may be necessary to remove heavily oiled riprap and replace it.
Exposed Tidal Flats	7	• They are compose primarily of sand and mud. • The presence of sand indicates that tidal or wind-driven currents and waves are strong enough to mobilize the sediments. • They are always associated with another shoreline type on the landward side of the flat. • The sediments are water-saturated, with only the topographically higher ridges drying out during low tide. • Biological utilization can be very high, with large numbers of infauna and heavy use by birds for roosting and foraging.	• 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 the water-saturated sediments. • Biological damage may be severe, primarily to infauna, thereby reducing food sources for birds and other predators.	• Currents and waves can be very effective in natural removal of 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. • On sand flats, oil will be removed naturally from the flat and deposited on the adjacent beaches where cleanup is more feasible.
Sheltered Rocky Shores	8A	• They consist of bedrock shores of variable slope (from vertical cliffs to wide, rocky ledges) that are sheltered from exposure to most wave and tidal energy. • The wider shores may have some surface sediments, but the bedrock is the dominant substrate type. • Species density and diversity vary greatly, but barnacles, snails, mussels, clams, periwinkles, amphipods, polychaetes, rockweed, and crabs are often very abundant.	• On rocky shores, oil will adhere readily to the rough rocky surface, particularly along the high-tide line, formed a distinct oil band. • Fractures in the bedrock will be sites of pooling and oil persistence. • Even on wide ledges, the lower intertidal zones usually stays wet (particularly when algae covered), preventing oil from adhering to the rock surface. • Heavy and weathered oils can cover the upper zone with little impacts to the rich biological communities of the lower zone. • Where surface sediments are abundant, oil will penetrate into the crevices formed by the surface rubble and pool at the contact of the sediments and the surface. • Where the rubble is loosely packed, oil will penetrate deeply, causing long-term contamination of the subsurface sediments. • Fresh oil and light refined products have high acute toxicities that can affect attached organisms after even short exposures.	• Low- to high-pressure spraying at ambient water temperatures is most effective when the oil is fresh. • Extreme care must be taken not to spray in the biologically rich lower intertidal zone or when the tidal level reaches that zone. • Cutting of oiled, attached algae is not recommended; tidal action will eventually float this oil off, so sorbent booms should be deployed.

Figure F.1 – Description of Shoreline Types (Continued)

TYPES	ESI #	DESCRIPTION	PREDICTED OIL IMPACT	RECOMMENDED CLEANUP ACTIVITY
Sheltered Tidal Flats	9	• They are composed primarily of silt and clay. • They are present in calm-water habitats, sheltered from major wave activity, and frequently fronted by marshes. • Wave energy is very low, although there may be strong tidal currents active on parts of the flat and in channels across the flat. • The sediments are very soft and cannot support even light foot traffic. • There are usually large populations of clams, worms, and snails. • Bird life is seasonably abundant.	• 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 failing tide if concentrations are heavy. • Oil will not penetrate the water-saturated sediments at all. • In areas of high suspended sediments, sorption of oil can result in contaminated sediments that can be deposited on the flats. • Biological damage may be severe.	• 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 and many methods may be restricted. • Manual operations and deployment of sorbents from shallow-draft boats may be helpful.
Fringing and Extensive Salt Marshes	10A	• Marshes are intertidal wetlands containing emergent, herbaceous vegetation. • Width of the marsh can vary widely, from a narrow fringe to extensive. • They are relatively sheltered from waves and strong tidal currents. • Resident flora and fauna are abundant and consist of numerous species. • Marshes provide a nursery ground for numerous fish species. • Bird life is seasonably abundant.	• Oil adheres readily to marsh vegetation. • The band of coating will vary widely, depending upon the tidal stage 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 heavy vegetation is thick, heavy oil coating will be restricted to the outer fringe, with penetration and lighter oiling to the limit of tidal influence. • Medium to heavy oils do not readily adhere or penetrate the fine sediments, but they can pool on the surface and in burrows. • Light oils can penetrate the top few centimeters of sediments and deeply into burrows and cracks (up to one meter).	• Under light oiling, the best practice is to let the areas recover naturally. • Heavy accumulation of pooled oil can be removed by vacuum, sorbents, or low-pressure flushing. During flushing, care must be taken to prevent transporting oil to sensitive areas down slope or along shore. • 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.

Figure F.1 – Description of Shoreline Types (Continued)

TYPES	ESI #	DESCRIPTION	PREDICTED OIL IMPACT	RECOMMENDED CLEANUP ACTIVITY

Mangroves	10B	• Mangrove forests are composed of salt-tolerant trees that form dense stands with distinct zonation: red mangroves occur on the seaward exterior while black and white mangroves occur on forest interiors.
		• The outer, fringing forests can be exposed to relatively high wave activity and strong currents; forests located in bays and estuaries are well-sheltered.
		• Sediment types range from thin layers of sand and mud to muddy peat to loose gravel on limestone beachrock.
		• Heavy wrack deposits in the storm swash are very common.
		• The topographic profile is generally very flat, and seagrass beds are common in shallow offshore areas.
		• Attached to the prop roots are moderate densities of algae, snails, and crabs.
			• Fresh spills of light refined products have acute, toxic impacts to both trees and intertidal biota. These products will penetrate deeply into the forests, stopping only at the high-tide line, where sediment contamination may result.
			• No. 2 fuel oil or fresh crude will have great persistence where it penetrates burrows and prop root cavities. Heavier oils tend to coat the intertidal zone, with heaviest concentrations at the high-tide line or storm wrack line.
			• Heavy oils will coat the intertidal section of prop roots, resulting in defoliation and eventual death of the tree if significant coverage occurs.
			• In sheltered areas, oil may persist for many years.
				• Under light accumulations of any type of oil. No cleanup is recommended.
				• If sheens are present, use sorbent booms to pick up the oil as it is naturally removed, being sure to change booms frequently.
				• The only light refined product that usually required cleanup is No. 2 fuel oil/diesel because of the potential for long-term sediment contamination.
				• Heavy accumulations could be skimmed or flushed with low-pressure water flooding, as long as there is NO disturbance or mixing of oil into the substrate. If substrate mixing is likely or unavoidable, it is better to leave the oil to weather naturally.
				• Oily debris should be removed, taking care not to disturb the substrate.
				• Live vegetation should never be cut or otherwise removed.
				• Sorbents can be used to remove wide heavy oil coatings from prop roots in areas of firm substrate and with close supervision.
				• Under moderate to heavy accumulations of crude or heavy refined products, a detailed, site-specific cleanup plan will be required. The cleanup plan should be prepared by experience personnel and include:
				  • General map of entire impacted area and locations of specific areas to be cleaned up.
				  • Detailed maps of each specific area showing the oil locations and type of cleanup to be performed at each location.
				  • Definition of each type of cleanup allowed.
				  • Specific restrictions to prevent further damage for each cleanup location.

F.2.2 Cleanup Technique Selection

Shoreline

In the event the techniques recommended above do not apply to a particular spill situation at the Facility, other techniques should be considered for implementation. The other techniques that may be applicable are generally dependent on the following.

- Oil type
- Oiling conditions/degree of impact
- Environmental, safety, and political considerations
- Unusual circumstances the may be present at the time of the spill

Therefore, the following guidelines can be used to identify the most appropriate cleanup technique(s) for that situation.

The selection of an appropriate shoreline cleanup technique is primarily dependent on the following factors:

- **Substrate type** – Finer grained sediments typically require different techniques than coarse grained sediments and sediment type can affect trafficability (i.e., ability to traverse the area without losing traction) for heavy equipment.
- **Oil conditions** – Heavier oil conditions and larger areas may require more intrusive or mechanical methods, whereas lighter conditions may not require any form of cleanup.
- **Slope** – Heavy equipment use may not be appropriate on steeper or unstable banks.
- **Shoreline sensitivity** – Intrusive techniques may create a greater impact than the oil itself.
- **Penetration depth** – Significant penetration can reduce the effectiveness of several techniques.

FIGURE F.2 includes a shoreline cleanup technique selection guide.

These figures should only be used as a guide to identify the most appropriate techniques based on a limited number of factors and not a definitive list of techniques that can be used for selected situations.

A number of other factors can influence technique selection and result in techniques other than those identified in the figures as the most appropriate for a given situation. Final selection of cleanup techniques should be conducted in consultation with the state and federal OSCs, the appropriate natural resource trustees, if applicable, and the particular landowner(s) or manager(s) prior to implementation.

