TESORO

ANACORTES REFINERY

OIL SPILL CONTINGENCY PLAN

REV 10 (2016 FEB)

Approved: July 10, 2013

Expires: July 10, 2018

EPA FRP-WA-000023

U.S. Department of Homeland Security
United States Coast Guard

Captain of the Port
United States Coast Guard
Sector Puget Sound

1519 Alaskan Way South
Seattle, WA 98134-1192
Staff Symbol: spi
Phone: (206) 217-6165
FAX: (206) 217-6227

16471

FEB 27 2014

Tesoro Anacortes
Attn: Mr. Gary Mattson
PO Box 700
Anacortes WA 98221

Dear Mr. Mattson:

Your Facility Response Plan submitted to this office on January 29, 2014 to meet the requirements of the Oil Pollution Act of 1990, and 33 CFR 154, Subpart F is approved.

I commend your efforts in maintaining a Facility Response Plan that reflects your company's commitment to this program. Your response plan will help ensure effective oil spill response and mitigation. Please be sure that all parties with responsibilities under the plan are familiar with the plan's procedures and requirements.

You are reminded that your facility is prohibited from handling, storing, transporting, transferring, or lightering oil unless it is operating in full compliance with this plan. Compliance includes ensuring the required response resources are in place and available through contract or other approved means.

Your plan's approval will remain valid for five years from the date of this letter. You must review your plan annually and resubmit the plan to the Coast Guard for reapproval six months before the end of the approval period as required by Title 33, Code of Federal Regulations, Part 154.1030. If there are questions please contact the Sector Puget Sound, Facilities and Containers Branch at 206-217-6165 or email D13-PF-SPSFAC@USCG.MIL.

Please keep a copy of this letter with your plan.

Sincerely,

J. D. Dwyer
Chief, Inspections Division
By direction of the Captain of the Port, Puget Sound

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

OFFICE OF ENVIRONMENTAL CLEANUP

July 10, 2013

John Schumacher
Tesoro Corporation
PO Box 700
Anacortes, Washington 98221

Re: Facility Response Plan FRP 23

Dear Mr. Schumacher:

Pursuant to the Clean Water Act, 33 U.S.C. Section 1321(j)(5), as amended by the Oil Pollution Act of 1990, The Environmental Protection Agency has reviewed your Facility Response Plan (FRP) and finds that it meets the requirements of Section 311(j)(5) of the Clean Water Act and 40 CFR 112.20(c)(4). The next 5 year plan will be due July 10, 2018.

Note that, pursuant to 40 CFR 112.20(d)(1), the owner or operator of a facility for which a response plan is required shall revise and resubmit revised portions of the response plan to EPA within 60 days of each facility change that may materially affect the response to a worst-case discharge. Changes which may require revisions to a response plan include:

- a change in the facility's configuration;
- a change in the type of oil handled, stored or transferred;
- a change in the capabilities of the oil spill response organization;
- a change in the facility's spill prevention and response equipment or emergency response procedures; and
- any other change that materially affects the implementation of the response plan.

In addition, 40 CFR Section 112.20(d)(2) provides that changes in personnel and telephone number lists included in an FRP do not require EPA approval, but should be supplied to EPA as the revisions occur. If you have questions regarding this correspondence, please contact me at (206) 553-1886 or Janet Wien at 206-553-8634 or wien.janet@epa.gov.

Sincerely,

Michael I Sibley II
On Scene Coordinator (OSC)
Emergency Preparedness and Prevention Unit

cc: Sonja Larson, Washington Department of Ecology, slar461@ecy.wa.gov

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

March 25, 2014

Danial Cameron
Vice President
Tesoro Anacortes Refinery
PO Box 700
Anacortes, WA 98221

Dear Mr. Cameron:

Congratulations. On behalf of the state of Washington I am granting final approval to the Tesoro Anacortes Refinery oil spill contingency plan. The plan meets Washington's statutory and regulatory requirements and must be maintained in an accurate condition. Please add a copy of the enclosed certificate to the front of each plan as proof of compliance. This approval expires on March 24, 2019.

Thank you for your cooperation and patience throughout the process. If you have questions, please contact your plan compliance specialist at (360) 407-7281 or at dabu461@ecy.wa.gov.

Sincerely,

Linda Pilkey-Jarvis

Linda Pilkey-Jarvis
Preparedness Section Manager
Spill Prevention, Preparedness and Response

Enclosure: Plan Approval Certificate

cc: Craig Hyder, Tesoro
John Schumacher, Tesoro
Central Files, Spills Program
USCG Sector Seattle
USEPA
HQ Spills Central Files, Preparedness Section, Tesoro Anacortes Refinery

Oil Spill Contingency Plan Approval Certificate

WASHINGTON STATE
DEPARTMENT OF
ECOLOGY

The Oil Spill Contingency Plan for

Tesoro Anacortes Refinery

has been APPROVED pursuant to Chapter 173-182
Washington Administrative Code
by the

WASHINGTON STATE
DEPARTMENT OF ECOLOGY
Department of Ecology - Spill Preparedness Section

March 24, 2014
Date of Approval

Linda Pilkey-Jarvis
Linda Pilkey-Jarvis
Preparedness Section Manager

March 24, 2019
Plan Expiration Date

Binding Agreement

Binding Agreement Form

Washington State Department of Ecology
Spill Prevention, Preparedness and Response Program
P.O. Box 47600, Olympia, WA 98504-7600
For information, please contact SPPR Program at 360-407-7455.

Plan Holder/Company Name:

WAC 173-182-220: Binding Agreement
Each plan shall contain a written statement binding the plan holder to its use. The binding agreement shall be signed by the owner or operator, or a designee with authority to bind the owners and operators of the facility or vessel covered by the plan. The agreement is submitted with the plan.

Submitting Party Information

Company Name: Tesoro Refining and Marketing Company	
Contact Name: James Tangaro	
Address: 10200 West March Point Road	
Phone Number: 360-293-9122	**Fax #:** 210-745-4435
Email: James.D.Tangaro@tsocorp.com	**Website:** www.tsocorp.com
Company Name: Tesoro Logistics Operations LLC	
Contact Name: Don Sorensen	
Address: 19100 Ridgewood Parkway, San Antonio, TX 78259	
Phone Number: 210-626-6195	**Fax #:** 210-579-4597
Email: Don.J.Sorensen@tsocorp.com	**Website:** www.tsocorp.com

Binding Agreement

I certify that I reviewed and am familiar with the information submitted in this Plan. I verify acceptance of the plan and commit to (a) a safe and immediate response to spills and to substantial threats of spills that occur in, or could impact Washington waters or Washington's natural, cultural and economic resources; (b) having an incident commander in the state within six hours after notification of a spill; (c) the implementation and use of the plan during a spill and substantial threat of a spill, and to the training of personnel to implement the plan; (d) the authority and capability to make the necessary and appropriate expenditures in order to implement plan provisions; (e) working in unified command within the incident command system to ensure that all personnel and equipment resources necessary to the response will be called out to clean up the spill safely and to the maximum extent practicable.

Signature	James Tangaro	Date	2/17/15
Name	James Tangaro Tesoro Refining and Marketing	Title	Vice President, Anacortes Refinery
Signature	Don Sorensen	Date	2/19/15
Name	Don Sorensen Tesoro Logistics Operations, LLC.	Title	Senior Vice President, Logistics

RESPONSE PLAN COVER SHEET

Owner/Operator of Facility Tesoro Refining and Marketing Company & Tesoro Logistics Operations, LLC.
Facility Name Anacortes Refinery
Facility Address (street address or route) 10200 West March Point Road, Anacortes WA, 98221
Facility Mailing Address P.O. Box 700, Anacortes WA, 98221
Facility Phone No. (360)293-9119
Latitude 48° 30" 34" N
Longitude 122° 34' 35" W
Dun & Bradstreet Number 029759037
Largest Aboveground Oil Storage Tank Capacity (gallons) 25,200,000
Number of Aboveground Oil Storage Tanks 58
Standard Industrial Classification (SIC) Code 2911
Maximum Oil Storage Capacity (gallons) 2.22×10^8
Worst Case oil Discharge Amount (gallons) 25,200,000
Facility Distance to Navigable Water. Mark the appropriate line.
0 - ¼ mile XX ¼ - ½ mile ____ ½ - 1 mile ____ > 1 mile ____

APPLICABILITY OF SUBSTANTIAL HARM CRITERIA
Does the facility transfer oil over-water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons
YES XX NO ____
Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and, within any storage area, does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation?
YES ____ NO XX
Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculate using the appropriate formula in Appendix C or a comparable formula) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments?
YES XX NO ____
Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculate using the appropriate formula in Appendix C or a comparable formula) such that a discharge from the facility would shut down a drinking water intake?
YES XX NO ____
Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil spill in an amount greater than or equal to 10,000 gallons within the last 5 years?
YES ____ NO XX

CERTIFICATION
I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and that based on my inquiry of those individuals responsible for obtaining information, I believe that the submitted information is true, accurate, and complete.

Signature James Tangaro Date 1/29/16
Name James Tangaro (Tesoro Refining and Marketing) Title Vice President Anacortes Refinery

Signature Don Sorensen Date 1/29/16
Name Don Sorensen (Tesoro Logistics Operations, LLC.) Title Senior Vice President Logistics

Record of Revisions

This plan will be reviewed and updated at least annually or whenever necessary to reflect changes in procedures, response (test) strategies, phone numbers, or regulatory mandates. These changes will be noted in this form. Plan review and modifications will be initiated and coordinated by the Supervisor of Contingency Planning.

Revision Number	Date of Change	Description of Changes	Name
ORIGINAL	April 2013	• 5-yr re-submission	J. Schumacher
ORIGINAL-2	July 2013	• Revision to ORIGINAL awaiting approval: Additional WADOE WAC responses	J. Schumacher/T. Cowan
ORIGINAL-3	July 2013	• Additional WADOE WAC responses	J. Schumacher/T. Cowan
ORIGINAL-4	September 2013	• Additional WADOE WAC responses	C. Hyder/T. Cowan
Revision 1	February 2014	• Conditional approval requests as identified from WA DOE on December 16, 2013 • Moved Cross Reference from Preface to Appendix H	C. Hyder/T. Cowan
Revision 2	March 2014	• Full review and Audit of Plan formatting and references	C. Hyder/T. Cowan
Revision 3	April 2014	• Annual update • Added WADOE and updated USCG approval letters • Updated notification numbers	C. Hyder/T. Cowan
Revision 4	June 2014	• Updated notification information	C. Hyder/T. Cowan
Revision 5	June 2014	• Updated to reflect separation of assets between Tesoro Refining & Marketing LLC and Tesoro Logistics LP	C. Hyder/T. Cowan
Revision 6	June 2014	• Updated as per WDOE: o Section 3 & 6 - Update Spills to ground notification and reference processes o Section 3 - Notification flowchart for federal/state notifications o Section 3 - Correct section reference in Section 3 for Logistics Supervisor	C. Hyder/T. Cowan
Revision 7	December 2014	• Updates reflect change in refinery management, qualified individuals and notifications	C. Hyder/T. Cowan
Revision 8	March 2015	• Annual Update o Preface - Update to Response Plan Coversheet and WDOE Binding Agreement – management change o Section 2 - added ICS 201 o Section 3 - Updated notifications o Section 4 - Updates IMT Roster & ICS Org Chart o Section 7 - Communications & Security o Appendix B - Updated WSPA & IOSA contracts/agreements	C. Hyder/T. Cowan

Revision Number	Date of Change	Description of Changes	Name
Revision 9	July 2015	• Preface – Updated Record of Revisions and Distribution List • Table of Contents – Updated page numbers • Section 3 – Updated QI personnel • Section 4 – Updated QI personnel and Figure 4.1a • Appendix B – Added WSPA Mutual Aid Agreement (Rail) • Appendix C – Updated personnel • Appendix D – Updated Figure D.5	C. Hyder/L. Wolverton
Revision 10	February 2016	• Preface – Updated Distribution List • Table of Contents – Updated page numbers • Section 1 – Replaced Response Plan Cover Sheet • Section 2 – Added Spill to Ground information, removed reference to Spill Net, removed Spill Classifications no longer used by WA, added page 5 of ICS 201 • Section 3 – Updated Contact List • Section 4 – Updated response contacts • Section 5 – Removed one decanting form, added NWACP information • Section 6 – Removed dispersant reference, added Focus Wildlife response information • Section 7 – Updated reference to Navy and USCG equipment, updated radio channel information, added NWACP information, edited MSRC barge information, added reference to NWACP manual • Section 8 – Removed 8.3.2 Final Spill Cleanup • Appendix A – Updated Training & Exercise information • Appendix B – Added reference to WRRL, removed Fig. B.3 • Appendix C - Updated truck rack facility and tank information • Appendix D – Updated truck rack facility and tank information	C. Keeney/D. Sheffield

Distribution List

Plan #	Name	Address
1	Refinery Manager	**10200 West March Point Road Anacortes, WA 98221**
3	Superintendent Operations and Maintenance	10200 West March Point Road Anacortes, WA 98221
5	Zone C Training Supervisor	10200 West March Point Road Anacortes, WA 98221
6	Zone C Control House Field Document	10200 West March Point Road Anacortes, WA 98221
7e, 8e	**United States Environmental Protection Agency Region X (ATTN: Mike Sibley)**	1200 Sixth Avenue Suite 900. M/S ECL-133 Seattle, WA 98101 206-553-1886
9, 10e	**Washington Department of Ecology (ATTN: Sean Orr)**	300 Desmond Drive Lacey, WA 98503 360-407-7420
11	Wharf Field Document	10200 West March Point Road Anacortes, WA 98221
12	Director, Contingency Planning & ER	19100 Ridgewood Parkway San Antonio, TX 78259
15	Utility Boardman Field Document	10200 West March Point Road Anacortes, WA 98221
16	Croft Manager-Anacortes	10200 West March Point Road Anacortes, WA 98221
17, 23e	**U. S. Coast Guard (ATTN: Inspections Division)**	Sector Puget Sound 1519 Alaskan Way South, Building 4, Rm 426 Seattle, WA 98134 (206) 217-6990
18	Documentation/Drill Copy	10200 West March Point Road Anacortes, WA 98221
19	Manager of Refinery Operations	10200 West March Point Road Anacortes, WA 98221
20	Refinery Environmental Manager Field Document	10200 West March Point Road Anacortes, WA 98221
21	Lead Contingency Planning Coordinator (Conor Keeney)	10200 West March Point Road Anacortes, WA 98221
22	Zone C Vehicle Supervisor (Truck Copy)	10200 West March Point Road Anacortes, WA 98221
24	IC Van	10200 West March Point Road Anacortes, WA 98221

Bold = Regulatory Agencies

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Sections Two (2) and Three (3) of this Plan are intended to also be used as a field document to provide critical information for the initial emergency phase of a spill per WAC 173-182-240(2).

TABLE OF CONTENTS

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SECTION 1 INTRODUCTION

1.1 PURPOSE/SCOPE OF PLAN

This Oil Spill Contingency Plan has been prepared by Tesoro Refining & Marketing LLC and Tesoro Logistics LLC for the Tesoro Anacortes Refinery and Logistics assets to satisfy the Washington State statutes and federal oil spill planning requirements of the USCG and EPA established by the Oil Pollution Act of 1990.

Tesoro's Anacortes Refinery is subject to a worse case spill of 600,000 barrels of crude oil from either Tank 165 or 166. These tanks are located at the northern most end of the refinery, immediately across the March Point Road from Padilla Bay. The Tank Car Crude Offloading Facility, Marine Crude Oil and Heavy Products Storage Facilities, and the Truck Rack Loading Facility are owned by Tesoro Logistics LLC and are supported by Tesoro Anacortes Refinery.

The refinery transfers petroleum products to and from vessels over the dock. Vessels include both barges and ships, of which up to two can be serviced at the outside and inside berths at one time. Vessels specifications for each Berth are as follows:

Outside Berth – Maximum Vessel Size:	Crude Oil Tanker
	952' LOA
	166' Beam
	45' Draft
	125,000 Ltons Deadweight
Inside Berth – Maximum Vessel Size:	Product Tanker
	680' LOA 106' Beam
	37' Draft
	50,920 Ltons

The purpose of this Oil Spill Response Plan (Plan) is to provide guidelines to quickly, safely, and effectively respond to a spill that originates from the Tesoro Anacortes Refinery. In this plan, all Tesoro assets will be referred to as "Company". This Plan contains information and procedures designed to help Company employees respond to an oil spill in a manner that reduces damage to property and the environment. In addition, this plan contains information and procedures designed to prevent and/or minimize the spill of oil.

Sections Two (2) and Three (3) of this Plan are intended to also be used as a field document to provide critical information for the initial emergency phase of a spill per WAC 173-182-240(2).

The specific objectives of the Plan are to:

- Define alert and notification procedures to be followed when an oil spill, or the threat of a spill occurs,
- Document equipment, personnel and other resources available to assist with the spill response,
- Establish an oil spill response team, assign individuals to fill the positions on the team, and define the roles and responsibilities of team members,
- Define organizational lines of responsibility to be adhered to during an oil spill response,
- Outline response procedures and techniques for combating the oil spill, and
- Provide guidelines for handling the response operation.
- Sections Two (2) and Three (3) 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 WAC 173-182-240(2).