Figure F.2 – Shoreline Cleanup Technique Selection Guide

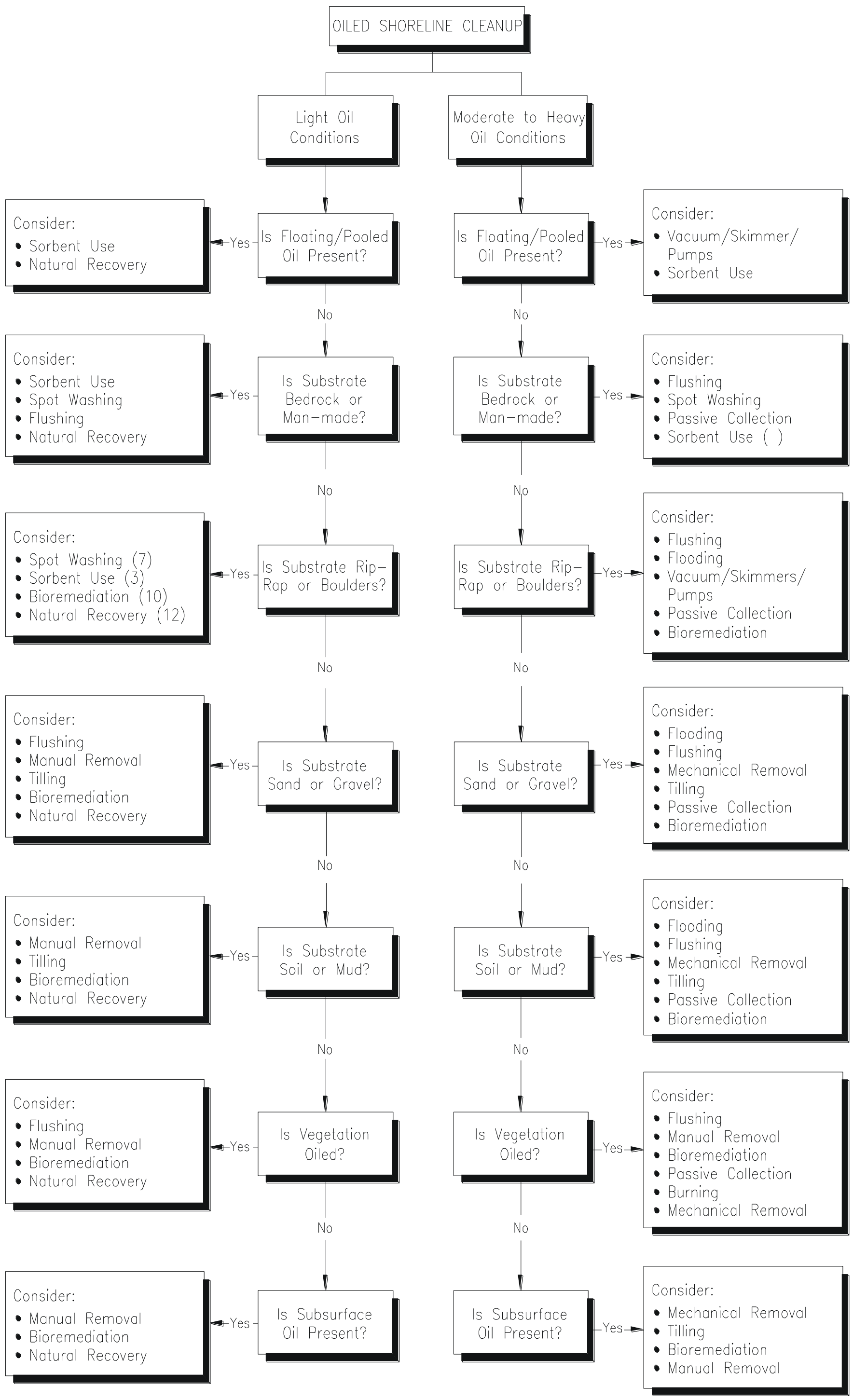

Figure F.3 – Shoreline Protection Methods[2]

ON-WATER	METHOD	APPLICABILITY
EXCLUSION BOOMING	• Deployed across or around oil • Oil removed from water surface	• To protect small bays, harbors, inlets or river mouths • Currents less than 0.5 m/s
DIVERSION BOOMING	• Deployed at an angle to approaching oil • Diverts oil away from sensitive areas	• Where currents are greater than 0.5 m/s
CONTAINMENT BOOMING	• Deployed around oil • Oil removed from water surface	• Current less than 0.5 m/s • Not applicable for large slicks
SORBENT BOOMING	• Deployed across approaching oil • Oil absorbed by boom	• Quiet waters • Can be recycled and reused • Small slicks
DISPERSION AGENTS	• Reduce surface tension of oil by application of chemicals • Oil is then dispersed more rapidly into the water	• Requires permission of regulatory agencies • Increases oil mobility, therefore, stranded oil has greater potential to penetrate beach sediments
COLLECTION AGENTS	• Increase surface tension of oil by application of chemicals • Oil is prevented from spreading	• Decreases oil mobility, therefore, stranded oil has a reduced capacity to penetrate beach sediments
ONSHORE	**METHOD**	**APPLICABILITY**
SORBENTS	• Applied manually or mechanically to the beach before oil is stranded • Oil/sorbent is then removed manually or mechanically	• Prevents penetration of oil into substrate • Sorbent pads preferable to loose-fiber materials for ease of collection • Synthetic products have higher absorption capacity than natural materials • Can be recycled and reused • Usually a labor-intensive method
SURFACE TREATMENT AGENTS	• Applied to shore zone before oil is stranded • Prevents oil from adhering to the substrate	• Applicability and effectiveness not yet fully assessed • May be difficult to apply on long sections of shore • Oil must be flushed from the shore and agent removed if it does not degrade naturally
COLLECTION AGENTS	• Applied along water line before oil is stranded • Reduces natural dispersion of oil	• Reduces area of shoreline contamination • Reduces penetration into beach
DIKES AND/OR DITCHES	• Ditch up to 1.0 m deep dug parallel to shore at upper limit of wave action • Sediment removed used to build dike on landward side of the ditch • On pebble-cobble beaches can fill ditch with sorbents to collect oil and prevent oil penetration	• Prevents oil being washed onto the backshore • Can be constructed mechanically along long beach sections • Ditch acts as a collector of oil which can be removed with buckets, hand pumps, or vacuum pumps
DAMS	• Used for shallow streams where booms cannot be deployed	• Acts as a boom for exclusion of oil • Can be constructed to allow water to flow through dam
VISCOUS	• Applied manually to the beach, rock jetties, etc.	• Excellent with heavier oils • Can be recycled and reused • Reduces penetration into rocks

[2]Breuel, A. 1981. Oil Spill Cleanup and Protection Techniques for Shoreline and Marshland and Marshlands. Park Ridge, New Jersey, Noyes.

Figure F.4 – Response Options for Oil or Substances with Physical and Chemical Properties Similar to Oil

	PROTECTION					CLEANING/MIXING				REMOVAL/DISPOSAL				ONSHORE DISPERSION				
ENVIRONMENT	DITCHES/DIKES	DISPERSANTS ON WATER	SINKING AGENTS	HERDING/GELLING AGENTS	BOOMS/SKIMMERS	BRACH CLEANING MACHINES	BURNING	MIXING	NATURAL CLEANING	MANUAL REMOVAL	MECHANICAL REMOVAL	VACUUM PUMPING	VEGETATION CROPPING	DISPERSANTS ON CROPPING	HIGH PRESSURE FLUSHING	LOW PRESSURE FLUSHING	SAND BLASTING	STEAM CLEANING
1. SEA GRASS BEDS		x	#	o	+				+	x			x	x		o		
2. MANGROVES		+		o	+		#		o	o	#	o	x	+	x	+		
3. MARSHES				o	+		#		+	#	#	o	x	o	#	+		#
4. SHELTERED TIDAL FLATS				o	+			#	+	o	#	o		x	#	+		
5. RIVER BANKS	o			o	+		x		+	+	o	o				o		
6. OYSTER REEFS				o	+				+			o		x		o		#
7. EXPOSED TIDAL FLATS	o	x		o	+				+					x				
8. DREDGE SPOIL BANKS	o			o	+			o	+	o	o							
9. BAY MARGINS	o			o	+	o		o	+	o	o	+				o		
10. 11. OPEN SAND BEACH	+			o		+	#	o	+	+	+	+		o	#	o		
12. MAN-MADE SHORE				o	+		x		+	o				o	o	o	o	o
13. EROSION SCARPS									+	+	x	+			x	o		
TIDAL INLETS		o		o	+				+									
LAGOONS BAYS			#	o	+				+		o							

KEY: + PREFERRED o OPTIONAL x NOT ADVISABLE # AVOID

Figure F.5 – Summary of Shoreline and Terrestrial Cleanup Techniques

TECHNIQUE	DESCRIPTION	PRIMARY LOGISTICAL REQUIREMENTS[1]	USE LIMITATIONS[2]	POTENTIAL ENVIRONMENTAL EFFECTS
Removal				
1. Manual Removal	Hand tools (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	• Poor access • Highly sensitive areas	• Sediment disturbance and erosion potential • Trampling of vegetation and organisms • Foot traffic can work oil deeper into soft sediments
2. Mechanical Removal	Mechanical earthmoving equipment is used to remove oiled sediments and debris from heavily impacted areas with suitable access.			
2a. Bulldozer/Front-end Loader	Used to recover moderately to heavily oiled sediments using a bulldozer to push sediments into piles for pickup by front-end loader. Front-end loader may work alone to recover sediments directly.	Equipment 1 bulldozer 2 front-end loaders Personnel 2-4 workers plus equipment operators	• Very poor trafficability • Limited access • Highly sensitive areas • Light or sporadic oil conditions	• Removes upper 2 to 12 inches of sediments • Removes shallow organisms but recolonization is typically rapid • Excessive sediment removal can cause erosion
2b. Backhoe	Used to recover surface or subsurface oiled sediments on flat or steeply sloped areas by scooping up sediments and placing directly into dump trucks or in piles for subsequent removal.	Equipment 1-2 backhoes 4-6 dump trucks Personnel 2-4 workers plus equipment operators	• Limited access • Highly sensitive areas • Unstable slopes • Light or sporadic oil conditions	• Removes minimum of 6 to 12 inches of sediments • Removes shallow organisms but recolonization is typically rapid • Can cause erosion and slope instability
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	• Poor access • Highly sensitive areas • Heavy oil conditions	• Sediment disturbance and erosion potential • Trampling of vegetation and organisms • Foot traffic can work oil deeper into soft sediments

Figure F.5 – Summary of Shoreline and Terrestrial Cleanup Techniques (Continued)

TECHNIQUE	DESCRIPTION	PRIMARY LOGISTICAL REQUIREMENTS[1]	USE LIMITATIONS[2]	POTENTIAL ENVIRONMENTAL EFFECTS
4. Vacuums/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	• Poor access • Thin oil accumulations or light sheens • Highly sensitive shoreline areas • Excessive suction lift required	• 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. Frequently used with flushing.	Equipment 1-5 100- to 200-gpm pumping systems 1 100-foot perforated header hose per system 1-2 200-foot containment booms per system 1 oil recovery device per system Personnel 6-8 workers per system	• Highly permeable substrate • Highly sensitive areas • Poor access • Highly weathered oil or thin films or coatings • Typically does not remove all oil	• Can impact clean downgradient areas • Can displace some surface organisms if present • Sediments transported into water can affect water quality
6. Flushing	Water streams at low to moderate pressure, and possibly elevated temperatures, are used to remove oil from surface or near-surface sediments through agitation and direct contact. Oil is flushed back into the water or a collection point for subsequent recovery. May also be used to flush out oil trapped by shoreline or aquatic vegetation.	Equipment 1-5 50- to 100-gpm/ 100-psi pumping systems with manifold 1-4 100-foot hoses and nozzles per system 1-2 200-foot containment booms per system 1 oil recovery device per system Personnel 8-10 workers per system	• Highly permeable substrate • Highly sensitive areas • Poor access • Highly weathered oil or thin films or coatings • Typically does not remove all oil	• Can impact clean downgradient areas • Will displace many surface organisms if present • Sediments transported into water can affect water quality • Hot water can be lethal to many organisms • Can increase oil penetration depth