This Plan is not meant to replace common sense or actions not specifically described herein. The Company will activate this Plan according to the guidelines described herein and expects all facility personnel with responsibilities described to become familiar with this Plan. Actual circumstances will vary and will dictate the procedures to be followed, some of which may not be included in this manual. Responders should continually evaluate the effectiveness of the actions called for in this Plan and make the appropriate adjustments based on past experience and training to most effectively mitigate the spill. Training on this Plan is outlined in **APPENDIX A**.

1.2 REGULATORY MANDATE

This Plan is intended 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),
- Northwest Area Contingency Plan, and National Contingency Plan
- Washington Statewide Master Oil and Hazardous Substance Spill Contingency Plan.

1.3 TESORO POLICY & MANAGEMENT

TESORO

It is Tesoro's policy to achieve a high standard of environmental care in conducting its business. Tesoro seeks continuous improvement in environmental management.

Specifically, it is Tesoro's policy to:

- Comply with all applicable laws, regulations and standards; uphold the spirit of the law; and where laws do not adequately protect the environment, apply standards that will minimize any adverse environmental impact resulting from its operations, products or services.
- Communicate openly with government and communities on environmental issues, and contribute to the development of policies, legislation and regulations that may affect Tesoro.
- Ensure that its employees and suppliers of goods and services are informed about this policy and aware of their environmental responsibilities in relation to Tesoro's business.
- Ensure that it has management systems to identify, control and monitor environmental risks arising from its operations, and
- Establish programs to conserve resources, minimize wastes, improve processes and protect the environment.

Environmental protection is good business!

Gregory J. Goff

Chief Executive Officer

1.4 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 (OSROs) 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 Regulatory Resources 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 (refer to **Preface - Records of Revisions**). 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 1.4.1**. These changes are then to be distributed to all plan holders on Distribution List (refer to **Preface – Distribution List**).

The Lead Contingency Planning Coordinator will notify the Washington State Department of Ecology (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 which would have significant impact to response capability.**

The Plan will be centrally located in the Lead Contingency Planning Coordinator office and Wharf Control House accessible at any time.

1.4.1 Periodic Reviews and Evaluations

A review and evaluation will be periodically 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 time frame for revisions to reflect significant facility changes as described above are as follows:

- Annual review, within one month of the anniversary date of approval, to incorporate any changes of operational significance or in the listings of economically important or environmentally sensitive areas identified in the ACP in effect six months prior to the Plan review.
    - Distribute/submit plan updates identified by the annual review date
    - If no updates are made to plan, distribute/submit a letter to all distribution members indicating review has been performed and no updates are required by the annual review date.
- Five year review for the portions of the Plan addressing WDOE, USCG marine transportation related (MTR) facility requirements, or after significant change.

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

1.4.2 Interface with Other Plans

This Plan interfaces with other federal, state, and local plans as outlined in **FIGURE 1.6**.

This plan required by 40 CFR 112, documents spill prevention measures for the non-transportation related parts of the refinery, primarily the storage tanks and pipelines. It addresses many of the same issues as does WAC 173-180 "Facility Oil Handling Standards", including inspection and maintenance programs, secondary containment, tank and pipeline design.

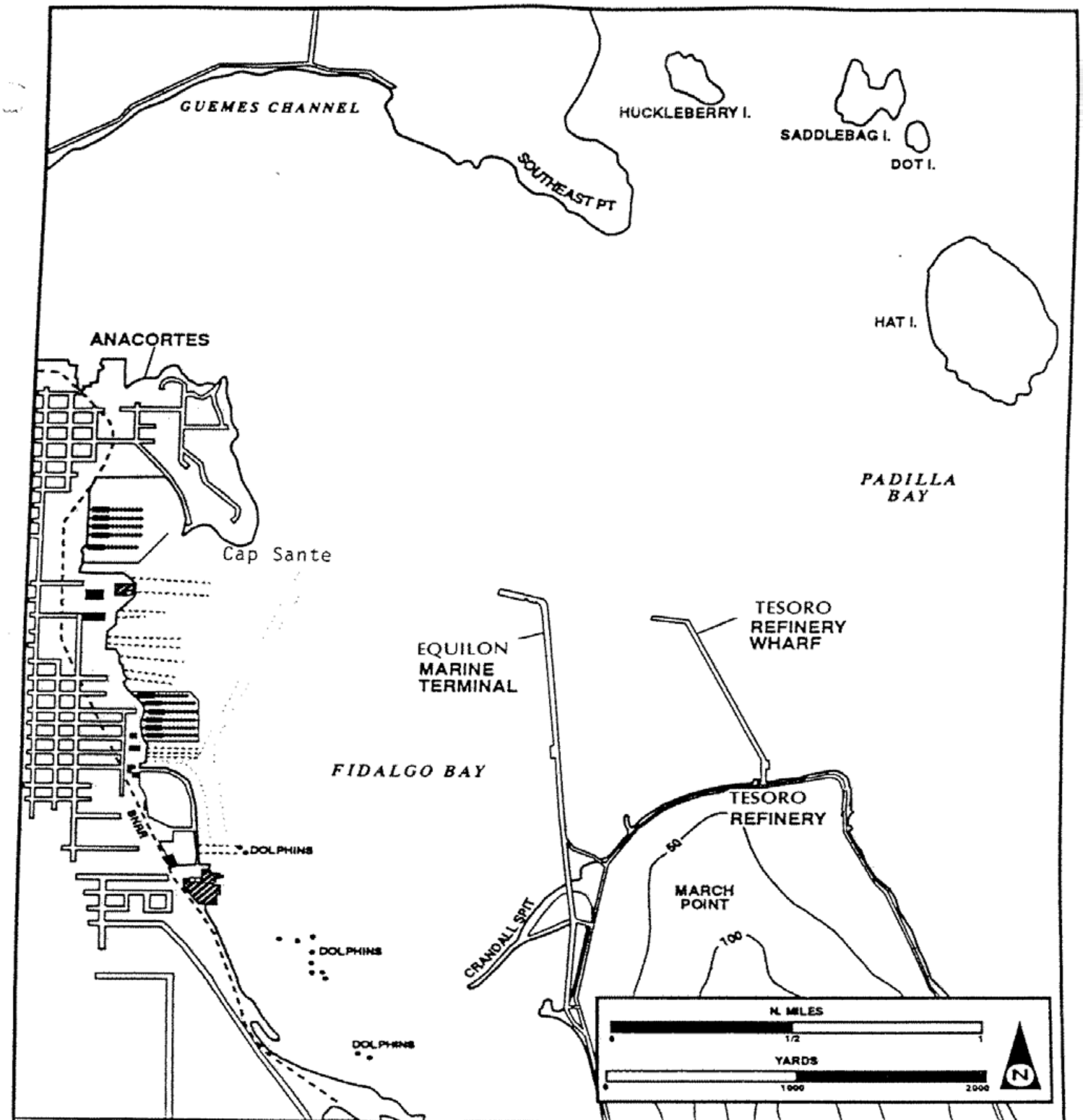
1.5 Description Of Geographic Area

The refinery is located on Fidalgo Island at the northern end of Puget Sound in northwest Washington State and includes Fidalgo and Padilla Bays south to the Swinomish Channel, north to Guemes Island west to Anacortes. The area is a mountainous region with small islands interspersed in the Sound.

This Plan provides for the response to oil spills for which the Company assumes responsibility that may occur within the geographic location boundaries.

Figure 1.1
Facility Location Area Map

Figure 1.2
Anacortes Refinery And Marine Terminal Location Map



ANACORTES REFINERY AND MARINE TERMINAL LOCATION MAP

Figure 1.3
Facility Plot Plan

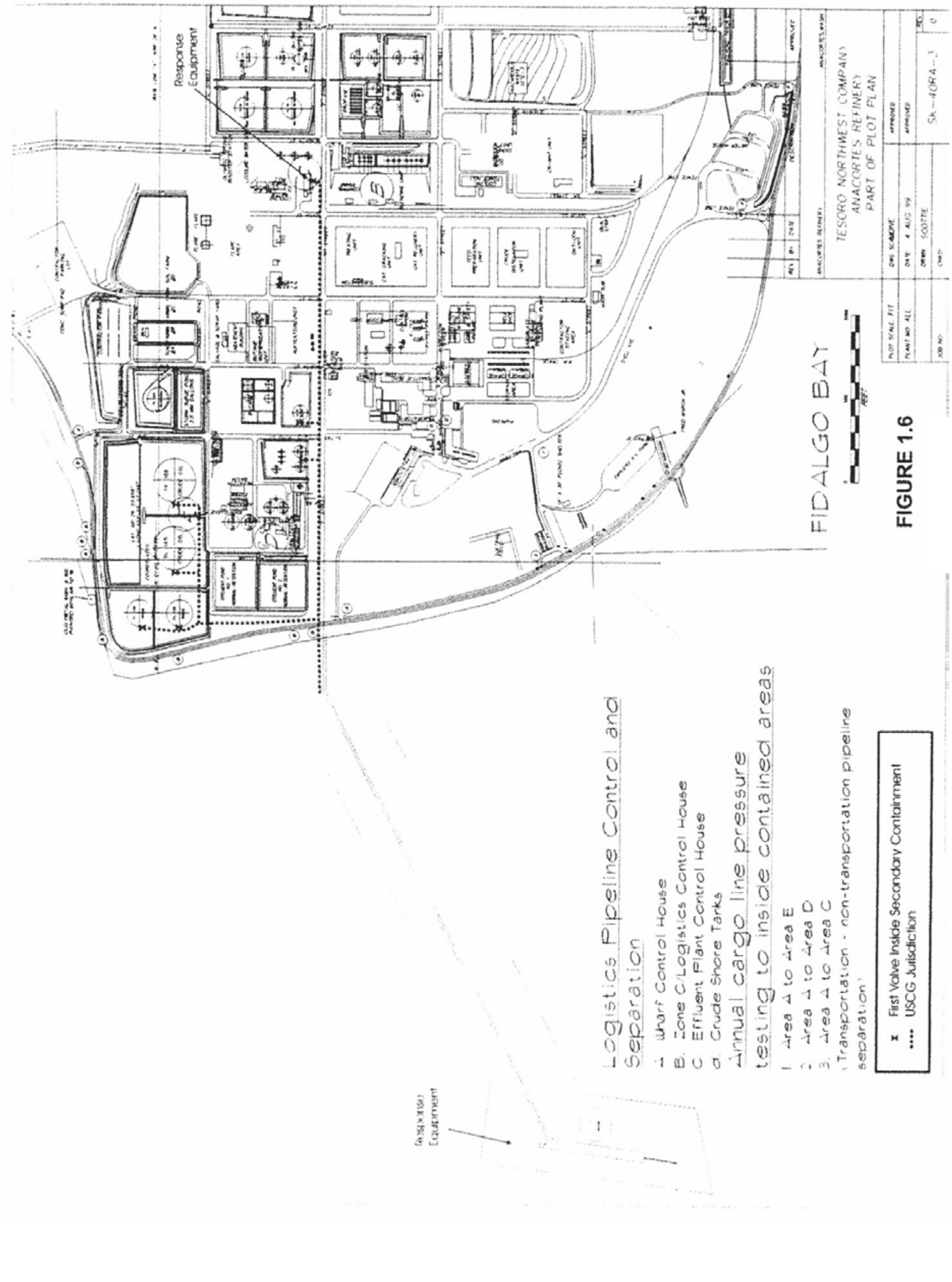


FIGURE 1.6. CONT.