Figure F.5 – Summary of Shoreline and Terrestrial Cleanup Techniques (Continued)

TECHNIQUE	DESCRIPTION	PRIMARY LOGISTICAL REQUIREMENTS[1]	USE LIMITATIONS[2]	POTENTIAL ENVIRONMENTAL EFFECTS
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. Oil is directed back into water or collection point for subsequent recovery.	<u>Equipment</u> 1-5 1,200- to 4,000-psi units with hose and spray wand 1-2 100-foot containment booms per unit 1 oil recovery device per unit <u>Personnel</u> 2-4 workers per unit	• Poor access • Highly sensitive area • Safety hazard from high pressure water stream • Relatively soft or unconsolidated substrates	• 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.	<u>Equipment</u> 1,000-2,000 ft sorbent/snare boom 200-400 stakes or anchor systems <u>Personnel</u> 4-10 workers	• Poor access • High currents/waves • Lightly oiled sediments • Oil removal process is slow	• 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 light to moderately oiled surface sediments to maximize natural degradation processes.	<u>Equipment</u> 1 tractor fitted with tines, dicer, ripper blades, etc. or 1-4 rototillers or 1 set of hand tools <u>Personnel</u> 2-10 workers	• Poor access • Heavily oiled area • Highly sensitive area • Oil can be mixed deeper into substrate	• Significant amounts of oil can remain on the shoreline for extended periods of time • Disturbs surface sediments and organisms
10. In Situ Bioremediation	Fertilizer is applied to lightly or moderately oiled areas to enhance microbial growth and subsequent biodegradation of oil.	<u>Equipment</u> 1-2 fertilizer applicators 1 tilling device if required <u>Personnel</u> 2-4 workers	• May cause algal bloom and short-term water quality problems • Heavily oiled areas	• Significant amounts of oil can remain on the shoreline for extended periods of time • Can disturb surface sediments and organisms

Figure F.5 – Summary of Shoreline and Terrestrial Cleanup Techniques (Continued)

TECHNIQUE	DESCRIPTION	PRIMARY LOGISTICAL REQUIREMENTS[1]	USE LIMITATIONS[2]	POTENTIAL ENVIRONMENTAL EFFECTS
11. Log/Debris Burning	Oiled logs, driftwood, vegetation, and debris are burned to minimize material handling and disposal requirements. Material should be stacked in tall piles and fans used to ensure a hot, clean burn.	Equipment 1 set of fire control equipment 2-4 fans 1 supply of combustion promoter Personnel 2-4 workers	• Local air quality regulations • Close proximity to populated areas • High wind conditions • Heavy precipitation	• Heat may impact local near-surface organisms • 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	• Heavy oil conditions • Highly sensitive shorelines • High oil remobilization potential	• Oil may persist for significant periods of time • Remobilized oil or sheens may impact other areas • Higher probability of impacting wildlife

1 - Per 1,000 feet of shoreline or oiled area. Potential sources of equipment are provided in Section 5.0.
2 - In addition to fire and explosion hazard.

Figure F.6
Summary of Shoreline Cleanup Techniques by Surface Type

Note: The appropriate government agencies must be consulted prior to implementing shoreline clean-up techniques.

TYPE OF SURFACE CONTAINING SPILL	RECOMMENDED CLEAN-UP TECHNIQUES	ACTIONS TO AVOID
Sand	Use vacuum skimmer and sorbents to clean up pools of free flowing oil. Use shovels to remove and place oiled sand into plastic bags or 55-gallon drums.	Do not let people or equipment travel over oiled sand. Do not bury oil sand.
Pebble or Gravel	If heavily oiled, use water spray and front-end loader to remove oiled material. If lightly oiled, use water spray and detergents to wash oil films off gravel and pebbles.	Do not place oiled gravel or pebbles in streams or offshore areas.
Snow	Use shovels to place oiled snow in 55-gallon drums.	Do not place oiled snow in wetlands or offshore areas. Make sure that drums do not have holes in them.
Concrete or Asphalt	Use vacuum skimmers and sorbents to clean up oil. Wash surface with water. Remove oil between cracks.	
Wetlands	Consult Ecology, EPA, or other agencies for permits to work on wetlands. If cleanup will cause excessive damage to wetlands, request agency approval to leave oil in place.	Do not operate vehicles or heavy equipment on wetlands. Do not disturb nesting areas.
Marshes	Use booms to control oil movement. Use a low pressure water spray to herd oil to areas where it can be recovered with skimmers and sorbents. Seek agency input as to whether oil should be left in place to prevent environmental damage that could result from clean-up operation.	Do not block entrance to marsh with berms or dams. Do not use heavy equipment.
Harbors and Streams	Use booms to prevent oil from spreading. Use skimmers to clean up oil slicks.	Avoid creating waves which may cause oil to spread. Do not use dispersants or chemicals to remove oil from water surface.

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Appendix G
Inspection/Prevention and Maintenance

APPENDIX G
INSPECTION/PREVENTION AND MAINTENANCE

G.1 INSPECTION/PREVENTION MEASURES

While many of the more formal inspection procedures are described in the following sections, equipment inspection, problem detection, and incident reporting are part of the daily responsibilities of all operators, maintenance personnel and inspectors.

In carrying out their day-to-day responsibilities, operators, inspectors and other employees are expected to observe the equipment around them and report to their supervisor or other appropriate personnel any leaks, spills, or conditions that could lead to leaks or spills.

The potential for a piping rupture is minimized by the regular inspection of the overall system, including relief valves. The potential for overfilling a tank is minimized by a variety of safety features in the design and operation, including overfill alarms, tank gauge sensors, and proper training of personnel. Catastrophic tank failure is the most severe form of spill event that can be reasonably anticipated. The likelihood of this type of spill event occurring is minimized by routine inspections and proper maintenance of the tank structure. Oil handling procedures are also described in the Facility Oil Handling Operations Manual.

The TSVEDT conducts self-inspections on all tanks, secondary containment units, and response equipment at the facility. This section describes procedures and checklists that are followed.

G.1.1 Daily Inspections

- Tank gauges, temperature and meter readings are recorded daily. Tank levels and product inventory are manually maintained on a continuous basis, and manually reconciled daily, **Figure G.1.**
- Receiving tanks are gauged and valves set prior to receipt of product from Area 200 – Unloading Area. Verbal contact is required to initiate transfer. All transfer information is recorded in the TSVEDT Receipt Log, on file at the terminal office.
- Terminal Operators conduct visual inspection of the tank farm, all pumps and valves, sheds, office, fire protection equipment, oil/water separators, oil spill response equipment, cathodic protection systems, and safety systems and equipment. Specific inspection items are outlined in the inspection log, **Figures G.2, G.3, G.4, G.5, G.6, and G.7**.A complete inspection of dock, pipelines, transfer equipment and tankage is performed prior to marine transfers. A pre-transfer conference and Declaration of Inspection is competed in accordance with 33 CFR Part 156.
- Storm water retained within the tank dikes is inspected and released pursuant to SPCC regulations. Records of all stormwater discharge events are retained on site.
- All tanks are hand gauged daily. Tank gauges and meters are calibrated as needed.

G.1.2 Monthly Inspections

- A safety inspection is conducted under direction of the Terminal Manager, using the form in **Figure G.3**.
- Spill response equipment at the dock is inspected and maintained by Tesoro Terminal Operators.
- Recent adoption of API Standard 653 (Tank Inspection, Repair, Alteration, and Reconstruction) initiated new visual and non-destruction testing inspection standards. Future tank inspections will be made in compliance with API 653 Guidelines, using the form in **Figure G.3**.

G.1.3 Annual Inspections

- The fire extinguishers are inspected and tested.
- The dock hoses and the marine pipelines to the dock, are pressured tested in accordance with 33 CFR Part 156.
- Additional preventive maintenance conducted on a scheduled basis includes inspection/cleaning/lubing of valves and inspection of tank roofs.

Tesoro/**TSVEDT** personnel will use the form in **Figure G.2** to record monthly, quarterly, and annual inspections.

G.1.4 Response Equipment Inspection

Using the Emergency Response Equipment Lists provided in **Section 7**, and **Appendix B** of this Plan, response equipment will be checked for the following in accordance with 40 CFR 112, Appendix F:

1. Inventory (item and quantity);
2. Storage location;
3. Accessibility (time to access and respond);
4. Operational status/condition;
5. Actual use/testing (last test date and frequency of testing); and
6. Shelf life (present age, expected replacement date).

Oil spill cleanup material and emergency response equipment will be inventoried and tested every six months or immediately after a spill. The Response Equipment Inspection is provided in **Figure G.4**.

G.1.5 Secondary Containment Inspection

Secondary containment units will be evaluated at the same time as tank inspections. During inspection, discrepancies are notes in any of the items and are reported to the proper facility personnel.

G.1.6 Inspection and Preventative Maintenance Records

Records are kept and maintained by the Terminal Manager.