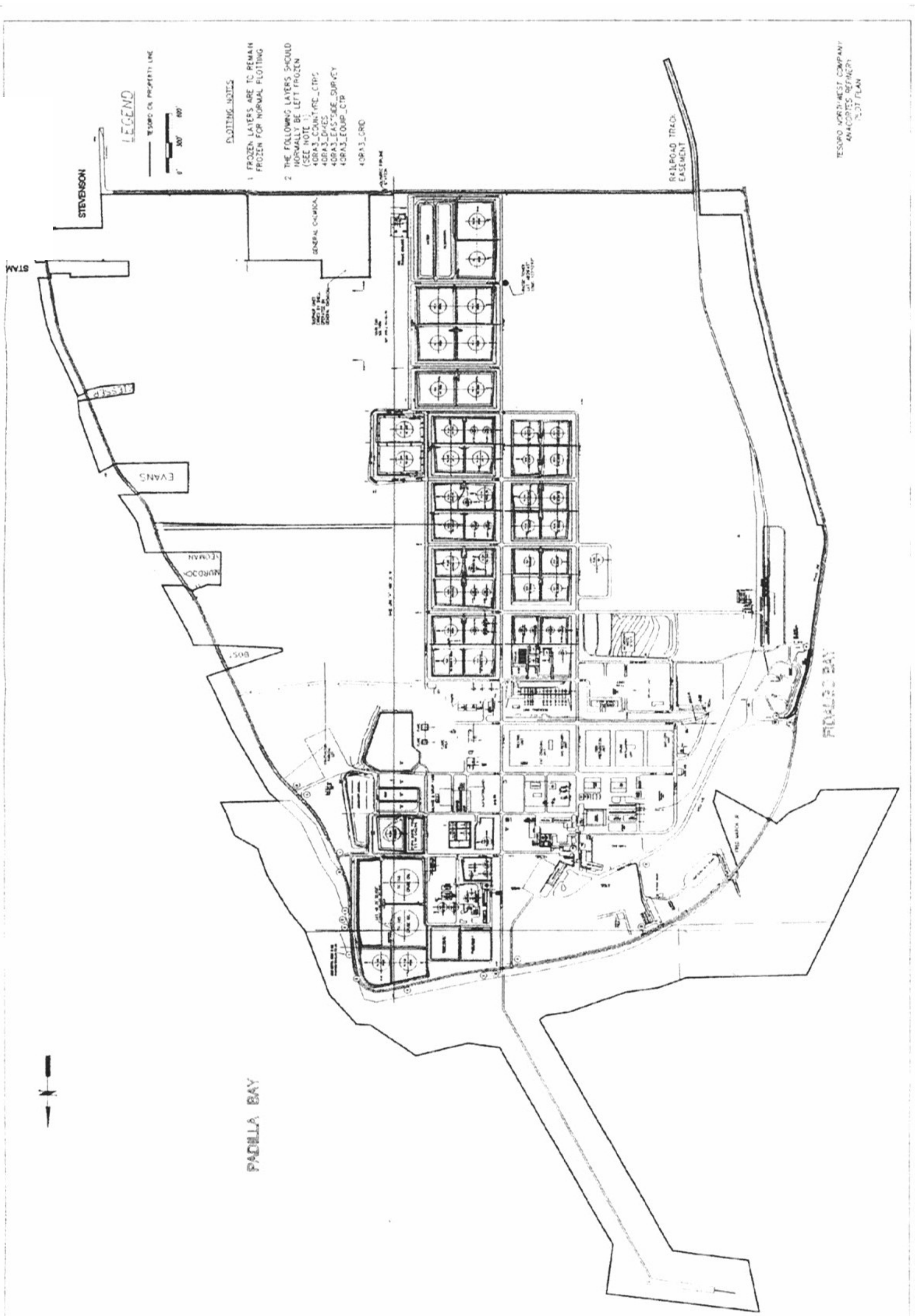


Figure 1.4
Refinery Wharf Plot Plan

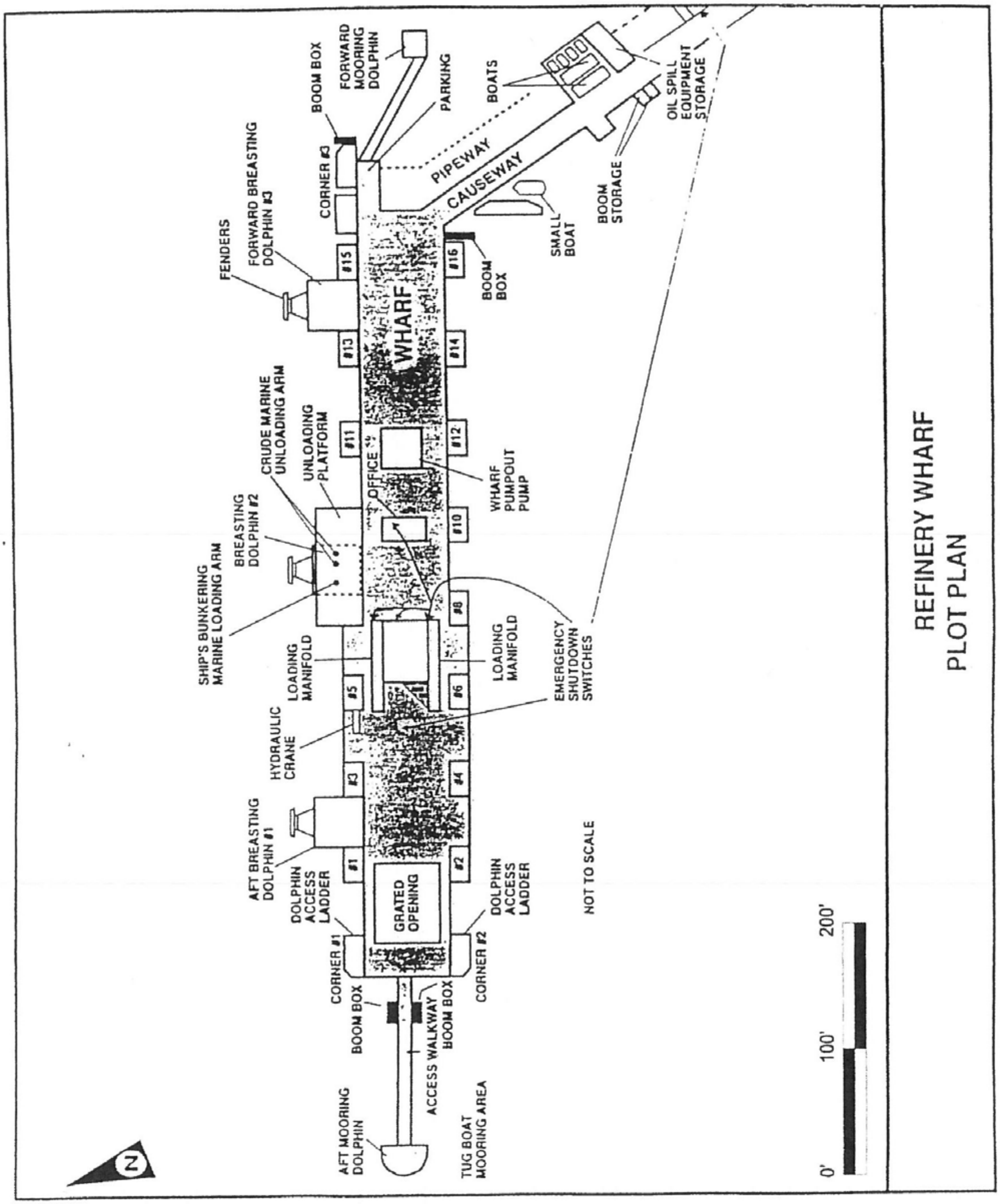


Figure 1.5
Tank Car Loading Area Plot Plan

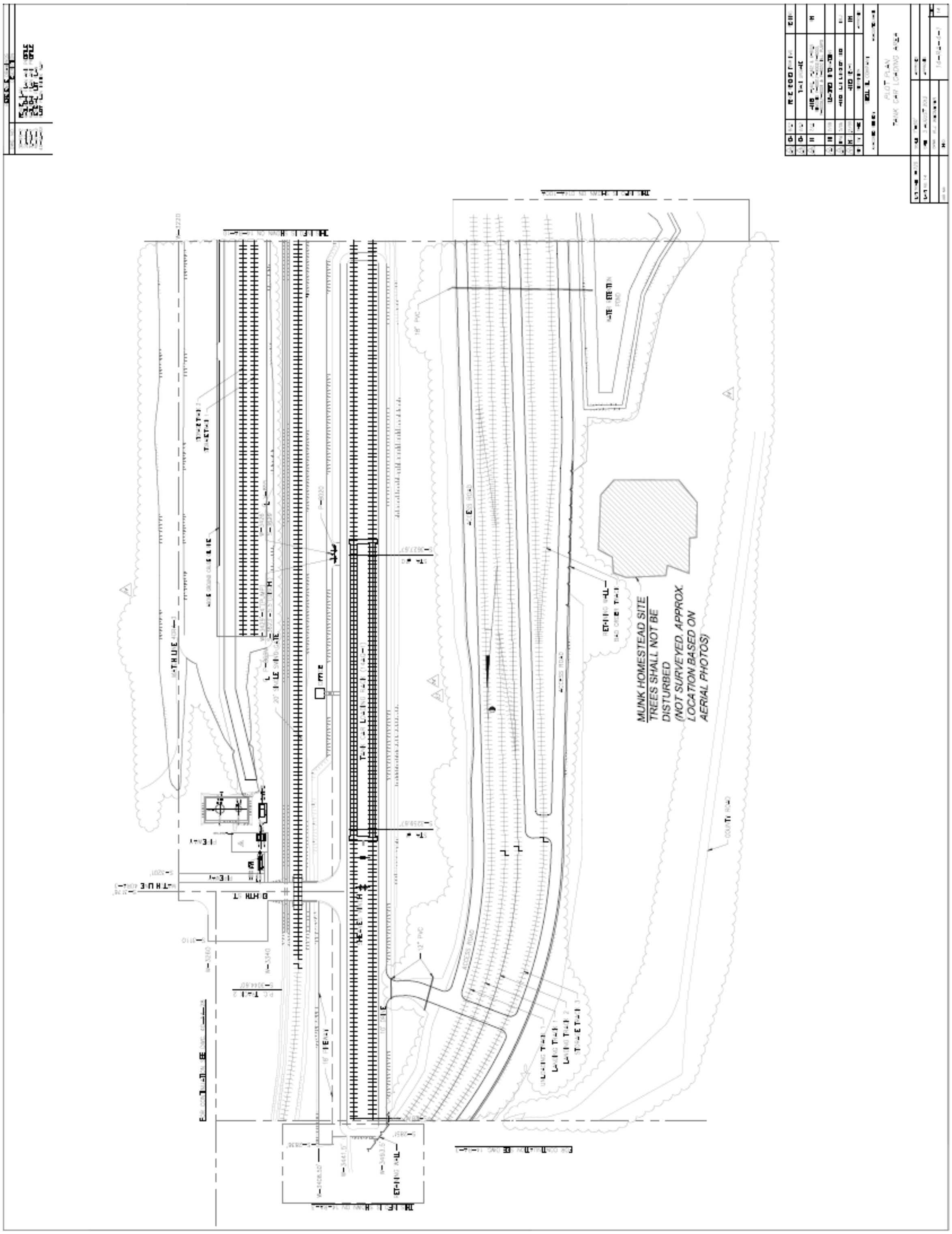
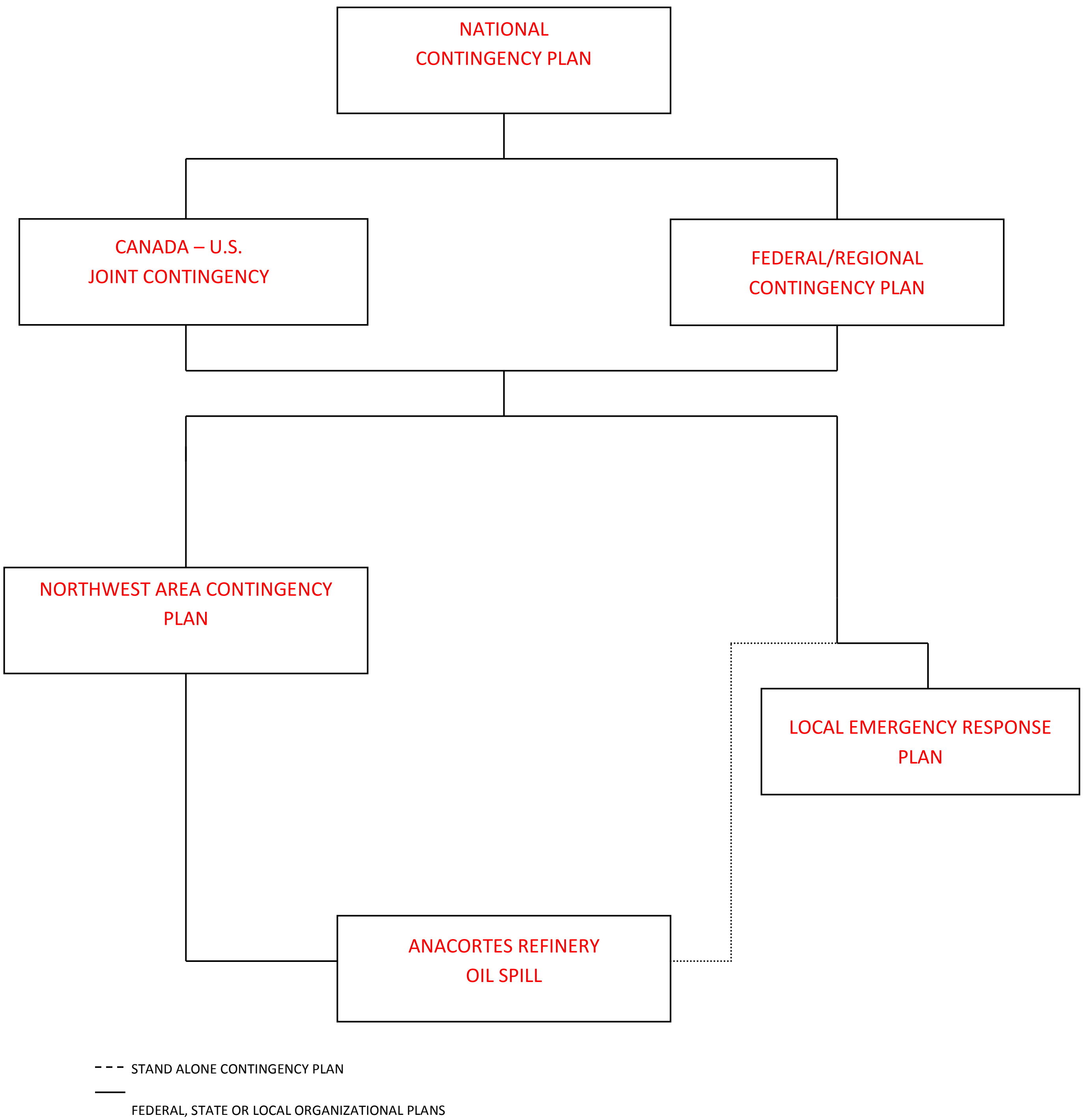


Figure 1.6
Interface with Other Plans



SECTION 2 INITIAL RESPONSE ACTIONS

Figure 2.1
Initial Response Action Checklist
Reference Notification Flowchart **FIGURE 3.1**

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
- Approximate size of spill

___ **Ensure safety of personnel. If someone requires medical attention or there is an emergency, call for assistance on refinery telephone by dialing 333 or 8-911.**

___ **Evacuate personnel as necessary (refer to FIGURES 2.2 and 2.3).**

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

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

___ **If safe, deploy tracking buoy (if spill is in the water).**

___ **If cargo loading operations are underway, terminate immediately by activating the Emergency Shutdown System (i.e., red switches) located at each of the following areas:**

- Second floor wharf office
- Each end of valve headers
- Portable shutdown device on vessel
- Glass-enclosed case at causeway block-valves (does not close MOVs) Lighting panel west side of Wharf office (power switch)

___ **If leak is from pipeline on the causeway, isolate by closing appropriate block valve, immediately begin pumping out pipeline, and direct person on duty at tank farm to close appropriate block valve.**

___ **Notify vessel personnel, nearby personnel and Logistics Supervisor (Ext 110 or via radio).**

___ **Initiate and/or provide assistance to emergency response operations as appropriate or as instructed by Logistics Supervisor.**

Logistics Supervisor (Initial Response Crew / Initial Incident Commander)

___ **Receive initial report from Spill Observer.**

___ **Notify Logistics Boardman to instruct notification of Fire Department/Ambulance, if required, and activate response crews via phone or pager system.**

___ **Notify/Brief Utility Boardman to instruct notification of Environmental, IMT, Safety, E&S, Operation's and Maintenance Duty Personnel.**

___ **Activate the Initial Response Crew (IRC) via two-way radio.**

- ___ **FOR SPILLS TO WATER - Complete notifications listed in Figure 3.1.**
- ___ **FOR SPILLS TO GROUND greater than 1bbl, or volume and/or source is unknown – Contact the Environmental Duty Person who will complete external notifications.**
- ___ Refer them to Spills to Ground guidance in Section 3.2 and 6.8
- ___ Refer them to Refinery Environmental Procedures #42 & #44

___ **Ensure all transfer operations have stopped and spill source is controlled.**

___ **Ensure safety of initial response personnel until Response Teams arrive.**

___ **Perform air monitoring and ensure proper PPE is donned.**

___ **Ensure area is secured.**

___ **Report to spill scene and assume initial incident command.**

___ **Ensure that actions are taken to protect the safety of all response personnel.**

___ **Provide specific instructions to onsite personnel for controlling the spill source, securing the area, spotting oil movement, and deploying equipment. If safe to do so, direct facility responders to contain oil at source and follow the North Puget Sound GRP. Additional recommended strategies are provided in SECTION 2.4 and APPENDIX F.**

___ **Document initial response actions, notifications and safety assessment. Use the ICS 201 Incident Briefing (Figure 2.13) and also forms provided in FIGURE 3.2 and FIGURE 3.3.**

___ **Request Shell mutual aid, if needed.**

Logistics Boardman

___ **Receive initial report from Logistics Supervisor (IRC Incident Commander).**

___ **Notify Fire Department/Ambulance via 333 and/or 8-911, if required.**

___ **Activate response crews via phone and pager system(s), as requested by Logistics Supervisor (IRC Incident Commander).**

Utility Boardman

___ **Notify the following personnel in the order listed:**

- ______ Environmental Duty Person (first)
- ______ Senior Management Team Duty Person
- ______ Safety Duty Person
- ______ E & S Duty Person
- ______ Operation’s Duty Person(s)
- ______ Maintenance Duty Person
- ______ Q&A Lab Duty Person (if needed)

Environmental Duty Person

___ **Receive initial report from the Utility Boardman.**

___ **Notify appropriate government agencies or confirm notifications completed. (Figure 3.1):**

- ______ NRC
- ______ Washington Dept. of Emergency Management
- ______ USCG – MSO Puget Sound
- ______ Washington Department of Ecology
- ______ Skagit County Dept. of Emergency Management

___ **Report to incident location and identify environmental issues.**

___ **Ensure that appropriate actions are taken to control source of the spill.**

___ **Maintain contact with Operations Manager and Regulatory Resources Manager.**

___ **Take actions as necessary to ensure minimal environmental impact.**

___ **Maintain radio contact with response personnel via Incident Commander.**

___ **Provide updates on the environmental impact status to the Logistics Supervisor (IRC Incident Commander).**

___ **Ensure mutual aid call outs are made, if needed.**

___ **Ensure refinery nurse has been contacted, if needed.**

___ **Notify Tesoro West Coast Environmental.**

Senior Management Team Duty Person

___ **Receive initial report from Utility Boardman.**

___ **Ensure that appropriate actions have been taken to control the source of the spill.**

___ **Ensure that agency notifications have been made.**

___ **Ensure that all appropriate response resources have been activated.**

___ **Notify the following:**

_____ Vice President, Refining (Incident Commander/Qualified Individual)

_____ Manager Human Resources (Public Information Officer))

_____ Manager Hydrocarbon Processing (IC/Alternate QI)

_____ All Remaining Senior Management Team Members

___ **Confirm that vessel owner has been notified, if possible.**

___ **Confirm that cargo owner has been notified, if possible.**

___ **Assist the Incident Commander in establishing objectives and response priorities.**

___ **Consult with Response Team members and assist Incident Commander in developing strategies for continuing response operations and any vessel and cargo salvage operations.**

___ **Ensure the safety of all personnel involved in control and/or response operations.**

Vice President, Refining (Incident Commander/Qualified Individual)

___ **Assume role as Incident Commander/Qualified Individual.**

___ **Receive initial incident briefing from Senior Management Duty Person.**

___ **Ensure that members of Refinery Spill Response Teams are activated properly.**

___ **Classify Incident and Activate Incident Management Team if needed.**

___ **Ensure local and corporate personnel have been notified and that corporate response resources have been activated as necessary.**

___ **Assess potential health hazards and ensure the safety of personnel.**

___ **Take steps necessary to ensure the safety of personnel including, but not limited to:**

- Shutting down refinery activities
- Evacuating the refinery

___ **Initiate documentation procedures (refer to SECTION 5) including notifications, agency/media meetings, equipment and personnel mobilization and deployment, and area impacted.**

___ **Determine extent of pollution via surveillance aircraft and/or watercraft. Estimate trajectory of spill utilizing information in SECTION 2. Send photographer/ videographer, if safe.**