Figure G.1 – Computation of Product Inventory

TSVEDT

DATE:_______________

TANK	VISC	API	FLASH	BS&W	GAUGE	TEMP	GROSS BARRELS	FACT	NET BARRELS	H2S	LEL
0300-TK-001											
0300-TK-002											
0300-TK-003											
0300-TK-004											
0300-TK-005											
0300-TK-006											

LINE	TANK	PRODUCT	COMMENT	SUCTION	SUCTION	PRESSURE RELIEF'S
24"						
24"						
24"						
36"						
8"						

LAST OIL MOVEMENT	

COMMENTS: ____

____

Figure G.2 – TSVEDT
Monthly, Quarterly, and Yearly Inspection Form

MONTHLY EVENTS YEAR:_________	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Check Cathodic Protection System												
Check Spill Response Equipment												
Check Fire System & Extinguishers												
Check All tank High Level Alarms												
Hold Safety & Spill Prevention Meeting												

QUARTERLY EVENTS	JANUARY	APRIL	JULY	OCTOBER
Grease Valves, Truck & Rail Rack				
Review Oil Spill Contingency Plan				
Inspection Vapor Recovery Unit				
Quarterly Safety Inspection				

YEARLY EVENTS	YEAR
Pressure Test Pipelines and Hoses	
Inspect Cathodic Protection System	
Check Fire Extinguisher and Foam System	
Check Back-Flow Preventer Valve	

Figure G.3 – Monthly Terminal Inspection

ABOVEGROUND STORAGE TANKS/TANK FARM

		Yes	No
1.	Are all **tank top walkways and ladders** safe to use?	_____	_____
2.	Is all **tank top lighting** in good condition/working order?	_____	_____
3.	Are all **tank top vents** in good working condition?	_____	_____
4.	Are all **high-level alarms** in good working order?	_____	_____
5.	Is each **tank** free of visible leaks, overflow or rupture?	_____	_____
6.	Is all **leak detection equipment** in satisfactory condition?	_____	_____
7.	Are all **liquid tight connections** on all tank openings other than vents functional?	_____	_____
8.	Are **tank bottom water draw offs** locked when not in use?	_____	_____
9.	Are all **side gauges** functional/readings accurate?	_____	_____
10.	Are all **tank shell surfaces**, including any peeling areas, welds, rivets/bolts, and seams visually inspected for areas of rust and other deterioration?	_____	_____
11.	Are all **tank foundations** free from visible deterioration?	_____	_____
12.	Is the **slope** of the ground away from each tank toward the drainage system still maintained at 1 percent or more?	_____	_____
13.	Are **ground surfaces** around tanks, containment structures, and transfer areas free of signs of leakage?	_____	_____
14.	Is the **containment dike/berm** adequate and impervious with no erosion or cracks?	_____	_____
15.	Are **diked areas** free of oil and excess standing water?	_____	_____

Comments:____

____

____

____

		Yes	No
16.	Are the **dike containment areas/bases of tanks** free of high grass, weeds and debris?	_____	_____
17.	Are the **dike drain valves** in good condition and closed and locked when not in use?	_____	_____
18.	Are all **tank and pipeline valves** closed when not in use?	_____	_____
19.	Are all **tank fill valves** locked in closed position when not in use?	_____	_____
20.	Are **valves** inspected for signs of leakage or deterioration and serviced on a regular basis?	_____	_____
21.	Are these **inspection and service** kept on record?	_____	_____
22.	Are all **valve/flange connections** checked for leakage, signs of wear and all bolts in place/tight?	_____	_____
23.	Are the valve and pipeline coupling **bolts** free of elongation, deterioration, or signs of strain?	_____	_____
24.	**Cathodic protection** readings adequate? Amps ________________ Volts _______________	_____	_____
25.	Is **fire protection** (extinguisher/alarm/foam) adequate, operational, inspected and tagged, with extinguishers turned over once/month? Are hoses free from deterioration?	_____	_____
26.	Is **ground cable** present and secure?	_____	_____

Comments:____
____
____
____

Signature:_____________________________________

Date:____

PIPELINES

		Yes	No
1.	Are pipelines **blanked-flanged and marked** accordingly when out of service?	_____	_____
2.	Are all pipelines **marked** with their contents?	_____	_____
3.	Are all above-ground pipelines **painted**?	_____	_____
4.	Is each **pipe support** adequate to minimize abrasion and corrosion yet allow for expansion and contraction?	_____	_____
5.	Is each pipeline to tank truck unloading rack provided with a **check valve** for automatic protection against back flow?	_____	_____

Comments:____
____
____
____

Signature:_______________________________________

Date:____

OIL/WATER SEPARATOR SYSTEM

1.	Has the daily/weekly **separator maintenance** been completed?	_____	_____
2.	Is the separator free of any **internal corrosion**?	_____	_____
3.	Is the separator free of **solids and oil buildup**?	_____	_____
4.	Are any **cracks** evident?	_____	_____
5.	Are the **weirs** in good condition and working properly?	_____	_____

Comments:____
____
____
____

Signature:_______________________________________

Date:____

DOCK/DOCK SHACK

		Yes	No
1.	Are **valves/flanges** free of leakage and secured with all bolts?	_____	_____
2.	Are **valves** not in use shut and locked?	_____	_____
3.	Are **valves** properly color-coded?	_____	_____
4.	Are pipelines **marked with current MAWP**?	_____	_____
5.	Are blanked pipelines **marked "not in use"**?	_____	_____
6.	Are **pipe supports** adequate and in good condition?	_____	_____
7.	Is **drip-pan cover** free of deterioration and tears?	_____	_____
8.	Is **drip pan** empty?	_____	_____
9.	Are **pressure gauges** in working order?	_____	_____
10.	Are **first aid and eye wash kits** complete and in date?	_____	_____
11.	Are **ring buoys and lifelines** present?	_____	_____
12.	Is **lighting** adequate and working?	_____	_____
13.	Is **communication equipment** working?	_____	_____
14.	Are **emergency shutdown valves** marked and operational?	_____	_____
15.	Are **loading arms** secured and operational, free from leakage?	_____	_____
16.	Are **grounding devices** in good working order?	_____	_____
17.	Are **emergency signs** posted properly and in good shape?	_____	_____
18.	Are the **planking, pilings and dolphins** in good shape?	_____	_____
19.	Are **chainfalls** and safety hook in good order?	_____	_____
20.	Is the **spill boom** stowed in the proper manner and ready for deployment?	_____	_____

Comments:____

____

____

____

		Yes	No
21.	Is the **spill boom** free of rips and tears?	_____	_____
22.	Are all necessary **absorbent materials** on hand?	_____	_____
23.	Is **fire protection** (extinguisher/alarm/foam) adequate, operational, inspected and tagged, with extinguishers turned over once/month? Are hoses free from deterioration?	_____	_____

Comments:____
____
____
____

Signature:_________________________________

Date:_____________________________________

PUMP AREA

1.	Are pumps free of abnormal **leakage/noise/vibration**?	_____	_____
2.	Are **guards** in place?	_____	_____
3.	Are pump **drip containers** kept emptied?	_____	_____
4.	Are **lubricant levels** maintained?	_____	_____
5.	Are **pressure gauges** secure/in proper working order?	_____	_____
6.	Are **slop drums** pumped down when full?	_____	_____
7.	Are all electric motor **grounds** in place?	_____	_____
8.	Is **fire protection** (extinguisher/alarm/foam) adequate, operational, inspected and tagged, with extinguishers turned over once/month? Are hoses free from deterioration?	_____	_____

Comments:____
____
____
____

Signature:_________________________________

Date:_____________________________________

AREA 300 BOILER ROOM

		Yes	No
1.	Is the boiler room **floor** kept free of debris/trash?	_____	_____
2.	Are boiler **controls** in good working condition?	_____	_____
3.	Are **emergency shutdowns** in proper working condition?	_____	_____
4.	Are **chemical levels** kept up to requirements?	_____	_____
5.	Are boiler **chemical containers** properly marked?	_____	_____
6.	Is the **inspection** current?	_____	_____
7.	Is **fire protection** adequate, operational, inspected and tagged?	_____	_____

Comments:____

____

____

____

Signature:_______________________________

Date:_______________________________

AREA 600 BOILER ROOM

		Yes	No
8.	Is the boiler room **floor** kept free of debris/trash?	_____	_____
9.	Are boiler **controls** in good working condition?	_____	_____
10.	Are **emergency shutdowns** in proper working condition?	_____	_____
11.	Are **chemical levels** kept up to requirements?	_____	_____
12.	Are boiler **chemical containers** properly marked?	_____	_____
13.	Is the **inspection** current?	_____	_____
14.	Is **fire protection** adequate, operational, inspected and tagged?	_____	_____

Comments:____

____

____

____

Signature:_______________________________

Date:_______________________________

MOTOR CONTROL/ELECTRICAL ROOM

		Yes	No
1.	Is the **floor** clean and kept free of trash and debris?	_____	_____
2.	Are **spare parts and tools** stored in orderly manner?	_____	_____
3.	Are **electrical panel covers** in place and secure?	_____	_____
4.	Are **exits** marked, unobstructed, and well lit?	_____	_____
5.	Is all electrical **wiring and equipment** maintained as specified in the city/state electrical code?	_____	_____
6.	Is **first aid kit** complete and in date?	_____	_____
7.	Is **Lock Out/Tag Out** system properly implemented?	_____	_____
8.	Is **fire protection** (extinguisher/alarm/foam) adequate, operational, inspected and tagged, with extinguishers turned over once/month? Are hoses free from deterioration?	_____	_____

Comments:____

Signature:______________________________

Date:______________________________

LOADING RACK

		Yes	No
1.	Are **piping, valves and flanges** free of leaks?	_____	_____
2.	Are piping and handrails free of any apparent **damage**?	_____	_____
3.	Is **lighting** adequate and in working order?	_____	_____
4.	Are **"dead man" handles** operational?	_____	_____
5.	Are **ground cables** present and in good condition?	_____	_____
6.	Is **fire protection** (extinguisher/alarm/foam) adequate, operational, inspected and tagged, with extinguishers turned over once/month? Are hoses free from deterioration?	_____	_____
7.	Is **spill containment** adequate and free of cracks?	_____	_____

Comments:____
____
____
____

Signature:________________________________

Date:____________________________________

DRUM RACK

1.	Are **spigots** threaded properly onto drum fittings, free of cracks or other deterioration, and kept closed tight/no leaks?	_____	_____
2.	Are drums **properly marked** with appropriate hazard label affixed to drum?	_____	_____
3.	Is **spill containment** adequate and in place?	_____	_____