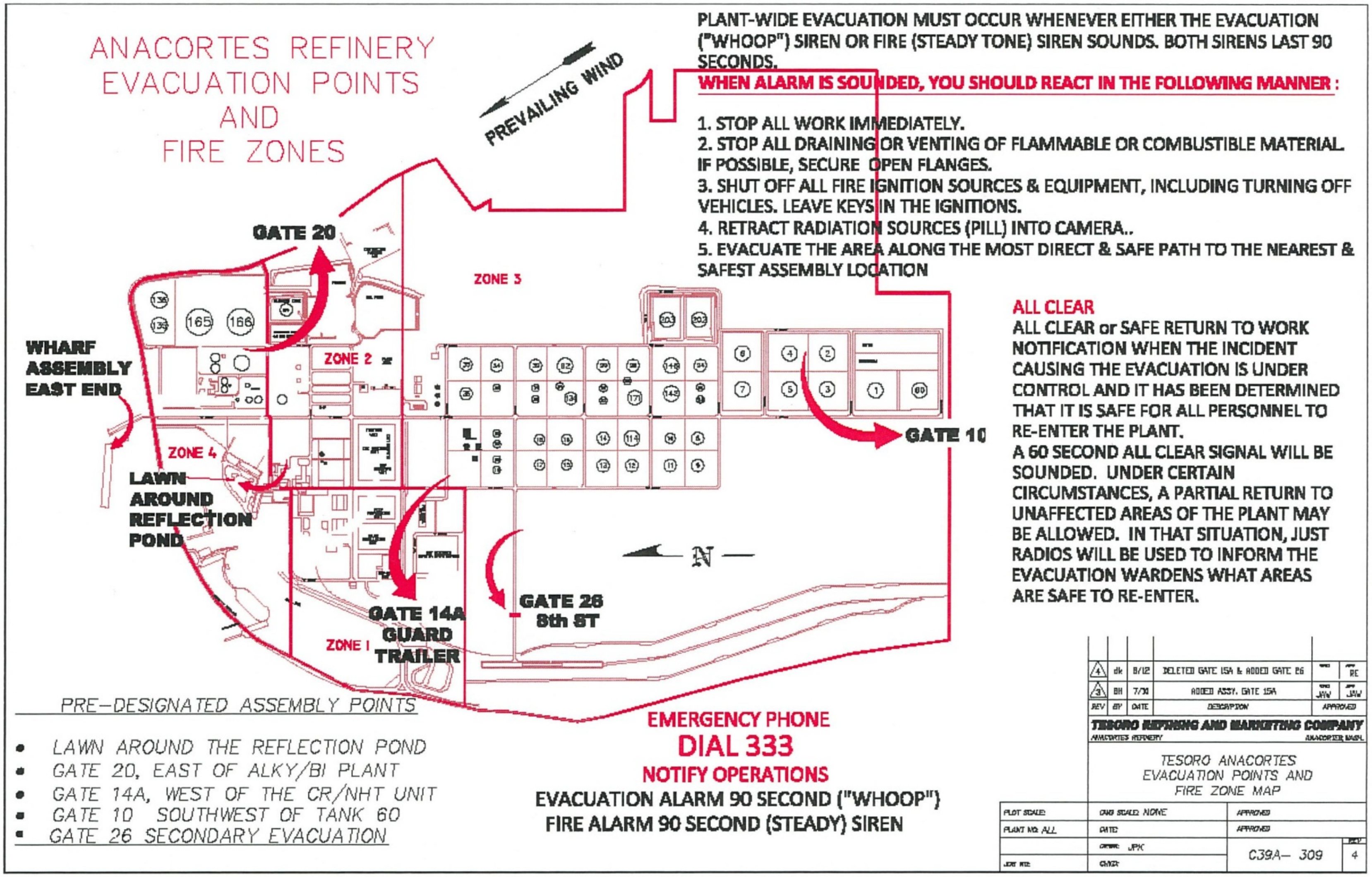
Figure 2.2
Evacuation Plan

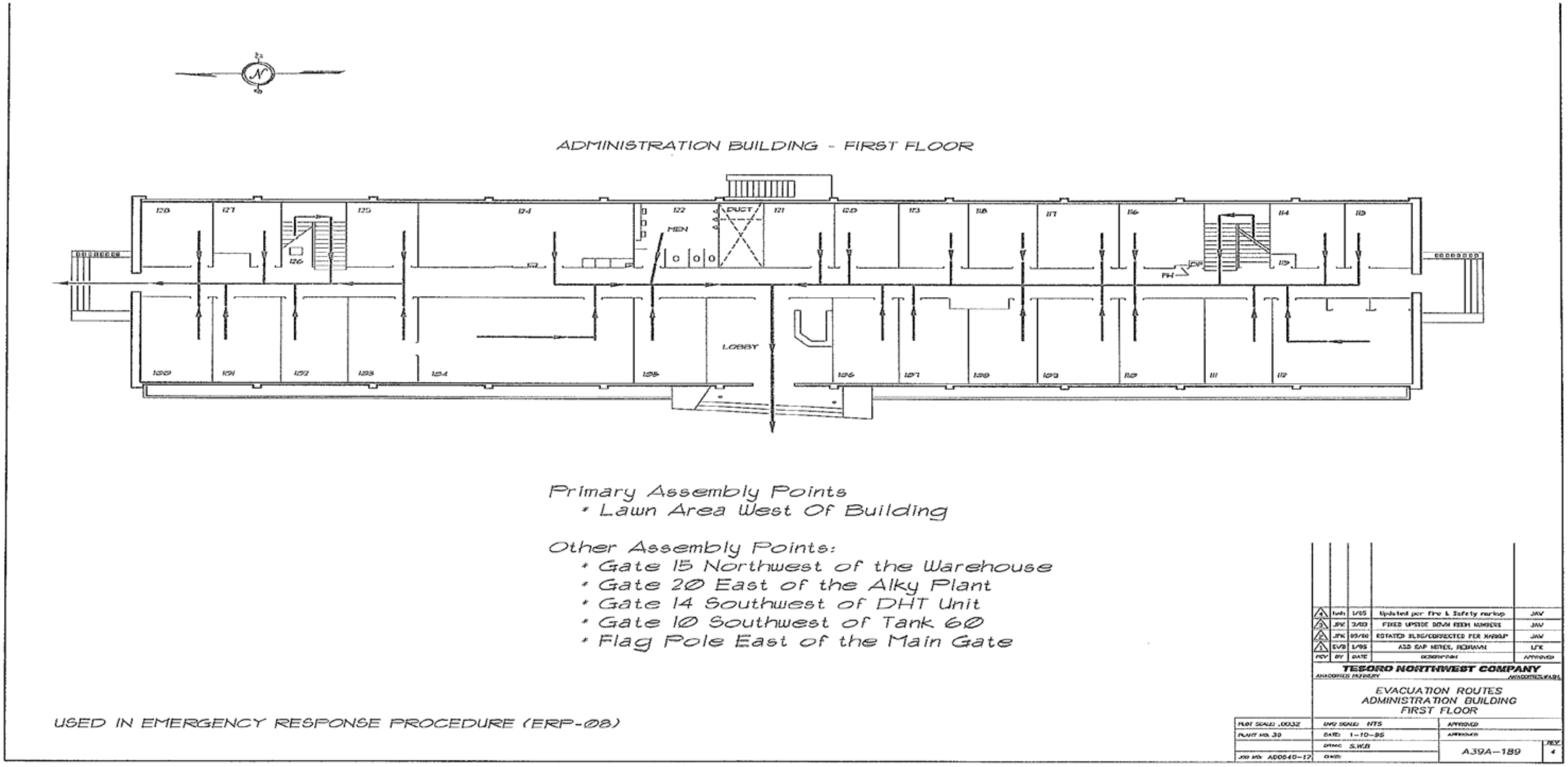
FACTOR	DESCRIPTION
Stored Material Location	Location in oil storage area at the refinery and marine terminal. Identified in Facility Plot Plan and Marine Terminal Layout (APPENDIX C).
Spilled Material Hazards	Primary hazard is fire/explosion. MSDS information on file at Wharf office, Logistics Control House, and Refinery Computer System.
Spill Flow Direction	Storm water at marine terminal accumulates in containment areas and transferred to “slops.” Identified in Facility Drainage Diagram (FIGURE 2.5).
Prevailing Wind Direction and Speed	Prevailing winds are from the south at 10-20 mph (April, May, October-March) and at 0-9 mph (summer months). 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 are strong. Mean tidal range for area from Bellingham Bay to Padilla Bay is 4.2 -5.9 feet. Diurnal range is 7.3 - 8.6 feet. Additional tidal/current data is available for this facility. No oceanic waves present.
Emergency Personnel Arrival Route	Emergency personnel and equipment would be immediately dispatched by land or boat to the Refinery. Facility is accessible from March Point Road through access gates. By water, the Facility is accessible Fidalgo Bay.
Evacuation Routes	Routes are summarized on Evacuation Maps (FIGURE 2.3). Criteria for determining safest evacuation routes from Facility may include: wind direction, potential exposure to toxins and carcinogens, intense heat, potential for explosion or fire, and blockage of planned route by fire, debris, or released liquid.
Alternative Evacuation Routes	Alternate routes may exist; refer to Evacuation Maps (FIGURE 2.3).
Injured Personnel Transportation	Emergency vehicles can be mobilized at the Facility.
Alarm/Notification System Location	The buildings are equipped with “air horns” to signify an evacuation. When an individual hears the alarm, the individual should notify co-workers and evacuate structure. Office doors should remain open during evacuation. There is one common alarm all Operating Units. Alarm is a 90 second siren making a “whoop” sound located at Main Substation and Substation #3. For additional information refer to Emergency Response Procedure No. 8.
Centralized Check-In Area	Predetermined assembly points illustrated in FIGURE 2.3.
Mitigation Command Center Location	Located in West Cafeteria. Location identified on FIGURE 1.3 (Facility Plot Plan)

FACTOR	DESCRIPTION
Facility Shelter Location	Various Office and work buildings located throughout the refinery to use as shelter in an emergency. (Refer to FIGURES 1.4 and 1.5).
Community Evacuation Plans	Due to remote location of facility on March Point, it is highly unlikely that a community evacuation would be necessary. If needed, community evacuation will be conducted through 911 Center and the Skagit County Department of Emergency Management.

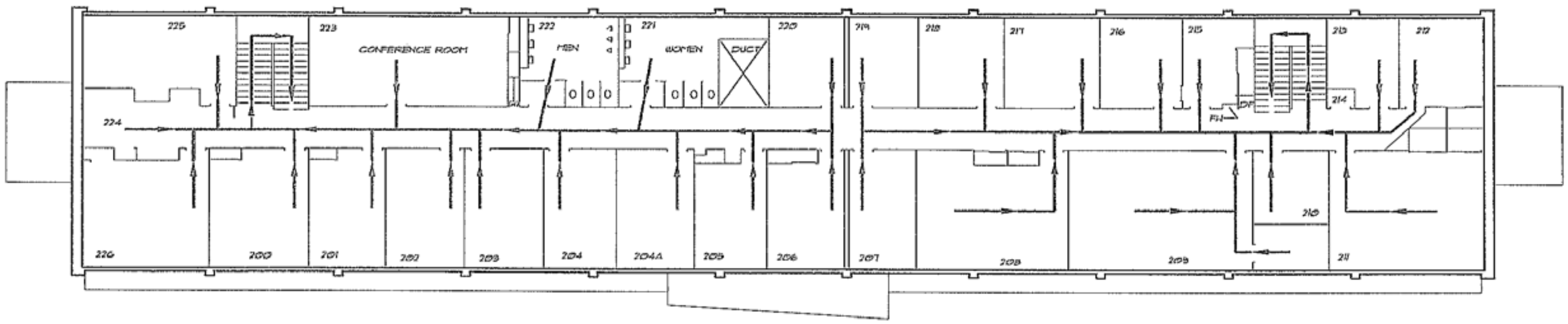
Note: Evacuation plan is exercised and reviewed annually with each employee and documented in facility Preventative Maintenance Manual.

Figure 2.3
Evacuation Maps




ADMINISTRATION BUILDING - FIRST FLOOR
LOBBY
MEN
DUCT
Primary Assembly Points
* Lawn Area West Of Building
Other Assembly Points:
* Gate 15 Northwest of the Warehouse
* Gate 20 East of the Alky Plant
* Gate 14 Southwest of DHT Unit
* Gate 10 Southwest of Tank 60
* Flag Pole East of the Main Gate
USED IN EMERGENCY RESPONSE PROCEDURE (ERP-08)
TESORO NORTHWEST COMPANY
EVACUATION ROUTES
ADMINISTRATION BUILDING
FIRST FLOOR
PLOT SCALE .0032
PLANT NO. 30
DWG SCALE: NTS
DATE: 1-10-95
DRWG S.W.B
JOB NO. A00540-17
A39A-189
REV. 4

ADMINISTRATION BUILDING - SECOND FLOOR



Primary Assembly Points
- Lawn Area West Of Building

Other Assembly Points:
- Gate 15 Northwest of the Warehouse
- Gate 20 East of the Alky Plant
- Gate 14 Southwest of DHT Unit
- Gate 10 Southwest of Tank 60
- Flag Pole East of the Main Gate

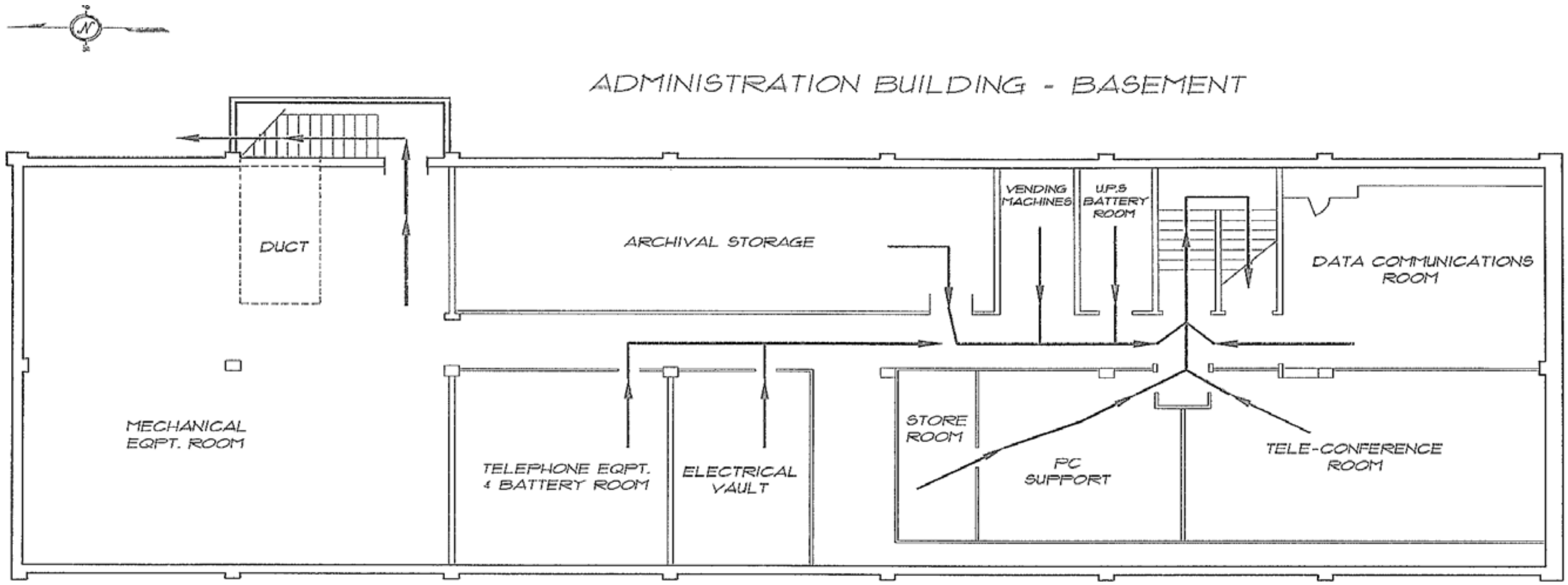
USED IN EMERGENCY RESPONSE PROCEDURE (ERP-08)

REV	BY	DATE	DESCRIPTION	APPROVED
3	hnh	1/05	Updated per Fire & Safety markup	JAV
2	JPK	09/00	CORRECTED TEXT	JAV
1	SVB	01/95	ADD SAP NOTES, REDRAWN	LFK

TESORO NORTHWEST COMPANY
ANACORTES REFINERY ANACORTES, WASH.

EVACUATION ROUTES
ADMINISTRATION BUILDING
SECOND FLOOR

PLOT SCALE: .0032	DWG SCALE: NTS	APPROVED
PLANT NO. 30	DATE: 1-10-95	APPROVED
	DRWN: S.K.B.	A39A-190 REV 3
JOB NO. A00540-17	CHKD:	



Primary Assembly Points
- Lawn Area West Of Building

Other Assembly Points:
- Gate 15 Northwest of the Warehouse
- Gate 20 East of the Alky Plant
- Gate 14 Southwest of DHT Unit
- Gate 10 Southwest of Tank 60
- Flag Pole East of the Main Gate

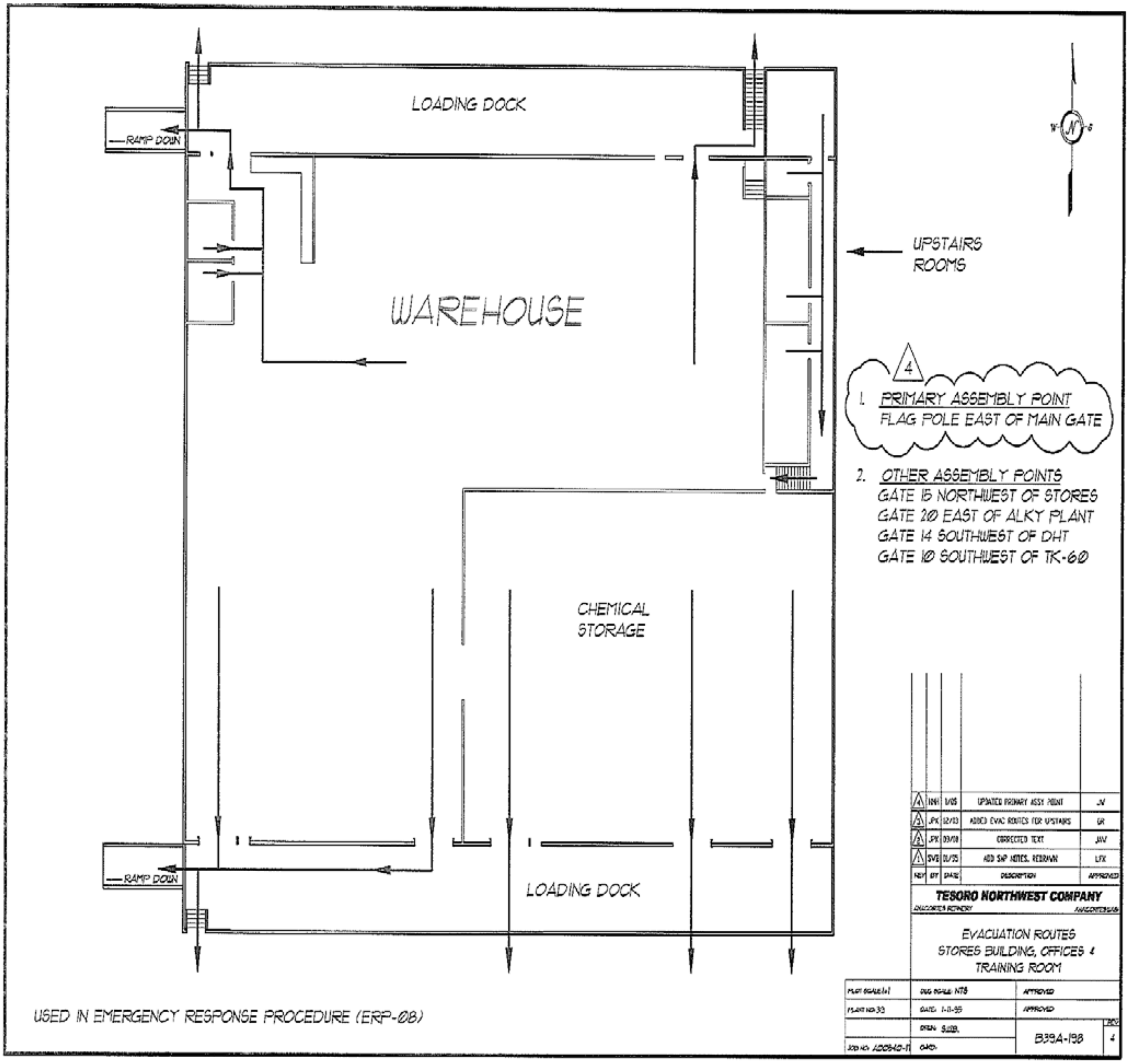
USED IN EMERGENCY RESPONSE PROCEDURE (ERP-08)

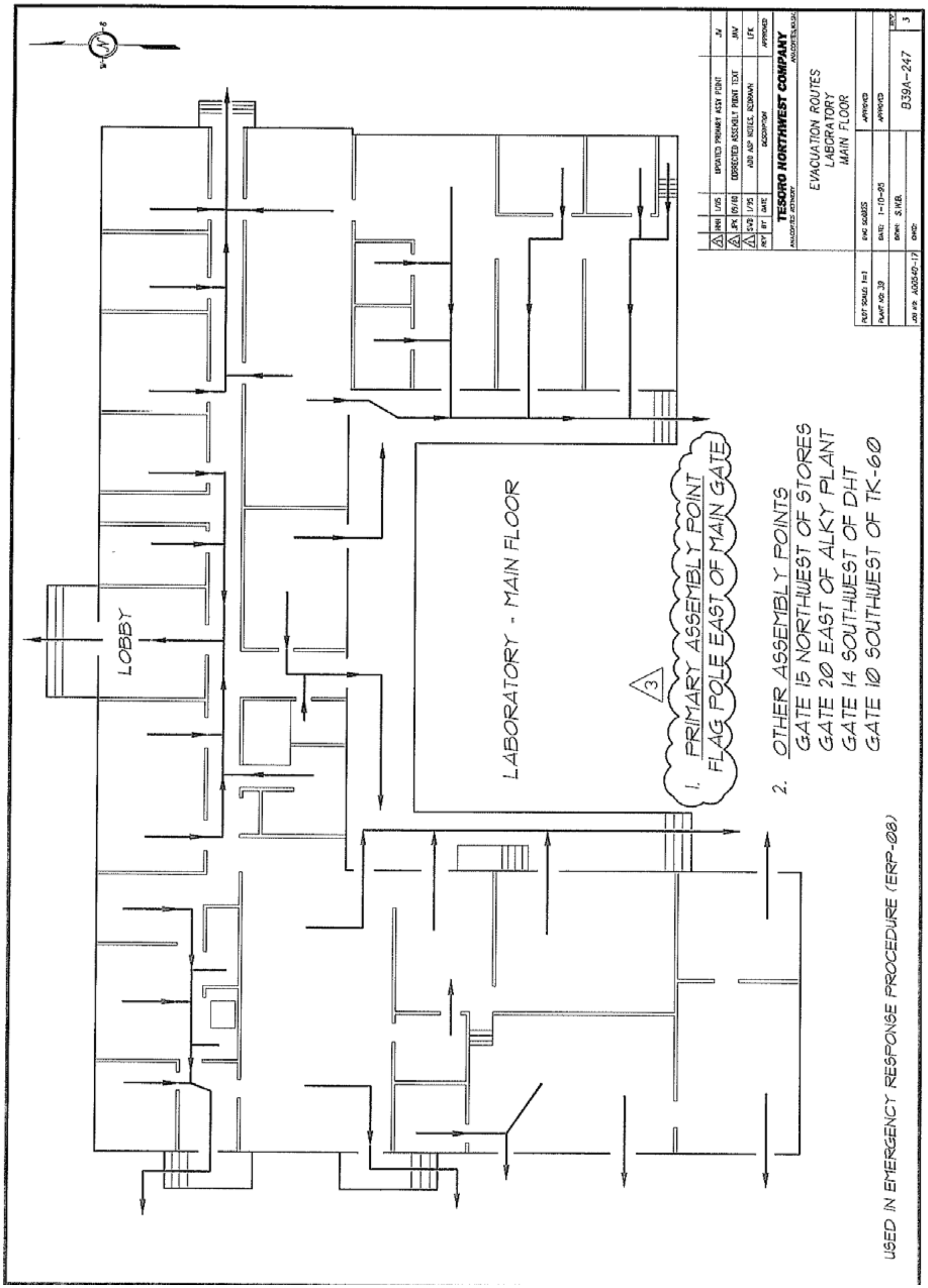
REV	BY	DATE	DESCRIPTION	APPROVED
3	hhh	1/05	Updated per fire & Safety markup	JAV
2	JPK	99/00	ADDED TEXT PER MARKUP	JAV
1	SWB	01/95	ADD SAP NOTES, REDRAWN	LFK

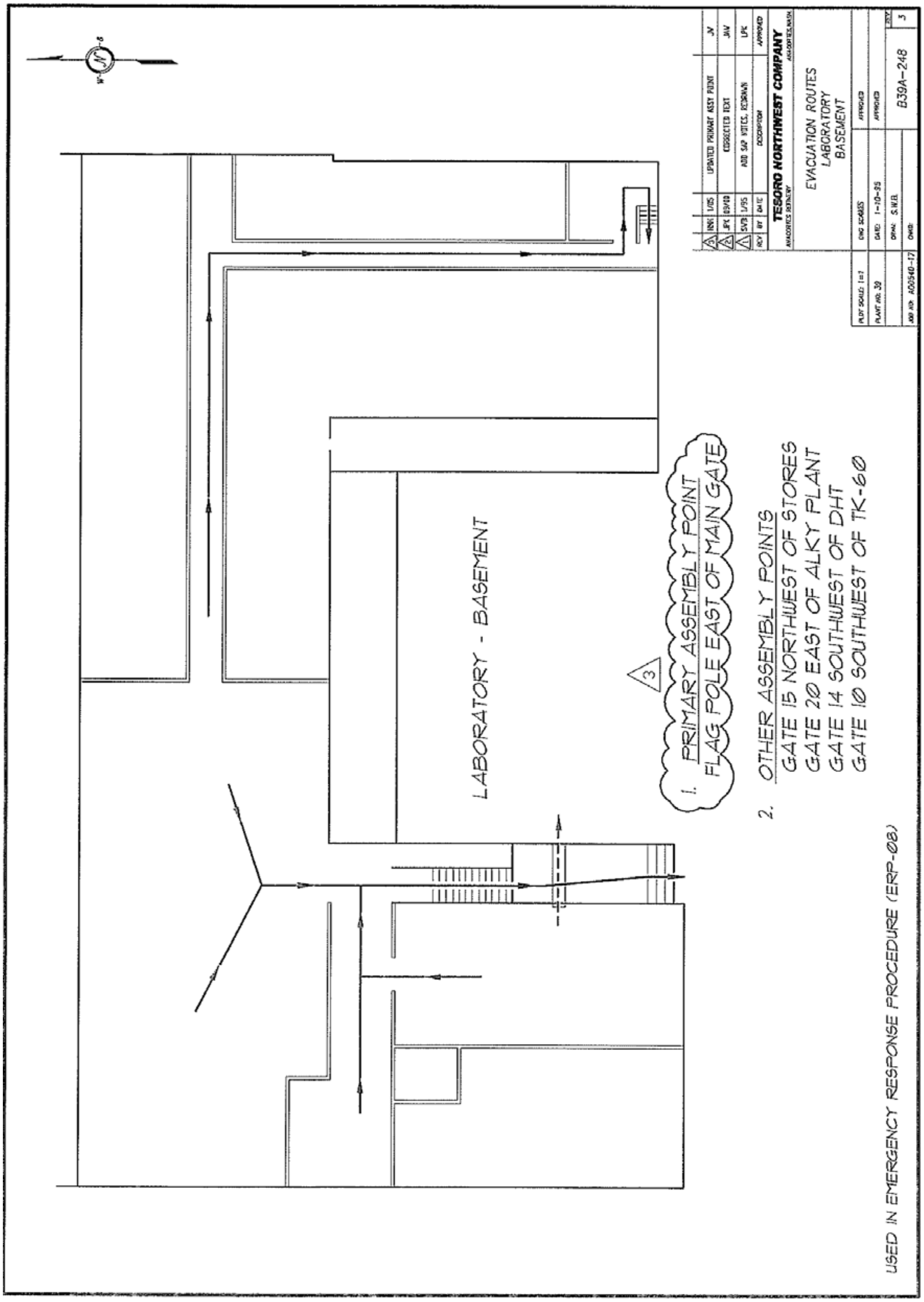
TESORO NORTHWEST COMPANY
ANACORTES REFINERY ANACORTES, WASH.

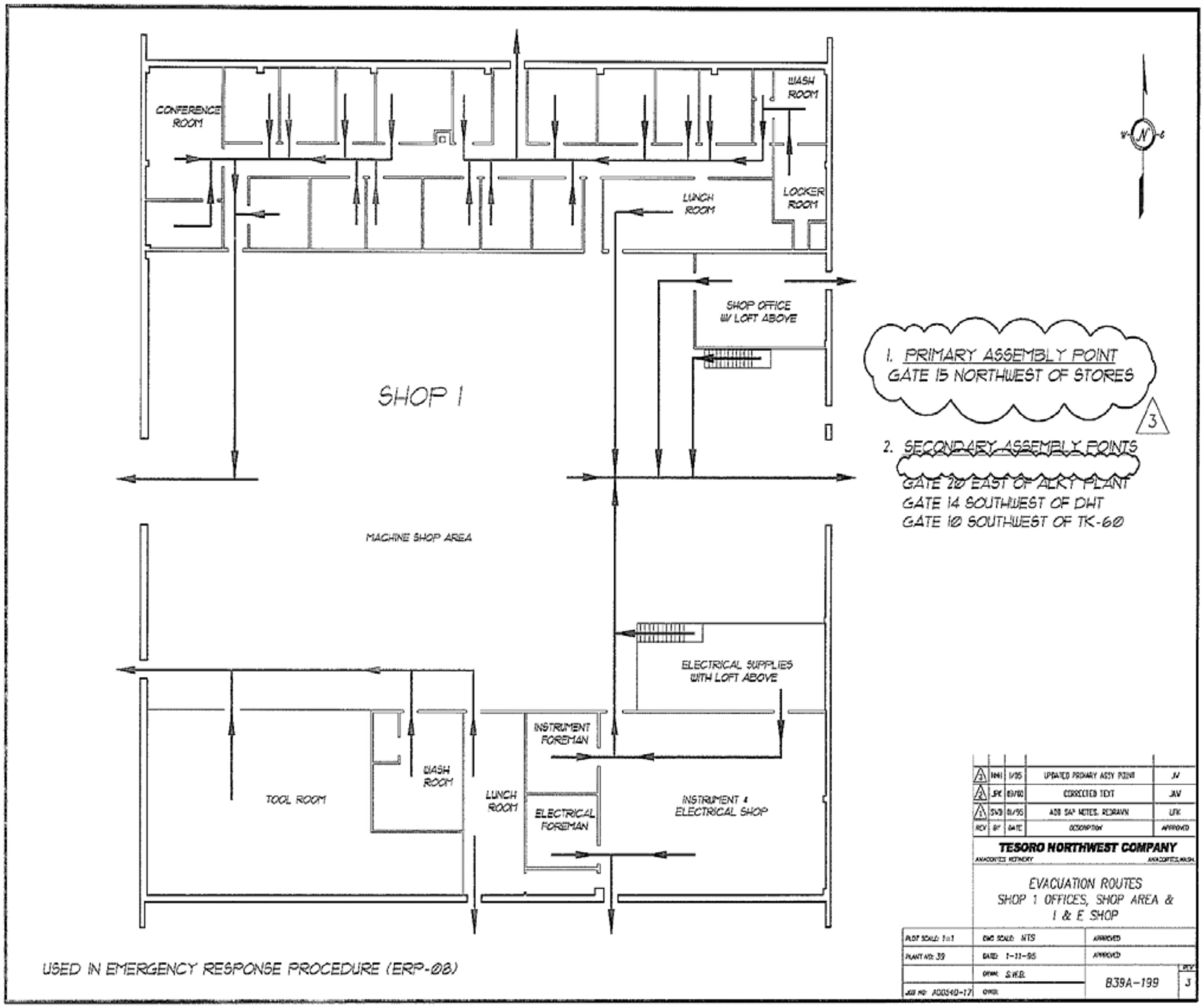
EVACUATION ROUTES
ADMINISTRATION BUILDING
BASEMENT

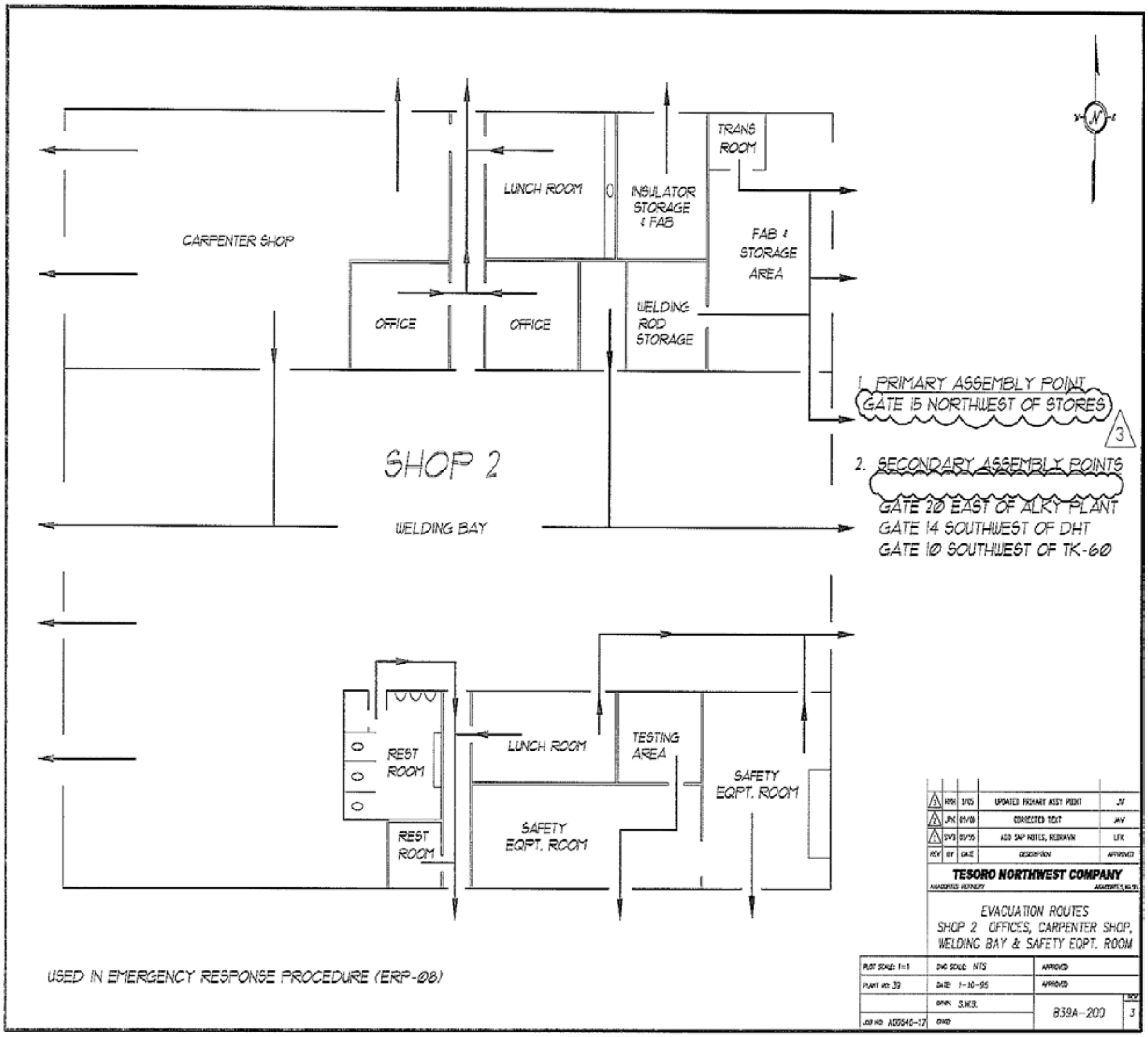
PLOT SCALE: .0032	DWG SCALE: NTS	APPROVED
PLANT NO: 39	DATE: 1-10-95	APPROVED
	DRWN: S.W.B.	A39A-191 REV. 3
JOB NO: A00540-17	CHKD:	