Comments:____
____
____
____

Signature:________________________________

Date:____________________________________

OFFICE AREA

		Yes	No
1.	Are **desks** kept neat and clean?	_____	_____
2.	Are **floors** clean, dry and free of debris?	_____	_____
3.	Are **aisles** unobstructed?	_____	_____
4.	Is **lighting** adequate and in good working order?	_____	_____
5.	Are **lunch table, countertop, and sink** kept clean?	_____	_____
6.	Is **kitchen equipment** kept clean and in working order?	_____	_____
7.	Are **cabinets** kept neat and orderly?	_____	_____
8.	Is **smoke alarm** operational?	_____	_____

Comments:____
____
____
____

Signature:_____________________________________

Date:____

LAB

		Yes	No
1.	Is **lab equipment** clean and in working order?	_____	_____
2.	Are lab **work tables** free of clutter?	_____	_____
3.	Are **first aid kit and eye wash** complete and in date?	_____	_____
4.	Are **exhaust hoods** (lights, fan) operational?	_____	_____
5.	Are **spill kits** present?	_____	_____
6.	Is **fire protection** (extinguisher/alarm/foam) adequate, operational, inspected and tagged, with extinguishers turned over once/month? Are hoses free from deterioration?	_____	_____
7.	Are **lab solvent containers** in good condition and properly marked with contents?	_____	_____
8.	Are **lab liquid waste containers** in good condition, properly labeled, kept closed and emptied each day?	_____	_____
9.	Is proper **PPE** available and in good condition?	_____	_____
10.	Is **sample storage area** clean and orderly?	_____	_____
11.	Are sample **bottles** properly labeled, clean, and no apparent leaks?	_____	_____
12.	Are **retained samples** disposed of in a timely manner when no longer needed?	_____	_____

Comments:____
____
____
____

Signature:____________________________________

Date:____

ROADS/BOUNDARIES

		Yes	No
1.	Is the **road** in acceptable condition?	_____	_____
2.	Are the **gates** operating in good condition?	_____	_____
3.	Is the **fence** in good condition (no bad rust or broken chain link)?	_____	_____
4.	Is the **barbed wire** intact?	_____	_____

Comments:____

Signature:____________________________

Date:____________________________

VEHICLES

1. Record **Mileage**________________________

2. Record **Fluid levels**
   - Gasoline_______________________
   - Motor Oil_______________________
   - Transmission Fluid_______________
   - Coolant_________________________
   - Differential______________________
   - Brake__________________________

		Yes	No
3.	**Battery**		
	Corrosion - none apparent	_____	_____
	Water level O.K.	_____	_____
4.	**Gauge Pack** - operational		
	Fuel	_____	_____
	Amps	_____	_____
	Oil Pressure	_____	_____
	Coolant Temperature	_____	_____
5.	**Brakes** - operational	_____	_____
6.	**Lights** - operational	_____	_____
	Headlights	_____	_____
	Signal lights	_____	_____
	Tail lights	_____	_____
	Brake lights	_____	_____
7.	**Tires** - good condition	_____	_____
8.	**Windshield wipers** - good condition	_____	_____
9.	**Mirrors** - present and good condition	_____	_____
10.	**Body** - good condition (report any damage)	_____	_____
11.	**Seat belts** - good condition	_____	_____
12.	**Fire extinguisher** - adequate, operational, inspected and tagged, with extinguisher turned over once/month? Are hoses free from deterioration?	_____	_____
13.	**Cleanliness**		
	Interior	_____	_____
	Exterior	_____	_____

Comments:____

____

____

____

Signature:________________________________

Date:____________________________________

SCBA's

	Yes	No
1. Are all air cylinders full? Pressure______________________	_____	_____
2. Are all air cylinders within **hydro date**?	_____	_____
3. Are all **masks** clean and available?	_____	_____
4. Are **cleaning and disinfecting** supplies available?	_____	_____

H_2S Personal Alarms

1. Are all personal alarms **available and in proper working order**?	_____	_____
2. Are **calibrations** up to date? Calibration date_________________	_____	_____
3. Are **test gases/equipment** to check alarm set point available and in date?	_____	_____

Combustible gas detectors/explosimeters

1. Are instruments **available and in proper working order**?	_____	_____
2. Are **calibrations** up to date? Calibration date_________________	_____	_____
3. Are **test gases/equipment** to check alarm set point available and in date?	_____	_____

Drager pumps

1. Are pumps **available and in proper working order -** bellows checked for leakage and deterioration?	_____	_____
2. Is an adequate number of **indicator tubes** available in proper range and in date?	_____	_____

Comments:____
____
____
____

Signature:______________________________________

Date:____

NOTES:

1. **Answers to all above questions should be YES. If not, corrective action is to be taken immediately.**
2. **Terminal Manager shall retain a signed copy of inspection for three years from date of signature.**

Figure G.4 – TSVEDT
Oil Spill Response Equipment Inspection Log

MONTHLY EQUIPMENT INSPECTION (Date)	IS INVENTORY COMPLETE?	START & RUN BOAT MOTOR	INSPECTION COMPLETED BY

Figure G.5 – TSVEDT
Cathodic Protection Readings

LOCATION	TEST POINT READING		CHANGE FROM PREVIOUS READING, COMMENTS, ETC.	RECTIFIER READING	
	VOLTS			VOLTS	AMPS
F-1					
F-2					
F-3					
F-4					
F-5					
F-6					
F-7					
T-1					
T-2					
T-3					
T-4					
T-5					
T-6					
T-7					
P-1					
P-2					
P-3					
P-4					
P-5					
P-6					
P-7					

COMMENTS:

DATE:	**SIGNED:**

Figure G.6 – Tank Inspection Report

DATE:

[ ] EXTERNAL [ ] INTERNAL	PLANT	TANK NO.

CODE	ROOF TYPE	PRODUCT	SIZE	BY

CLEANED BY (CONT'R)	SANDBLASTED (EXTENT)

ITEM	CONDITION GOOD/*FAIR/*BAD/N/A	ITEM	CONDITION GOOD//*FAIR/*BAD/N/A
LEAKS		LEGS	
SETTLEMENT		ROOF RAIN	
FOUNDATION		NON-ROTATOR	
DRAINAGE		SHOES	
INSULATION		SEALS	
PAINT		HANGER ASSEMBLY	
VISUAL CORROSION (EXT)		SECONDARY SEAL	
BOTTOM ANGLE		P/V VENT	
VENTS		FLAME ARRESTOR	
WELDS		MANUAL GAUGE	
NOZZLES		AUTOMATIC GAUGE	
PIPING		FOAM SYSTEM	
WATER DRAW VALVES		HIGH LEVEL ALARM	
LADDER/STAIRWAY		INTERNAL COATING	
PLATFORMS		CORROSION (INT)	
HANDRAILS		PITTING	
SUCKLES/BULGES		SUMP	
ROOF ANGLE		ROOF STRUCTURAL	
MANWAYS		FLOATING SUCTION	
HATCHES		GAUGE WELL	
PONTOONS		STRIKING PLATE	
LADDER		MID POINT THERMOMETER	
GROUNDS		HEATING COILS	

* Explain reason for fair and bad condition on comments page.

Figure G.7 – Safety Inspection Form

TSVEDT
5501 NW Lower River Road
Vancouver, WA 98660

TERMINAL MANAGER ______________ INSPECTION PERFORMED BY ______________ DATE ______________

(**4**) Okay (**X**) Correction Needed (**N/A**) Not applicable

Evaluation	Date Correction to be Completed	Evaluation Item	Comments
		1. Fire Extinguisher and Fire Blankets	
		a. Checked monthly	
		b. Serviced annually	
		c. In designated place	
		d. Properly mounted	
		e. Seals intact	
		f. Refills available	
		g. Blankets in place/in good condition	
		2. Ignition controls	
		• Spills	
		a. Contained	
		b. Promptly cleaned up	
		c. Employees aware of reporting requirements and procedures followed	
		• Cleaning solvents	
		a. Gasoline not used as solvent	
		b. Approved solvents utilized	
		• Smoking, matches and open flames	
		a. Allowed only in designated area	
		b. Signs posted in appropriate locations	
		c. “Strike anywhere” matches and lighters that do not require two actions prohibited	
		• Hot work	
		a. Hot work permits with Terminal Manager’s signature required before beginning work	
		b. Work closely supervised	
		c. Fire watch provided	
		d. Fire extinguishing equipment on standby and ready for use	
		• Power equipment	
		a. Internal combustion engines, electrical hand tools, other power equipment not allowed in flammable mixture atmosphere	
		• Heating equipment	
		a. Heating equipment supplied without ignition source	
		b. Properly installed and correct design	
		c. Heater rooms clean and orderly and not utilized for storage	
		• Electrical equipment	
		a. Installed in compliance with NFPA and API recommended practices	
		b. All breakers labeled	

(**4**) Okay (**X**) Correction Needed (**N/A**) Not applicable

Evaluation	Date Correction to be Completed	Evaluation Item	Comments
		• Spontaneous combustion and vegetation	
		a. Oily rags, trash and flammable material stored in covered metal containers or isolated	
		b. Grass, weeds, etc, controlled and good housekeeping maintained	
		3. Fire Control Procedure	
		• Written preplanned emergency procedure on hand	
		• All employees familiar with procedure and drills conducted	
		• Local fire department personnel involved and familiar with facility	
		4. Personnel Safety	
		• First Aid	
		a. Fully equipped first aid kit on premises	
		• Falls	
		a. Safe working/walk surfaces maintained	
		b. Ladders for access available	
		c. Snow and ice treated or removed as necessary	
		• Hand tools	
		a. Special tools provided (i.e. bung wrenches, drumcarts, trucks, skids)	
		b. Defective tools removed from service	
		c. Tools properly stored for inventory control	
		• Lifting	
		a. Personnel instructed on proper lifting techniques	
		b. Assist devices provided	
		• Contact with petroleum products	
		a. Contaminated clothing removed properly	
		b. Decontamination facilities provided	
		c. Tank entry and cleaning precautions taken	
		d. Inhalation of vapors controlled	
		• Personal protective equipment	
		a. Safety shoes	
		b. Hard hats	
		c. Eye and face protection	
		d. Appropriate work clothing	
		5. Yard Safety	
		• Vehicle parking	
		a. Designated area(s) remote from operating area	
		• Drum storage	
		a. Neatly arranged	
		b. Checked and supported	
		c. Away from bulk tanks	
		d. Secured from unauthorized persons	
		e. Bungs in place on empties	
		f. Leaking drums disposed of	
		• Fences and gates	
		•	