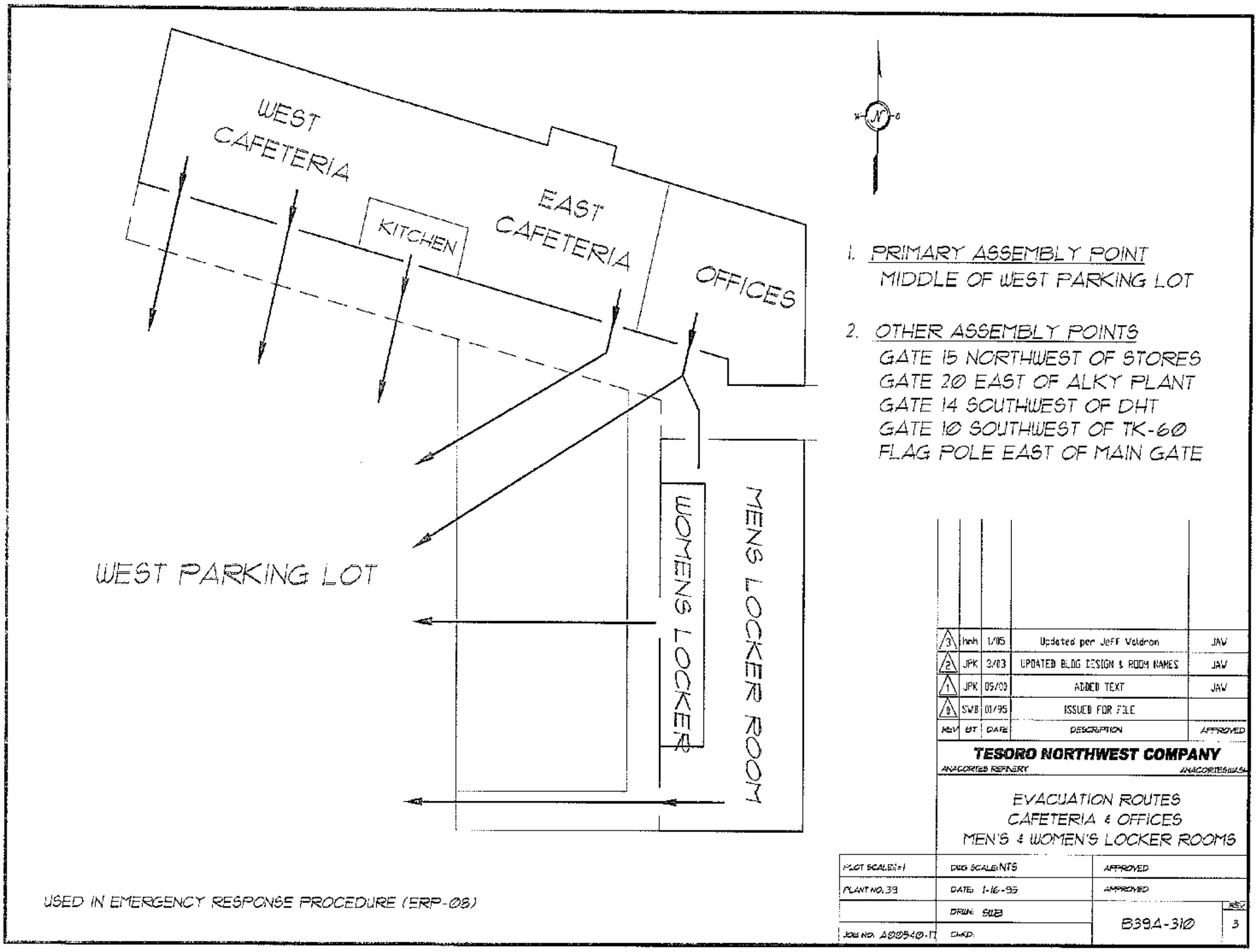

LOADING DOCK
RAMP DOWN
WAREHOUSE
UPSTAIRS ROOMS
4
1. PRIMARY ASSEMBLY POINT
FLAG POLE EAST OF MAIN GATE
2. OTHER ASSEMBLY POINTS
GATE 15 NORTHWEST OF STORES
GATE 20 EAST OF ALKY PLANT
GATE 14 SOUTHWEST OF DHT
GATE 10 SOUTHWEST OF TK-60
CHEMICAL STORAGE
RAMP DOWN
LOADING DOCK
USED IN EMERGENCY RESPONSE PROCEDURE (ERP-08)
UPDATED PRIMARY ASSY POINT
ADDED EVAC ROUTES FOR UPSTAIRS
CORRECTED TEXT
DESCRIPTION
APPROVED
TESORO NORTHWEST COMPANY
EVACUATION ROUTES
STORES BUILDING, OFFICES & TRAINING ROOM
DWG SCALE: NTS
PLANT NO. 33
DATE: 1-11-95
APPROVED
APPROVED
B39A-198
4


LOBBY
LABORATORY - MAIN FLOOR
3
1. PRIMARY ASSEMBLY POINT
FLAG POLE EAST OF MAIN GATE
2. OTHER ASSEMBLY POINTS
GATE 15 NORTHWEST OF STORES
GATE 20 EAST OF ALKY PLANT
GATE 14 SOUTHWEST OF DHT
GATE 10 SOUTHWEST OF TK-60
USED IN EMERGENCY RESPONSE PROCEDURE (ERP-08)
TESORO NORTHWEST COMPANY
EVACUATION ROUTES
LABORATORY
MAIN FLOOR
B39A-247
3


LABORATORY - BASEMENT
1. PRIMARY ASSEMBLY POINT
FLAG POLE EAST OF MAIN GATE
2. OTHER ASSEMBLY POINTS
GATE 15 NORTHWEST OF STORES
GATE 20 EAST OF ALKY PLANT
GATE 14 SOUTHWEST OF DHT
GATE 10 SOUTHWEST OF TK-60
USED IN EMERGENCY RESPONSE PROCEDURE (ERP-08)
TESORO NORTHWEST COMPANY
EVACUATION ROUTES
LABORATORY
BASEMENT
B39A-248


CONFERENCE ROOM
WASH ROOM
LUNCH ROOM
LOCKER ROOM
SHOP OFFICE W/ LOFT ABOVE
SHOP 1
1. PRIMARY ASSEMBLY POINT
GATE 15 NORTHWEST OF STORES
2. SECONDARY ASSEMBLY POINTS
GATE 20 EAST OF ALKY PLANT
GATE 14 SOUTHWEST OF DHT
GATE 10 SOUTHWEST OF TK-60
MACHINE SHOP AREA
ELECTRICAL SUPPLIES WITH LOFT ABOVE
INSTRUMENT FOREMAN
WASH ROOM
TOOL ROOM
LUNCH ROOM
ELECTRICAL FOREMAN
INSTRUMENT & ELECTRICAL SHOP
CORRECTED TEXT
REV
BY
DATE
DESCRIPTION
APPROVED
TESORO NORTHWEST COMPANY
EVACUATION ROUTES
SHOP 1 OFFICES, SHOP AREA &
I & E SHOP
PLOT SCALE: 1=1
DWG SCALE: NTS
PLANT NO: 39
DATE: 1-11-95
DRWN: S.W.B.
B39A-199
3
USED IN EMERGENCY RESPONSE PROCEDURE (ERP-08)


TRANS ROOM
LUNCH ROOM
INSULATOR STORAGE & FAB
FAB & STORAGE AREA
CARPENTER SHOP
OFFICE
OFFICE
WELDING ROD STORAGE
1. PRIMARY ASSEMBLY POINT
GATE 15 NORTHWEST OF STORES
3
SHOP 2
2. SECONDARY ASSEMBLY POINTS
GATE 20 EAST OF ALKY PLANT
GATE 14 SOUTHWEST OF DHT
GATE 10 SOUTHWEST OF TK-60
WELDING BAY
REST ROOM
LUNCH ROOM
TESTING AREA
SAFETY EQPT. ROOM
REST ROOM
SAFETY EQPT. ROOM
USED IN EMERGENCY RESPONSE PROCEDURE (ERP-08)
UPDATED PRIMARY ASSY POINT
CORRECTED TEXT
ADD SAP NOTES, REDRAWN
REV BY DATE DESCRIPTION APPROVED
TESORO NORTHWEST COMPANY
EVACUATION ROUTES
SHOP 2 OFFICES, CARPENTER SHOP,
WELDING BAY & SAFETY EQPT. ROOM
PLOT SCALE: 1=1
DWG SCALE: NTS
APPROVED
PLANT NO: 39
DATE: 1-10-95
APPROVED
DWN: S.W.B.
B39A-200
3
JOB NO: A00540-17
CHKD


WEST CAFETERIA
KITCHEN
EAST CAFETERIA
OFFICES
N
1. PRIMARY ASSEMBLY POINT
MIDDLE OF WEST PARKING LOT
2. OTHER ASSEMBLY POINTS
GATE 15 NORTHWEST OF STORES
GATE 20 EAST OF ALKY PLANT
GATE 14 SOUTHWEST OF DHT
GATE 10 SOUTHWEST OF TK-60
FLAG POLE EAST OF MAIN GATE
WEST PARKING LOT
WOMENS LOCKER
MENS LOCKER ROOM
3 hnh 1/05 Updated per Jeff Veldron JAV
2 JPK 3/03 UPDATED BLDG DESIGN & ROOM NAMES JAV
1 JPK 09/00 ADDED TEXT JAV
0 SWB 01/95 ISSUED FOR FILE
REV BY DATE DESCRIPTION APPROVED
TESORO NORTHWEST COMPANY
ANACORTES REFINERY
EVACUATION ROUTES
CAFETERIA & OFFICES
MEN'S & WOMEN'S LOCKER ROOMS
PLOT SCALE 1=1
DWG SCALE: NTS
APPROVED
PLANT NO. 39
DATE: 1-16-95
APPROVED
DRWN: SWB
REV
B39A-310
3
JOB NO. A00540-IT
CHKD:
USED IN EMERGENCY RESPONSE PROCEDURE (ERP-08)

2.1 SOURCE CONTROL AND MITIGATION

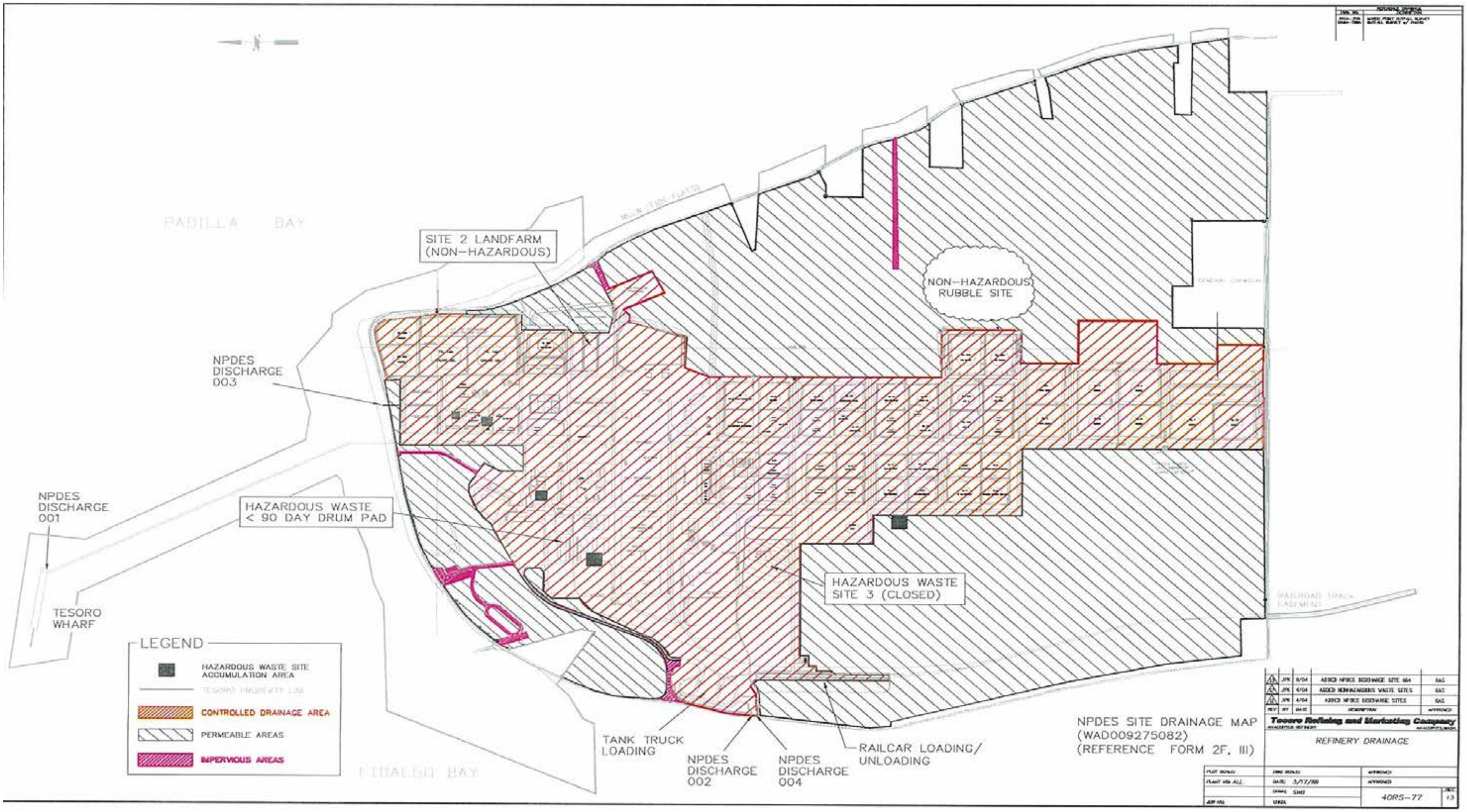
This section provides general guidance for spill mitigation. Each situation is unique and must be treated according to the circumstance present. In every situation, however, personnel safety must be assessed as the first priority. The potential for ignition and/or toxic exposure must be promptly evaluated. FIGURE 2.4 describes these mitigation procedures.

Figure 2.4
Spill Mitigation Procedures

TYPE	MITIGATION PROCEDURE
Failure of Transfer Equipment	Terminate transfer operations and close block valves. Drain product into containment areas, if possible. Notify vessel personnel. Eliminate sources of vapor cloud ignition by shutting down all engines and motors. Keep all vessels and marine traffic out of the area.
Tank Overfill/Failure	Shut down or divert source of incoming flow to tank. Transfer fluid to another tank with adequate storage capacity, if possible. Ensure that dike discharge valves are closed. Monitor diked containment area for leaks and potential capacity limitations. Begin transferring spilled product to another tank as soon as possible.
Piping Rupture/Leak (under pressure and no pressure)	Shut down pumps. Close the shoreside and dockside MOVs on each side of the rupture. Pump the line back to contained areas, if possible. Alert nearby personnel of potential safety hazards. If piping is under pressure, and there is a leak in piping, relieve pressure by draining into containment area or back to a tank, if possible, then repair line according to established procedures. Shut down sources of vapor cloud ignition and evacuate personnel, if necessary, until the leak is controlled.
Explosion/Fire	Personnel safety is the first priority. Evacuate non-essential personnel or personnel at risk of injury. Shut down transfer or pumping operation. Attempt to divert or stop flow of product to the hazardous area, if it can be done safely. Shut down engines and motors. Eliminate sources of vapor cloud ignition. Control fire before taking steps to contain spill.
Manifold Failure	Terminate transfer operations immediately. Isolate the damaged area by closing block valves on both sides of the leak/rupture. Shut down engines and motors. Eliminate sources of vapor cloud ignition. Drain fluids back into containment areas, if possible.

*Worst Case Discharge volume calculations and discussion are provided in **APPENDIX D**.

Figure 2.5
Facility Drainage Layout



2.2 SPILL SURVEILLANCE GUIDELINES

- 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).
- 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.
- As required by the Oil Transfer Rule under WAC 173-180, the party responsible for transfer must provide a means of tracking the leading edge of an oil spill during night time or adverse weather conditions. In order to meet this requirement 2 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.
- Use surface vessels 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.
- It is difficult to adequately observe oil on the water surface from a boat, dock, or shoreline.
- Spill surveillance is best accomplished through the use of helicopters or small planes. Helicopters are preferred due to their superior visibility and maneuverability. Contract helicopter service is available to arrive on-scene within six hours of spill awareness to support aerial surveillance. These resources are capable of supporting response operations for three, ten-hour operational periods during the initial 72 hours of the spill. Contact information can be found in **FIGURE 3.3**.
- If fixed wing planes are to be utilized, high wing types provide better visibility than low-wing types.
- All observations should be documented in writing and with photographs and/or videotapes.
- Describe the approximate dimensions of the oil slick based on available reference points (i.e. vessel, shoreline features, facilities). Utilize the aircraft or vessel to traverse the length and width of the slick while timing each pass. Calculate the approximate size and area of the slick by multiplying speed and time.
- Record aerial observations on detailed maps, such as topographic maps.
- In the event of reduced visibility, such as dense fog or cloud cover, boats may have to be used to patrol the area and document the location and movements of the spill. However, this method may not be safe if the spill involves a highly flammable product.