(**4**) Okay (**X**) Correction Needed (**N/A**) Not applicable

Evaluation	Date Correction to be Completed	Evaluation Item	Comments
		a. Good condition	
		b. Total perimeter protection	
		c. Lock equipped	
		• Drainage	
		a. Adequate drainage	
		b. Ditches and sewers in repair	
		c. Public draining systems and waterways protected	
		• Walkways and Driveways	
		a. Clear and crossovers over pipes and ditches	
		b. Level and free of potholes	
		c. Fixed equipment protected with barriers	
		• General	
		a. Stop signs at highway exits	
		b. Speed limit and one-way signs	
		c. Emergency notice signs	
		d. Signs prohibiting unauthorized vehicles	
		e. "No smoking" signs posted at manifold, rack and tank areas	
		f. Road conditions checked	
		g. Weed control maintained	
		h. Overhead wiring identified	
		i. General housekeeping maintained	
		j. Man holes secured	
		6. Warehouse Safety	
		• Doors, passageways and windows	
		a. Windows and doors in good condition and mechanisms in working order	
		b. Passageways clear	
		c. Fire equipment not blocked	
		d. Exits identified	
		• Floors and stairways	
		a. Free from oil, grease, water, weak flooring and holes	
		b. Support members in good condition and load limits posted	
		• Packaged stocks	
		a. Stacked properly and secured	
		b. Pallets in good condition, empties stored outside	
		c. Drums and packaged goods sealed and spills promptly cleaned up	
		d. Drums containing material with flash points of 100 F or below not stored inside unless local fire codes met	
		• Filling portable containers	
		a. Filling done outside only and ignition sources eliminated	
		b. Drum and container connected to prevent static charge build up	
		7. Garage Safety	
		a. Exhaust vented outside or doors left open	
		b. Flammables stored outside and atmosphere vapor-free	
		c. Proper housekeeping maintained	

(**4**) Okay (**X**) Correction Needed (**N/A**) Not applicable

Evaluation	**Date Correction to be Completed**	**Evaluation Item**	**Comments**
		8. Pumps and Motors	
		a. Motor controls and pumps identified and remote controls provided	
		b. Ventilation in pumphouse adequate and considered off limits for storage or other purposes	
		c. Ventilators not blocked	
		d. All moving parts guarded	
		e. Free of leaks	
		f. Electrical services maintained and approved for area classifications	
		g. Pressure gauges	
		h. Drain lines and utility piping	
		i. Seals and packing	
		9. Storage Tanks	
		a. Dike stairways, walkways, ladders and handrails provided	
		b. Water draws functional	
		c. Tank shell in good condition and painted	
		d. Proper grounds – tank and pumps	
		e. Leaky valves or piping or tank repaired	
		f. Electrical wiring per code	
		g. Vacuum and relief valves functional	
		h. Hatch seals and emergency vents operational	
		i. Condition of roof checked	
		j. Housekeeping, erosion, weeds and debris checked	
		• High level alarms	
		a. Level switches functional	
		b. Properly set	
		c. Audio	
		d. Visual	
		e. Transmission of signal	
		11. Railroad Tank Cars	
		• General	
		a. Authorized personnel only	

(**4**) Okay (**X**) Correction Needed (**N/A**) Not applicable

Evaluation	Date Correction to be Completed	Evaluation Item	Comments
		• Spotting cars	
		a. Car mover tool available	
		b. Brakes set and wheels blocked	
		c. Sign – "Stop – Tank Car Connected" posted on track	
		• Opening cars	
		a. Pressure relieved before opening dome or outlet valve	
		b. Proper tools utilized	
		c. Volume and contents verified	
		• Tank delivery	
		a. Valves properly set	
		b. Checked for leaks and catch container available	
		c. Delivery lines checked for leaks	
		d. System and cars secured after delivery completed	
		• Miscellaneous	
		a. Stairways, walkways and handrails	
		b. Oily rag storage	
		c. Fire extinguishers	
		d. Truck and rack ground wires	
		e. General housekeeping	
		12. Manifold Areas	
		a. Valves and flanges	
		b. Sump covers and alarms	
		c. Electrical wiring and lights	
		d. Separators	
		e. Fire extinguishers	
		f. Housekeeping and cleanliness	
		g. Bleeder valves	
		h. Prover tanks	
		i. Valve operator	
		j. Valve numbered and tagged per line up drawing	
		k. Sample box	
		13. Sample House	
		a. Proper storage of samples – daily samples being pulled	
		b. Outdated samples	
		c. Stored material other than samples	
		d. Identification of building	
		e. No smoking	
		f. Proper ventilation	
		g. Building condition	
		h. Housekeeping	
		14. Laboratory	
		a. Gas connections checked	
		b. Flammables properly stored	
		c. Proper ventilation	
		d. Chemicals properly stored	
		e. Smoking prohibited	
		f. Adequate equipment	
		g. Drains properly set up	
		15. Building	
		a. In good repair	

(**4**) Okay (**X**) Correction Needed (**N/A**) Not applicable

Evaluation	**Date Correction to be Completed**	**Evaluation Item**	**Comments**
		b. Electrical wiring	
		c. Flues and vents	
		d. Restrooms	
		e. Bulletin board up to date	
		f. Proper disposal of waste	
		g. Lighting	
		16. Office Records	
		a. Administrative procedure guide	
		b. Terminal procedure guide	
		c. Filing system neat and orderly	
		d. General housekeeping	
		e. Storage of files	
		f. Phone numbers posted – emergency numbers	
		g. Operating procedure	
		h. Valve line up charts and drawing	
		i. Emergency procedure	
		j. Loading procedure	
		k. Record of keys	
		l. Loading agreements	
		m. Invoice registers	
		n. Inventory and sales report up to date	
		o. Contingency plan up to date	
		p. Reports filed and current	
		q. Meter vs. tank gauge	
		r. Tickets	
		s. Provings	
		t. Monthly distillation test results	

Appendix H
Acronyms and Definitions

APPENDIX H
ACRONYMS AND DEFINITIONS

H.1 ACRONYMS

AC	Area Committee
ACI	Alaska Cook Inlet Crude Oil
ACP	Area Contingency Plan
AIRSTA	Air Station (USCG)
ALOHA	Aerial Location of Hazardous Atmosphere
AMPD	Average Most Probable Discharge
ANPRM	Advanced Notice of Proposed Rulemaking
AOC	Area Operations Coordinator
AOR	Area of Responsibility
APHIS	Animal and Plant Health Inspection Service
API	American Petroleum Institute
ASTDR	Agency for Toxic Substances and Disease Registry
ASTM	American Society of Testing Materials
BBL	Barrel
BIA	Bureau of Indian Affairs (USDOI)
BLM	Bureau of Land Management (USDOI)
BNTM	Broadcast Notice to Mariners (USCG)
BOA	Basic Ordering Agreement
CAER	Community Awareness Emergency Response (CMA)
CAMEO	Computer-Aided Management of Emergency Operations
CANUSPAC	Joint Canada – U. S. Marine Pollution Contingency Plan for Spills of Oil And Other Substances
CCGF	Commander Coast Guard Forces (USCG)
CDC	Center for Disease Control
CEMP	Comprehensive Emergency Management Plan
CERCLA	Comprehensive Environmental Response, Compensation & Liability Act of 1980, as amended
CFR	Code of Federal Regulations
CGHQ	Coast Guard Headquarters (USCG)
CHRIS	Chemical Hazards Response Information System
CIN	Community Information Line
CMA	Chemical Manufacturers Association
CO	Commanding Officer (USCG)
COC	Contaminants of Concern
COFR	Certificate of Financial Responsibility
COMDTINST	Commandant Instruction (USCG)
COMMCEN	Communications Center (USCG)
COS	Chief of Staff
COTP	Captain of the Port (USCG)
CPF	Coastal Protection Fund
CRCI	Clean Rivers Cooperative, Inc.
CRO	Central Regional Office
CSCI	Clean Sound Cooperative, Inc.
CWA	Clean Water Act of 1977 (Federal)
CWS	Community Warning System
DCO	Discharge Clean-Up Organization
DOC	Department of Commerce
DOH	Washington State Department of Health
DNR	Washington State Department of Natural Resources

DOI .... Department of Interior
DOS .... Department of State
DOSC .... Deputy On-Scene Coordinator
DOT .... Department of Transportation
DPS .... Department of Public Safety
DRAT .... District Response Advisory Team (USCG)
DRG .... District Response Group (USCG)
DTSC .... Department of Toxic Substances Control
ECOLOGY .... Washington State Department of Ecology
EEZ .... Exclusive Economic Zone
EHS .... Environment, Health and Safety Division
EMD .... Emergency Management Division (Washington State Department of Community Development
ELIRT .... Emergency Local Interfunctional Response Team
EOC .... Emergency Operations Center
EPA .... U. S. Environmental Protection Agency
EPCRA .... Emergency Planning and Community Right-to-Know Act
ERAP .... Emergency Response Action Plan
ERO .... Eastern Regional Office
ERT .... Emergency Response Team
ESI .... Ecological Site Inventory (EPA)
ETF .... Emergency Task Force
EVI .... Environmental Vulnerability Index
FAA .... Federal Aviation Administration
FDA .... Food and Drug Administration
FEMA .... Federal Emergency Management Administration
FINCEN .... Finance Center (USCG)
FOSC .... Federal On-Scene Coordinator
FR .... Federal Register
FRDA .... Freshwater Resource Damage Assessment
FRF .... Federal Revolving Fund
FRP .... Facility Response Plan
FWPCA .... Federal Water Pollution Control Act of 1972
FWS .... Fish and Wildlife Service
G-C .... Office of the Commandant (USCG)
G-L .... Office of Chief Counsel (USCG)
G-M .... Office of Marine Safety, Security and Environmental Protection (USCG)
G-MEP .... Office of Marine Environmental Protection (USCG)
G-N .... Office of Navigation Safety and Waterway Services (USCG)
GAL .... Gallons
GIS .... Geographic Information System
GPM .... Gallons Per Minute
GRU .... Group (USCG)
GSA .... General Services Administration
HACS .... Hazard Assessment Computer System
HAZMAT .... Hazardous Materials
HAZWOPER .... Hazardous Waste Operations and Emergency Response
HHS .... Department of Health and Human Services
HMIS .... Hazardous Material Information System
HSER .... Health, Safety and Emergency Response Department
HUD .... Department of Housing and Urban Development
HWCP .... Hazardous Waste Contingency Plan
IBRRC .... International Bird Rescue Research Center
IC .... Incident Commander
ICP .... Incident Command Post
ICS .... Incident Command System

HIS .... Industrial Hygiene Safety Division
IMO...International Marine Organization
INS ....Immigration and Naturalization Service
IOSA...Islands' Oil Spill Association
IPIECA...........................International Petroleum Industry Environmental Conservation Association
IRT..Initial Response Team
JIB ....Joint Information Bureau
JIC...Joint Information Center
JOC ....Joint Operations Center
JRC ....Joint Response Center
JTC...Joint Transportation Center
LEL...Lower Explosive Limit
LEPC..Local Emergency Planning Commission
LOSC..Local On-Scene Coordinator
LNG...Liquefied Natural Gas
LPG ....Liquefied Petroleum Gas
LRT...Local Response Team
MARAD ....Maritime Administration
MIRG ....Marine Industry Group
MLC...Maintenance and Logistics Command (USCG)
MMPD ....Maximum Most Probable Discharge
MOU ....Memorandum of Understanding
MPA..Marine Preservation Association
MRL...Minimum Response Levels
MRU ....Mobile Rehabilitation Unit
MSD ....Marine Safety Detachment (USCG)
MSDS ....Material Safety Data Sheets
MSIS...Marine Safety Information System (USCG)
MSM ....Marine Safety Manual (USCG)
MSO ....Marine Safety Office (USCG)
MSRC...Marine Spill Response Corporation
MTR...Marine Transportation Related
NCP...National Contingency Plan
NIC ....National Incident Commander
NICa ....Alternate National Incident Commander
NIMS ....National Incident Management System
NIOSH...National Institute for Occupational Safety and Health
NITF ....National Incident Task Force
NM..Nautical Miles
NMFS ....National Marine Fisheries Service
NOAA ....National Oceanic and Atmospheric Administration
NPDES...National Pollutant Discharge Elimination System
NPFC...National Pollution Funds Center (USCG)
NPS ....National Park Service
NRC..National Response Center (USCG)
NRDA ....National Resource Damage Assessment
NRS...National Response System
NRT ....National Response Team
NSFCC..National Strike Force Coordination Center (USCG)
NWAC ....Northwest Area Committee
OCI ....Office of Criminal Investigation (EPA)
OES..Office of Emergency Services
OPA 90...Federal Pollution Act of 1990
OSC...On-Scene Coordinator/Commander
OSHA ....Occupational Safety and Health Administration
OSLTF...Oil Spill Liability Trust Fund

OSRO	Oil Spill Removal Organization
OSRP	Oil Spill Response Plan
OSSC	Oil Spill Service Center (Southhampton, England)
PAO	Public Affairs Officer (USCG)
PFD	Personal Flotation Device
PHS	Public Health Service
PIAT	Public Information Assistance Team
PIP	Pre-Incidence Planning
POLREP	Pollution Report Message (USCG)
PPE	Personal Protective Equipment
PREP	National Preparedness for Response Exercise Program
QI	Qualified Individual
RA	EPA Regional Administrator
RAT	Radiological Assistance Team
RCP	Regional Oil and Hazardous Substance Pollution Contingency Plan
RCRA	Resource Conservation and Recovery Act of 1976
RP	Responsible Party
RPM	Remedial Project Manager
RRC	Regional Response Centers
RRI	Regional Resource Inventory
RRT	Regional Response Team (Federal)
RSPA	Research and Special Programs Administration
RQ	Reportable Quantity
SAR	Search and Rescue
SARA	Superfund Amendments and Reauthorization Act
SCBA	Self-Contained Breathing Apparatus
SDHPT	State Department of Highways and Public Transportation
SDWA	Safe Drinking Water Act of 1986
SDWF	State Department of Wildlife and Fisheries
SERC	State Emergency Response Commission
SI	Surface Impoundment
SIC	Standard Industrial Classification
SIP	Significant Incident Plan
SITREP	Situation Report Message (USCG)
SMT	Spill Management Team
SONS	Spill of National Significance
SOP	Standard Operating Procedure
SOSC	State On-Scene Coordinator
SPCC	Spill Prevention, Control, and Countermeasures Plan
SRG	State Response Group
SSC	Scientific Support Coordinator (NOAA)
SSSP	Site Specific Safety & Health Plan
STRCC	Spill Team Response Containment/Cleanup
TARC	Tiered Area Response Consortium
TAT	Tactical Assist Team (EPA)
TEAP	Transportation Emergency Action Plan
UCS	Unified Command System
USA	U.S. Army
USACE	U. S. Army Corps of Engineers
USAF	U.S. Air Force
USCG	U. S. Coast Guard
USDA	U.S. Department of Agriculture
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
USFS .... U.S. Forest Service
USFWS .... U. S. Fish and Wildlife Service (USDOI)
USGS .... U. S. Geological Survey (USDOI)
USMC .... U.S. Marine Corps
USPHS .... U.S. Public Health Service
VRP .... Vessel Response Plan
WAC .... Washington Administrative Code
WCD .... Worst-Case Discharge
WDEM .... Washington Department of Emergency Management
WDF .... Washington State Department of Fisheries
WDR .... Waste Discharge Requirements
WDW .... Washington State Department of Wildlife
WISHA .... Washington State Industrial Safety and Health Administration
WSPA .... Western Sound Petroleum Association

H.2 DEFINITIONS

Access/Staging Areas
Designated areas offering access to spill sites for the gathering and deployment of spill response equipment and personnel.

Absorbent Material
Any of the several materials designed to absorb oil, both hydrocarbon and non-hydrocarbon.

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.

Alteration
Any work on a tank or related equipment involving cutting, burning, welding, or heating operations that changes the physical dimensions or configuration of a tank.

Average Most Probable Discharge
A discharge of the lesser of 50 barrels (2,100 gallons) or 1 percent of the volume of the worst case discharge.

Barrel
Measure of space occupied by 42 U. S. gallons at 60 degrees Fahrenheit.

Boom
Any number of specially designed devices that float on water and are used to contain or redirect the flow of oil on the water's surface.

Boom Deployment
The methodology for installing boom based on differing water depths, currents, wave heights, etc.

Booming Strategies
Techniques which identify the location, quantity, and type of boom required to protect differing water bodies and their shore lines. These strategies are developed by identifying potential spill scenarios and assuming certain conditions which affect oil movement on water.

Captain of the Port Zone (COTP)
A zone specified in 33 CFR Part 3 and the seaward extension of that zone to the outer boundary of the exclusive economic zone (EEZ).

Coastal Waters
All tidally influenced waters extending from the head of tide seaward to the three marine league limit of state jurisdiction; and non-tidally influenced waters extending from the head of tide in the arms inland to the point at which navigation by regulated vessels is naturally or artificially obstructed.

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 used during response operations to maintain communication between employees, contractors, Federal/State/Local agencies.

Complex
A facility possessing a combination of transportation-related and non-transportation-related components that is subject to the jurisdiction of more than one Federal agency under Section 311(j) of the CWA.

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
The area between the contaminated zone and the clean zone. This area is designed to reduce the probability that the clean zone will become contaminated. Also known as the warm zone.

Contingency Plan
A document used by (1) federal, state, and local agencies to guide ties 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 USCG 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 and 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 specific 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, and drills; and
  - Is incorporated by reference into the response plan; or
  - 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.

Critical Areas
Areas which, if impacted by a spill, may result in threats to public health and/or safety.

Crude Oil
Any liquid hydrocarbon mixture occurring naturally in the earth, whether or not treated to render it suitable for transportation, and includes crude oil from which certain distillate fractions may have been removed and crude oil to which certain distillate fractions may have been added.

Cultural Resources
Current, historic, prehistoric, and archaeological resources which include deposits, structures, sites, ruins, buildings, graves, artifacts, fossils, or other objects of antiquity which provide information pertaining to historical or prehistoric culture of people as well as the natural history of the state.

Damage Assessment
The process of determining and measuring damages and injury to the human environment and natural resources, including cultural resources. Damages include differences between the conditions and use of natural resources and the human environment that would have occurred without the incident, and the conditions and use that ensued following the incident. Damage assessment includes planning for restoration and determining the costs of restoration.

Decontamination
The removal of hazardous substances from personnel and equipment necessary to prevent adverse health effects.

Discharge Clean-up Organization
A corporation, proprietorship, partnership, company organization, or association that has, as its primary function, engaged itself in the response to, clean up, and removal of spills of oil or hazardous substance.

Dispersants
Those chemical agents that emulsify, disperse, or solubilize 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.

Ecology
The Washington State Department of Ecology.

Emergency Operations Center (EOC)
The pre-designated site where local and state agencies direct and manage off-scene logistics support to on-scene emergency operations.

Emergency Response Phase, Emergency Phase
The portion of a spill response where the primary concern is the alleviation of the immediate danger to human life, health, safety, or property by stabilizing the real or threatened release. This incident specific definition is to be made by the IC representing an appropriate First Response Agency.

Emergency Service
Those activities provided by the state and local government to prepare for and carry out any activity to prevent, minimize, respond to, or recover from an emergency.