- 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.
- An Oil Spill Surveillance Form is included in **FIGURE 2.6**.
- A list of helicopter and aircraft companies is included in **SECTION 3.**

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 (ft)

Location of oil's source (if known)

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

Oil Observations

Slick location(s) ____

Latitude ____________ Longitude ________________ (central point)

Slick dimension(s) ____

Orientation of slicks(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

During surveillance flights, travel beyond known impacted areas to check for oil beyond these areas.

Include the name and phone number of the person making the observations.

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.

____

____

____

____

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:
____
____

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2.2.1 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;
- 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).

Rule of Thumb on Line Volumes

Line size (inches)^2 = bbls/1000 ft.

Inside diameter

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

For Example:

6" = 36 bbls/1000 ft. of line

16" (15" I.D.) = 225 bbls/1000 ft.

Refer to **APPENDIX C** for more detailed information.

- 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:

Vol (gal) ~ 1800 x A (in2) x T (hrs) x (P)½ (psig)

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

This approximation is reasonable when the diameter of the hole is less than ¼ the pipes inside diameter, 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 five gallon pail.
- A simpler rule of thumb would be to divide 10,000 by the number of seconds to collect five 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 ¼ 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 2.9) 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, utilize the chart in FIGURE 2.11 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 sq. mi. 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 2.7
Spill Estimation Factors

DEFINITIONS	GALLONS OF OIL (PER SQUARE MILE)
barely visible	25
silvery	50
slightly colored	100
brightly colored	200
Dull	666
Dark	1332

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Figure 2.8
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	0.1700	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	0.3780 .455	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

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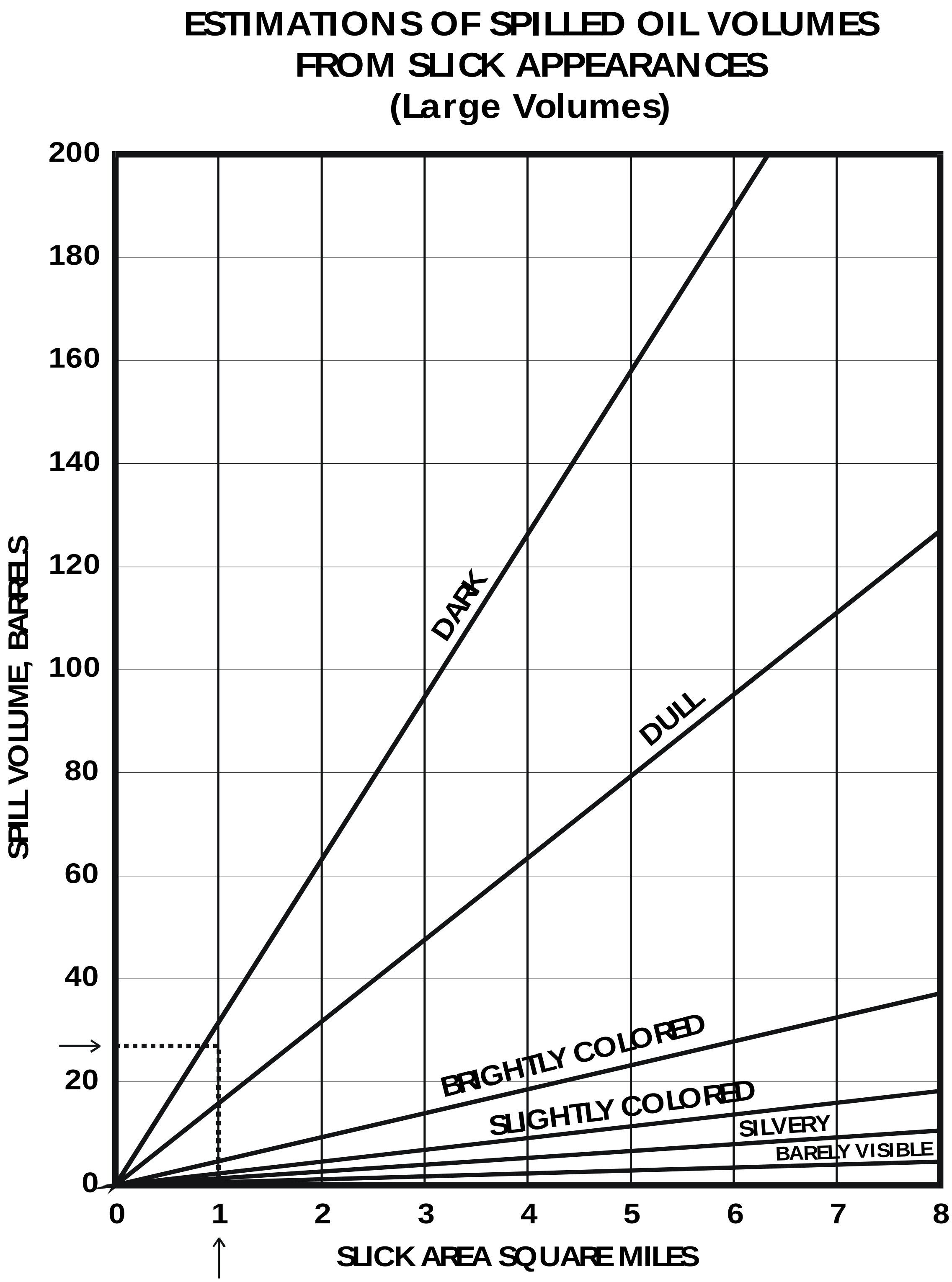
Figure 2.9
Estimations Of Spilled Oil Volumes From Slick Appearances



2.2.2 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 2.11**.
- 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), discussed below.

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 Federal On-Scene Coordinator 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 2.10** for a form to provide trajectory coordinator with information to calculate trajectory models.

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Figure 2.10
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: ____

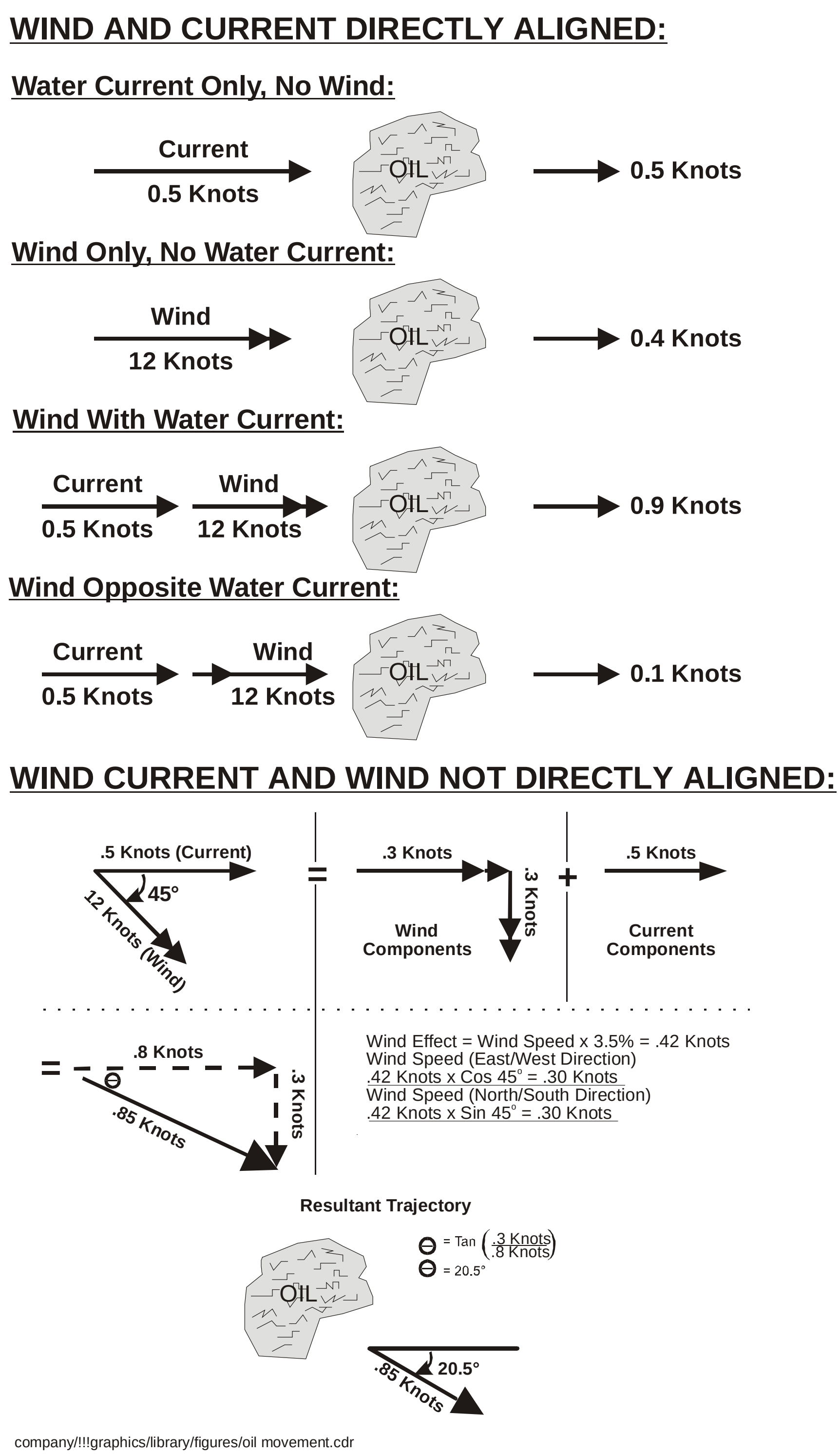
Name: ____

Fax Number: ____

Office Number: ____

Home Number: ____

Figure 2.11
Examples Of Oil Movement On Water Surfaces



2.4 INITIAL CONTAINMENT ACTIONS

Initial containment actions will rely on the use of pre-booming of all light product transfers and focus on utilizing 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 GRP's.

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 MSRC will provide early GRP protection and facilitate on water recovery within the first hour of occurrence.

2.4.1 Safety Considerations

- An initial Site Safety and Control Analysis form is included in the ICS 201 Incident Briefing (**Figure 2.13**) . The designated on scene Safety Officer should use this page of the form as a checklist while performing initial site safety assessment. A detailed Site Safety & Health Plan template is located in **Section 7** which is to be used for next operational period planning during an oil spill response.

  The Safety Officer will be responsible in monitoring incident planning activities and communicating any safety concerns and instructions.

- 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. Tesoro air monitoring equipment used to test breathing air in the vicinity of a spill includes a hand held iTX Multi-Gas Monitor. These monitoring devices are located in the Wharf Control House and Logistics Control House. Equipment testing and calibration are done daily and monthly.
- A qualified person will be designated by the RP/IC to conduct initial air monitoring. Air monitoring shall include testing the breathing space where response personnel will be exposed during recovery and clean-up operations. C0, So2, H2S, and Benzene will be tested for and measurements for explosive atmospheric conditions, including 02, and LEL will be taken before initial responders will be allowed to enter the area of impact.

- Responders must wear appropriate personal protective equipment (PPE). This will be determined by the toxicity of the spilled material and results of initial air monitoring. Personal flotation devices (PFD) are required when working on or near the water.
- Only trained personnel are allowed to participate in response activities.
- 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.
- 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.

2.4.2 Response Guidelines – Crude/Distillates

The preferred response is to contain and recover product (such as diesel), since it exhibits low volatility characteristics.

- Identify source and stop discharge, if possible.
- Deploy 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**. Utilize 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.

2.4.3 Response Guidelines – Gasoline/Light Hydrocarbons

These materials float on the water and are extremely flammable. Containment of these materials may allow explosive concentrations to accumulate. The preferred response is to knock down the vapors and protect shorelines from fouling and allow evaporation to occur.

- Identify source and stop discharge if possible.
- Eliminate sources of vapor cloud ignition. Use waterfog to knock down vapors and disperse material, if available.
- Stay upwind and evacuate nonessential personnel.
- Advise neighboring operations of any threat to their property or personnel. List of neighboring facilities is provided in **FIGURE 3.3**.
- Advise boats operating in the area of potential danger and direct them out of the area.
- 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**. Utilize 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.
- Obtain Explosimeter and other air sampling equipment to assure areas are safe to enter for continued response operations.

For additional containment and recovery strategies and guidelines, refer to **APPENDIX E**.

Figure 2.13
Initial Site Health & Safety Plan

NOTE: the following Initial Site Health & Safety Plan is page 201-5 of the ICS 201 Incident Briefing form Site Safety and Control Analysis

8. Site Safety and Control Analysis

Site Control:

1. Is Site Control set up? ☐ Yes ☐ No
Comments/Name:

2. Is there an on-scene command post? ☐ Yes ☐ No
If so, where:

3. Have all personnel been accounted for? ☐ Yes ☐ No ☐ Don't know

Injuries: | Fatalities:
Unaccounted: | Trapped:

4. Are public observers involved? ☐ Yes ☐ No
If so, who and where:

5. Is a decon area set up? ☐ Yes ☐ No
If so, where:

Hazard Identification, immediate signs of: (if Yes, explain in remarks)

1. Electrical hazards? ☐ Yes ☐ No

2. Products identified? ☐ Yes ☐ No
If so, what:

3. Wind direction from incident ☐ Away from your position ☐ Toward your position
Wind speed:

4. Is a safe approach possible? ☐ Yes ☐ No

5. Any abnormal odors or smells? ☐ Yes ☐ No
If so, what:

6. Vapors visible? ☐ Yes ☐ No
Color:

7. Tide Times: Low High

8. Ignition sources nearby? ☐ Yes ☐ No

9. Is local traffic a potential problem? ☐ Yes ☐ No

10. Product placards, color codes visible ☐ Yes ☐ No

11. Other Hazard(s)? ☐ Yes ☐ No

12. As you approach the scene from the upwind side, do you note a change in status of any of the above? ☐ Yes ☐ No

Hazard Mitigation: (Have you determined the necessity for any of the following)

1. Entry Objectives:

2. Are warning signs or barricades required? ☐ Yes ☐ No Identify Type:

3. Atmospheric Testing? ☐ Yes ☐ No
a. Initial Results: LEL H2S O2 CO Benzene Other
b. Sampling Equipment:
c. Sampling Location(s):
d. Sample Frequency:
e. Personal Exposure Monitoring:

Time/Location	LEL	H2S	O2	CO	Benzene	Other
Time/Location	LEL	H2S	O2	CO	Benzene	Other
Time/Location	LEL	H2S	O2	CO	Benzene	Other
Time/Location	LEL	H2S	O2	CO	Benzene	Other

4. Protective gear/level: a. Gloves: b. Clothing: c. Boots:
d. Respirators: e. Chemical cartridge change frequency:

5. Decon
a. Instructions:
b. Equipment and Materials

6. Emergency Escape Route Established ☐ Yes ☐ No

7. Field responders briefed on hazards? ☐ Yes ☐ No

8. Remarks:

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Revised: 01/2015

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SECTION 3 NOTIFICATIONS/TELEPHONE NUMBERS

3.1 EMERGENCY INFORMATION 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/DOE 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.
- **SECTION 3.2** Notification process for spills to ground greater than 1 bbl.
- **FIGURE 3.5** Decision process for spills to ground notification

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Figure 3.1
Notification Flow Chart

SPILL OBSERVER REPORTS SPILL TO:
VESSEL PERSONNEL, NEARBY PERSONNEL AND LOGISTICS SUPERVISOR
(Call **911** if necessary**)**

SPILLS TO GROUND NOTIFICATION (greater than 1bbl) – All internal notifications remain the same all external notifications are made by the Environmental Duty Person. (Reference Sections 3.2 and 6.8)

LOGISTICS SUPERVISOR NOTIFIES:

Contact	Phone Numbers	Time and Person Notified
Logistics Board Man	(360) 293-9145 or (360) 293-1435	
Utility Board Man	(360) 293-1606 or (360) 293-1365	
Zone C Superintendent	(360) 293-1631 or (360) 770-7794	
CROF Manager and Alt QI ***(only if TLO assets affected)***	(360) 293-1691 or (562) 824-4384	
OSRO - MSRC	(800) 645-7745 or (562) 981-7600	
Main Gate Security	(360) 293-9119	
Initial Response Crew	Main Gate Security is responsible for activating Send Word Now for Initial Responders	
National Response Center ***(immediately)***	(800) 424-8802	
WA Dept. of Emergency Mgmt (WDEM) ***(immediately)***	(800) 258-5990	
WA Dept. of Ecology – Northwest Regional Office	(425) 649-7000	
Skagit County Dept. of Emergency Management (LEPC)	(360) 428-3250 or 911	
USCG Sector Puget Sound	(206) 217-6002	
Manager, Regional CP&ER – Craig Hyder	(907) 690-4322 (Cellular)	

LOGISTICS BOARD MAN NOTIFIES:
Fire Department/Ambulance via 333 and/or 8-911, if required and calls out response personnel

1 of 2

TESORO UTILITY BOARD MAN NOTIFIES:

Contact	Phone Numbers	Time and Person Notified
☐ Environmental Duty Person	See current weekly duty roster	
☐ Senior Management Duty Person		
☐ Safety Duty Person		
☐ Zone A Operation's Duty Person		
☐ Maintenance Duty Person		
☐ Q&A Duty Person (if needed)		

TESORO ENVIRONMENTAL DUTY PERSON NOTIFIES:

Appropriate initial government notifications (refer to **Section 3**)

TESORO SENIOR MANAGEMENT DUTY PERSON NOTIFIES:

Contact	Phone Numbers	Time and Person Notified
Vice President, Refining (Incident Commander/Qualified Individual*) – James Tangaro	(360) 293-9122 (Office) (801) 560-4377(Cellular)	
Manager, Regional CP&ER (Alt. QI) – Craig Hyder	(360) 293-1632 (Office) (907) 690-4322 (Cellular)	
Manager, EH&S (Alt. QI) – Matt Marusich	(360) 293-9141 (Office) (925) 260-0397 (Cellular)	
Manager, Technical (Alt QI) – Don Manuel	(360) 293-1688 (Office) (360) 420-1714 (Cellular)	
Manager, Human Resources – Tiffany Wilson	(360) 293-9126 (Office) (925) 818-5393 (Cellular)	
Regional Security Manager – Mark Burris	360-293-9102 (Office) 360-395-8426 (Cellular)	
Refinery IMT	*Completed through SendWordNow*	
San Antonio IC On-Duty	(866) 516-6758	

2 of 2

Figure 3.2
Oil Spill Discharge Information

OIL SPILL DISCHARGE INFORMATION REQUIRED IN A REPORT TO THE NATIONAL RESPONSE CENTER (NRC)

EMERGENCY TELEPHONE: (800) 424-8802

Note: it is not necessary to wait for all information before calling NRC.