Exclusion Zone
The area where contamination does or may occur.

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.

Exclusive Economic Zone
The zone contiguous to the territorial sea of the United States extending to a distance up to 200 nautical miles from the baseline form which the breadth of the territorial sea is measured.

Facility
Any pipeline, structure, equipment, or device used for handling oil including, but not limited to, underground and aboveground storage tanks, impoundment's, 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.

Facility that could be reasonably expected to cause significant and substantial harm
Any fixed MTR onshore facility (including piping and bay structures that are used for the transfer of oil between a vessel and a facility) that is capable of transferring oil, in bulk, to or from a vessel of 250 barrels or more, and a deepwater port. This also includes any facility especially identified by the COTP.

Facility that could reasonably be expected to cause substantial harm
Any mobile MTR facility that is capable of transferring oil to or from a vessel with a capacity of 250 barrels or more.

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.

Fish and Wildlife and Sensitive Environments
Areas that may be identified by either their legal designation or by evaluations of Area Committees (for planning) or members of the federal On-Scene Coordinator's spill response structure (during responses). These areas may include wetlands, National and State parks, critical habitats for endangered/threatened species, wilderness and natural resource areas, marine sanctuaries and estuarine reserves, conservation areas, preserves, wildlife refuges, wild and scenic rivers, recreational areas, and historical and archeological sites and parks. These areas may also include unique habitats such as aquaculture sites and agricultural surface water intakes, bird nesting areas, critical biological resource areas, designated migratory routes, and designated seasonal habitats.

Harmful Quantity of Oil
The presence of oil from an unauthorized discharge in a quantity sufficient either to create a visible film or sheen or discoloration upon water, shoreline, tidal flat, beach, or marsh, or to cause a sludge or emulsion to be deposited beneath the surface of the water or on a shoreline, tidal flat, beach, or marsh.

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 designated 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.

Heat Stress
Dangerous physical condition caused by over exposure to extremely high temperatures.

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

Hypothermia
Dangerous physical condition caused by over exposure to freezing temperatures.

Incident Command Agency
The agency designated under state law (RCW 70.136) as the entity responsible for coordinating all activities and resources at a spill scene, within a particular jurisdiction.

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 (ICS)
A method by which the response to an extra-ordinary event, including a spill, is categorized into functional components and responsibility for each component assigned to the appropriate individual or agency.

Initial Clean-up
Remedial action at a site to eliminate acute hazards associated with a spill. An initial clean-up action is implemented at a site when a spill of material is an actual or potentially imminent threat to public health or the environment, or difficulty of cleanup increases significantly without timely remedial action. All sites must be evaluated to determine whether initial cleanup is total cleanup; however, this will not be possible in all cases due to site conditions (i.e., a site where overland transport or flooding may occur).

Injury
A measurable adverse change, either long- or short-term, in the chemical or physical quality of the viability of a natural resource resulting either directly or indirectly from exposure to a discharge of oil, or exposure to a product of reactions resulting from a discharge of oil.

Inland Area
The area shoreward of the boundary lines defined on 46 CFR Part 7, except in the Gulf of Mexico. In the Gulf of Mexico, it means the area shoreward of the lines of demarcations (COLREG lines) defined in □80.740 - 80.850 of Title 33 of the CFR. The inland area does not include the Great Lakes.

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 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.
- U. S. Environmental Protection Agency (EPA): Oil and chemically hazardous materials incidents on inland waters.

Lead State Agency
The agency which coordinates state support to Federal and/or Local governments or assumes the lead in the absence of Federal response.

Location Boundaries
Areas where oil may be expected to impact during the first day of a spill event.

Lower Explosive Limit
Air measurement to determine the lowest concentration of vapors that support combustion. This measurement must be made prior to entry into a spill area.

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 clean-up capability to conduct response activities for a worst case discharge from a facility in adverse weather.

Maximum Most Probable Discharge (MMPD)
A discharge of the lesser of 2,500 barrels or 10 percent of the volume of a worst case 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.

Navigable Waters of the State
Waters of the state, and their adjoining shorelines, that are subject to the ebb and flow of the tide and/or are presently used, have been used in the past, or may be susceptible for use to transport intrastate, interstate, or foreign commerce. Includes the Columbia River, the Willamette River up to Willamette Falls, and the coastal waters and estuaries of the state.

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-Crude Oil
Any oil other than crude oil.

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 340ºC (645ºF); and
- At least 95% of which volume, distill at a temperature of 370ºC (700ºF).

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 Cooperative
Multi-company cooperative organization developed by industry to assist with oil spill response and clean up. Typically, manpower and equipment are identified by a company on a voluntary basis.

Oil Spill Removal Organization
See definition for Primary Response Contractors.

Onshore Facility
Any facility, as defined in Subsection (12) of this section, located in, on, or under any land of the state, other than submerged land, that, because of its location, could reasonably be expected to cause substantial harm to the environment by discharging oil into or on the navigable waters of the state or the adjoining shorelines.

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.

Owner or Operator
(i) in the case of a vessel, any person owning, operating, or chartering by demise, the vessel; (ii) in the case of an onshore of offshore facility, any person owning or operating the facility; and (iii) in the case of an abandoned vessel or onshore or offshore facility, the person who owned or operated the vessel or facility immediately before its abandonment. **Note:** "Operator" does not include any person who owns the land underlying a facility if the person is not involved in the facility's operations.

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 clean-up of spilled oil. For use in contingency plans, primary response contractors must be approved by Ecology.

Post-Emergency Response
The portion of a response performed after the immediate threat of a release has been stabilized or eliminated and cleanup of the sites has begun.

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 predesigned Federal On-Scene Coordinator (OCS); and
- 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.

Repair
Any work necessary to maintain or restore a tank or related equipment to a condition suitable for safe operation.

Response Contractors
Persons/companies contracted to undertake a response action to contain and/or clean up a spill.

Response Plan
A practical plan used by industry for responding to a spill. Its features include (1) identifying the notification sequence, responsibilities, response techniques, etc. in an easy to use format; (2) using decision trees, flowcharts, and checklists to insure the proper response for spills with varying characteristics; and (3) segregating information needed during the response from that required by regulatory agencies to prevent confusion during a spill incident.

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.

Securing the Source
Steps that must be taken to stop the spill of oil at the source of the spill.

Site Security and Control
Steps that must be taken to provide safeguards needed to protect personnel and property, as well as the general public, to ensure an efficient clean-up operation.

Site Conditions
Details of the area surrounding the facility, including shoreline descriptions, typical weather conditions, socioeconomic breakdowns, etc.

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.

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.

Spill
An unauthorized discharge of oil or hazardous substance into the waters of the state.

Spill Management Team
The personnel identified to staff of the organizational structure identified in a response plan to manage response plan implementation.

Designated company individuals who will fulfill the roles determined in the oil spill response plan in the event of an oil spill. They will supervise and control all response and clean-up operations.

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.

Substantial Threat of a Discharge
Any incident or condition involving a facility that may create a risk of discharge of fuel or cargo oil. Such incidents include, but are not limited to, storage tank or piping failures aboveground or underground leaks, fire explosions, flooding, spills contained within the facility or other similar occurrences.

Tidal Current Charts
Comprehensive charts which contain the predicted tidal current for each day of the year for designated areas. These charts specify the direction and speed of the current in the specific areas.

Tidal Current Tables
Tables which contain the predicted times and heights of high and low waters for each day of the year for designated areas.

Trajectory Analysis
Estimates made concerning spill size, location, and movement through aerial surveillance or computer models.

Unauthorized Spill
Spills excluding those authorized by an in compliance with a government permit, seepage from the earth solely from natural causes, and unavoidable, minute spills of oil from a properly functioning engine, of a harmful quantity of oil from a vessel or facility either: (1) into coastal water; or (2) on any waters or land adjacent to coastal waters where harmful quantity of oil may enter coastal waters or threaten to enter coastal waters if the spill is not abated, not contained and the oil is not removed.

Underwriter
An insurer, a surety company, a guarantor, or any person other than an owner or operator who undertakes to pay all or part of the liability of an owner or operator.

Unified Command
The method by which Local, State, and Federal agencies and the responsible party 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.

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.

Waters of the State
Includes lakes, rivers, ponds, streams, inland waters, underground water, salt water, estuaries, tidal flats, beaches and lands adjoining the seacoast of the state, sewers, and all other surface waters and watercourses within the jurisdiction of the State of Washington.

Wildlife Rescue
Efforts made in conjunction with Federal and State agencies to retrieve, clean, and rehabilitate birds and wildlife affected by an oil spill.

Worst Case Unauthorized Discharge
The largest foreseeable unauthorized spill under adverse weather conditions. For facilities located above the high water line of coastal waters, a worst case spill includes those weather conditions most likely to cause oil spilled from the facility to enter coastal waters.

Worst Case Discharge (MTR)
For facilities with belowground storage supplying oil to or receiving oil from the MTR portion means the cumulative volume of all piping carrying oil between the marine transfer manifold and the non-transportation-related portion of the facility. The discharge of each pipe is calculated as follows: the maximum time to discover the release from the pipe in hours (based on best estimate or historic discharge data) multiplied by the maximum flow rate expressed in BPH (based on the maximum daily capacity of the pipe) plus the total line drainage volume expressed in barrels for the pipes between the marine manifold and the non-transportation-related portion of the facility.

Worst Case Discharge (EPA) (Storage Facilities)

1. Loss of the entire capacity of all aboveground tank(s) at the facility not having secondary containment; plus
2. 100% of the capacity of the largest tank within a secondary containment system or 100% of the combined capacity of the largest group of aboveground tanks permanently manifolded together within the same secondary containment system - whichever is greater.

Worst Case Discharge (Pipeline)

1. The loss of the entire capacity of all in-line and breakout storage tanks needed for the continuous operation of the pipelines used for the purpose of handling or transporting oil, in bulk, to or from a vessel regardless of the presence of secondary containment; plus
2. The discharge from all piping carrying oil between the marine transfer manifold and the non-transportation-related portion of the facility.