REPORTING PARTY INFORMATION					
Name:		Position:		Company:	
Day Telephone:		Evening Telephone:			
Address:					
City:		State:		Zip:	
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

***Represents after hours telephone numbers**

AFFILIATION	PHONE NUMBER	NAME OF PERSON CONTACTED	TIME CONTACTED
A. COMPANY PERSONNEL			
Reference Figure 3.1 Notification Flow Chart			
B. MANDATORY NOTIFICATIONS			
Reference Figure 3.1 Notification Flow Chart			
C. ADDITIONAL NOTIFICATIONS AS APPROPRIATE:			
Federal Agencies			
EPA Region X – Seattle	(206) 553-1263* or (206) 553-1264*		
NOAA Emergency Response Division	(206) 526-6317*		
National Weather Service Seattle	(206) 526-6087 (206) 424-2000 (#9000) after hrs		
Federal Bureau of Investigation Seattle	(206) 622-0460		
U.S. Fish and Wildlife Service Seattle	(206) 764-3463		
Mt. Baker Snoqualmie National Forest Supervisors Office Everett, WA	(800) 627-0062		
U.S. Department of the Interior Portland, OR	(503) 326-2489		
National Park Service – Seattle	(206) 553-5670 (206) 937-9562*		
State Agencies			
Washington Highway Patrol	(360) 757-1175		
Washington State Department of Fish and Wildlife	(360) 902-2200		
Washington State Department of Fish and Wildlife Oil Spill Response Team (Hotline)	(360) 902-2537		
Washington State Department of Natural Resources (Regional)	(360) 902-1000		
Washington Department of Parks and Recreation (NW Region)	(360) 755-9231		
Washington State Fire Marshall	(360) 336-0151		
Local Agencies			
Anacortes Mayor	360-299-1950		
Shannon Point Biological Research Center	(360) 293-2188 (360) 540-3195		
D. EMERGENCY SERVICES:			
Emergency Medical			
Aero-Skagit Ambulance Service	(360) 853-8831		
Airlift Northwest	(800) 426-2430*		
Central Skagit Medic One	360-336-8176		
Fire Departments			
Anacortes Fire Department	911 or (360) 293-1925 (Bus.)		
Burlington Fire Department	911 or (360) 755-0261 (Bus.)		
Mt. Vernon Fire Department	911 or (360) 336-6277 (Bus.)		

AFFILIATION	PHONE NUMBER	NAME OF PERSON CONTACTED	TIME CONTACTED
Summit Park Fire Department	911		
Police Departments			
Anacortes City Police	911 or (360) 293-4684 (Bus.)		
Burlington Police Department	911 or (360) 755-0921 (Bus.)		
Mt. Vernon Police Department	911 or (360) 428-3200		
Skagit County Sheriff	(360) 336-9450 or 911		
Hospitals			
Island Hospital, Anacortes, WA	(360) 299-1300		
Skagit Valley Hospital Mt. Vernon, WA	(360) 424-4111		
United General Hospital Sedro-Woolley	(360) 856-6021*		
E. MEDIA			
Radio Stations			
KWLE	(360) 293-3141		
KBRC	(360) 424-1430		
KAPS	(360) 424-7676		
KGMI/KAFE/KBAH/KTUG (Bellingham Stations)	676-5464		
KSVR 90.1 FM	(360) 416-7711		
Television Stations			
KING TV NBC, Channel 5	(206) 448-3850		
KIRO TV CBS, Channel 7	(206) 728-8307		
KOMO TV ABC, Channel 4	(206) 404-4000		
Newspapers			
Seattle Times	(206) 464-2204 (206) 464-2261 (fax)		
Associated Press	(206) 682-1812		
Anacortes American & Skagit Weekly	(360) 293-3122		
Skagit Valley Herald & Skagit Weekly	(360) 424-3251		
F. RESPONSE CONTRACTORS			
Marine Spill Response Corporation Everett Office	(800) 645-7745 (800) 259-6772* (425) 252-1300		
Global Diving and Salvage Inc.	(206) 623-0621*		
Island Oil Spill Association (IOSA)	(360) 378-4151 SJC Sherriff		
NRCES	800-337-7455		
Clean Harbors Environmental Svs	(253) 639-4240 (800) 645-8265		
Cimmaron Trucking 319 34th Street Anacortes, WA 98221 Ray Sizemore	(360) 293-0176		
Waste Management Kristy Beedle kbeedle@wm.com	1-800-592-9995		
Pacific Groundwater Group (Ground Spills) Janet Knox janet@pgwg.com	(206) 329-0141 Cell (206)-842-3202		
G. MUTUAL AID			
Marine Response Alliance	(206) 443-7900*		

AFFILIATION	PHONE NUMBER	NAME OF PERSON CONTACTED	TIME CONTACTED
Shell Security	(360) 293-0800		
Shell RP&S Department	(360) 293-1758		
H. MARINAS / PORTS			
Anchor Cove Marina, Anacortes, WA	(360) 293-7033		
Cap Sante Marina (after hours fueling)	(360) 293-3145 (360) 293-9694*		
Fidalgo Boat Yard, Anacortes, WA	(360) 293-3732		
Fidalgo Marina, Anacortes, WA	(360) 299-0873		
Port of Anacortes	(360) 293-3134		
Skyline Marina, Anacortes, WA	(360) 293-5134		
I. LOCAL WATER SUPPLY			
Anacortes Water Maintenance Department	(360) 293-1921		
Skagit County Dispatch	360-428-3211		
Shannon Point Biological Research Center	360-540-3195		
J. STATE FERRY SYSTEM			
WA State Ferries	1-888-808-7977 or 206-464-6400		
K. TRIBAL CONTACTS			
Lummi Nation	360-384-2365 Emergency line		
Samish Indian Nation	360-661-6336		
Swinomish Indian Tribal Community	360-466-7200		
L. HELICOPTERS			
Aero-Copter Helicopter Services	(206) 763-2177		
Classic Helicopter Services	(206) 767-0515		
M. WILDLIFE REHABILITATION SPECIALISTS			
Island Oil Spill Association (IOSA)	(360) 378-4151 SJC Sherriff		
International Bird Rescue & Research Center (IBRC)	(888) 447-1743		
Focus Wildlife	(310) 386-5965		
N. HOTELS & INNS			
Fidalgo Country Inn, Anacortes, WA	(360) 293-3494		
LaConner Inn	(360) 466-3101		
Anaco Inn	(360) 293-8833		
The Marina Inn, Anacortes, WA	(360) 293-3545		
Anacortes Inn, Anacortes, WA	360-293-3153		
Best Western Cotton Tree Inn	(360) 428-5678		
Best Western Harbor Plaza, Oak Harbor	(360) 679-4567		
O. NEIGHBORING FACILITIES			
Shell	(360) 293-0800		
CAER Hotline	(360) 293-1767		
General Chemical	(360) 293-2171		
P. INSURANCE CLAIMS			
Tesoro Director of Insurance	(210) 626-4409 Cell: (210) 213-1663		
Broadspire	1- 800-753-6737		

TO REQUEST MUTUAL AID CONTACT: (as of 6/22/12)

PHILLIPS 66

CONTACT	TITLE	PLANT (360)	HOME(360)	CELL (360)
EMERGENCY	Switch Board	384-1011		
Hatter, Marjorie	Refinery Manager	384-8343		
Rinesmith, Bill	Fire & Safety Supervisor	384-8267	318-0339	815-0701
Josh Ross	Safety Superintendent	384-7869	306-5348	509-9649
Jody Moffett	HSE Manager	384-8374		908-413-2862

BP CHERRY POINT

CONTACT	TITLE	PLANT (360)	HOME(360)	CELL (360)
EMERGENCY	Security	371-1301		
24 Hour	Shift Supervisor	371-1271		
McDaniel, Stacey	Refinery Manager	371-1500		
Wallace, Bob	Operations Manager	371-1500		
Millhollin, Travis	H.S.E. Manager	371-1238		739-3029
Rodgers, Bill	Plant Protection Superintendent	371-1168	647-0747	303-5233
Sawicki, Dave	Crisis Management Superintendent	371-1245	371-2555	739-3975

TESORO

CONTACT	TITLE	PLANT (360)	HOME(360)	CELL (360)
EMERGENCY	Security	293-9119		
James Tangaro	V.P. Refining	293-9119	399-1898	801-560-4377
Mike Johnson	Regulatory Affairs Manager	293-9141		395-8483
Derrick Brewer	Safety Superintendent	293-1430	757-3426	428-0577
Rory Eaton	Emergency Response Coordinator	293-9147		420-2297

SHELL PUGET SOUND REFINING COMPANY

CONTACT	TITLE	PLANT (360)	HOME(360)	CELL (360)
EMERGENCY	Security	293-1701		
Rizzo, Tom	Refinery Manager	293-0819		832 264-2783
Dave Hanson	Emergency Response Coordinator	293-1707		770-3105
Yeo, Chet	H.S.S.E. Manager	293-1551		853-3179
Barge, Tony	Security Supervisor	293-1566		333-1566

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CONTACT	TITLE	PLANT (253)	HOME(253)	CELL (253)
EMERGENCY	Shift Supervisor	383-1651 x237		377-0910
Yoder, Dan	Refinery Manager / VP of Manufacturing	383-1651	426-0838	426-0838
Van, Harvey	Operations Manager	383-1651	845-0749	377-0902
Smith, Rich	Engineering Manager	383-1651	863-8763	377-0927
Arnold, Stephanie	Safety & Security Manager	680-3202	446-0375	405-1498

Figure 3.4
Agency Notification 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
WA Department of Emergency Management	• 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
Dept. 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 Northwest Regional Office: 425-649-7000	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 Dept. 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

3.2 NOTIFICATIONS OF SPILLS TO GROUND GREATER THAN 1 BBL

- Follow all applicable initial response action guidance in Section 2 and internal notifications guidance in **SECTION 3**.
- For external notifications immediately report any spill to ground of greater than 1 bbl to Environmental Duty Person. It is the responsibility of the Environmental Duty Person to determine if a spill to ground is reportable.
- Determination of reporting criteria will be addressed using guidance in Section 6 and the refinery Environmental Procedures #42 and #44 by the Environmental Duty Person.
- Guidance for spills to ground can be documented on the Decision Process for Spills to Ground Notification form **FIGURE 3.5** and **FIGURE 6.4**.

Figure 3.5
Decision Process for Spills To Ground Notification

Yes	No	Potential Notification Triggers	Notes:
		The source of the spill is unknown.	
		The volume of the spill is uncertain.	
		The volume of the spill is greater than 42 gallons **and is not** entirely contained on an asphalt or concrete surface that drains to an oily water sewer.	
		The spill is uncontained.	
		The spill is located in an area where there is a pathway to waters of the state, and environmental conditions, such as rain events, make an impact to state surface or ground water likely.	
		The spill has the potential to impact groundwater.	

(If any of the boxes are marked yes, WDEM must be notified immediately, see Page 3-3.)

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SECTION 4 RESPONSE TEAM ORGANIZATION

4.1 DESCRIPTION

The effective management of personnel and resources during a spill event is integral to the overall success of the response effort. The Company has developed its' oil spill response organization to be consistent with the NIMS 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:

- Initial Response Team (IRT),
- Marine Spill Brigade,
- Incident Management Team (IMT)

If a response exceeds the IMTs' capabilities, the IMT Incident Commander (IC) would activate the National Response Team, via the Manager Contingency Planning and Emergency Response. The response teams are supported by Marine Spill Response Corporation (MSRC), and other local/regional oil spill contractors.

Per the ICS structure Tesoro will integrate federal, state, local, and tribal personnel into a unified command system in order to effectively address the response requirements. Third party vessel owner/operators will be solicited through an approved PRC application held by MSRC. The existing WSPA mutual aid agreement provides response assistance for spill incidents involving vessels at the wharf. Adequate trained personnel are immediately available to manage the first 7 days of response.

4.1.1 Refinery Incident Management Team

The IMT is responsible for:

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

The organizational structure of the IMT is based on ICS and is modular. **FIGURE 4.1a** presents the organizational chart and roster. Notification procedures are outlined in **FIGURE 3.1**. Job descriptions for each IMT member are included in **FIGURE 4.1b**. The IMT will be trained by participating in training and drills as noted in **APPENDIX A.** Tesoro provides the same annual training for all spill response personnel at its Washington State facilities.

4.1.2 National Response Team

The National Response Team (NRT) is a component of the oil spill response organization and upon activation will:

- Assess the magnitude of the incident and its potential impact;
- Estimate the level of support necessary for minimizing its impact; and
- Travel to the location to support the local IMT.

Once on scene, the NRT will follow standard ICS to:

Integrate into the Refinery IMT supplementing necessary personnel as shift relief and providing other support as necessary. The NRT roster is maintained by the Contingency Planning Coordinator and is available for review upon request.

4.2 ACTIVATION PROCEDURES

Activation/Notifications of the response teams may be accomplished in stages as illustrated in **SECTION 3.**

4.3 TEAM MEMBER RESPONSE TIMES

During normal business hours, the local-IMT would organize immediately; during off hours, the IMT could be mobilized within one hour or less. Initial deployment of equipment and personnel at the spill site will occur within 30 minutes of discovery given suitable safety conditions. Listings of these personnel and equipment are located in **FIGURES 4.1b, 4.2, 7.1, B.2, B.3.**

TRANSITION OF RESPONSE STAFF

Shift change and the transition of initial staff to incoming local or NRT 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 Tesoro's Refinery Incident Commander 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, courier services, and secretarial service).

In the event of a major spill, the facility command post would be established at the Emergency Operations Center located in the Cafeteria. For a minor spill, the facility command post would be established in the Wharf Response Center in the dock office, and the IMT would assemble in the administration conference room. 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 the Joint Operations Center (JIC). Designated members of the IMT and NRT, along with designated personnel from the governmental agencies would assume the responsibility for the overall management of the spill incident. The JIC is located at the east end of the cafeteria.

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

Northwest Educational Service District 189

1601 R Avenue

Anacortes Washington, 98221

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 Anacortes Refinery property is well suited as an immediate staging area due to its proximity to the spill site, the availability of open space and onsite parking, and access to public services (i.e., water, electricity, sanitary facilities, phone service, etc.).

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

- Direct access to impacted areas.
- Proximity to secure parking, airports, docks, pier or boat launches.

Access/staging areas for personnel and equipment within the location boundaries of this plan are identified in Response Maps as part of the Northwest Area Committee 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 (UCS) will be utilized as a method of integrating federal, state and local agencies with the 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 are 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 IMT.

4.6 QUALIFIED INDIVIDUAL

The Qualified Individual (QI) oversees the management of the entire response for the company, serving as the liaison with Corporate management and working with Local, 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, trained in responsibilities outlined in this section.

The Qualified Individual or appointed Alternate Qualified Individual is the primary senior contact person for the Incident Commander/Deputy Incident Commander. The QI has access to senior management personnel that will establish company policies and ensure the Incident Commander, 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 QI will keep the Incident Commander and Command Staff fully advised of decisions that may impact oil spill response strategies.

The designated Company QI is the Anacortes Refinery Manager. In the event of his/her absence, the personnel named on next page are designated as Alternate QI.

The QI has the following responsibilities and authorities as required by the Oil Pollution Act of 1990 (40 CFR Parts 9 and 112):

- Responsibility to activate internal alarms and hazard communications systems to notify all appropriate personnel;
- Notify all response personnel as needed;
- Identification of 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 OSCP;
- Requirements of the NCP and Northwest ACP;
- Overall spill prevention and response provisions in the FRP 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 QIs responsibility is transferred also includes internal notification of the Company Oil Spill Response Organization. Notification procedures are provided in **SECTION 3**. Designated QI's and Alternates are also listed in **SECTION 3**.

Figure 4.1a
Incident Management Team Organizational Chart

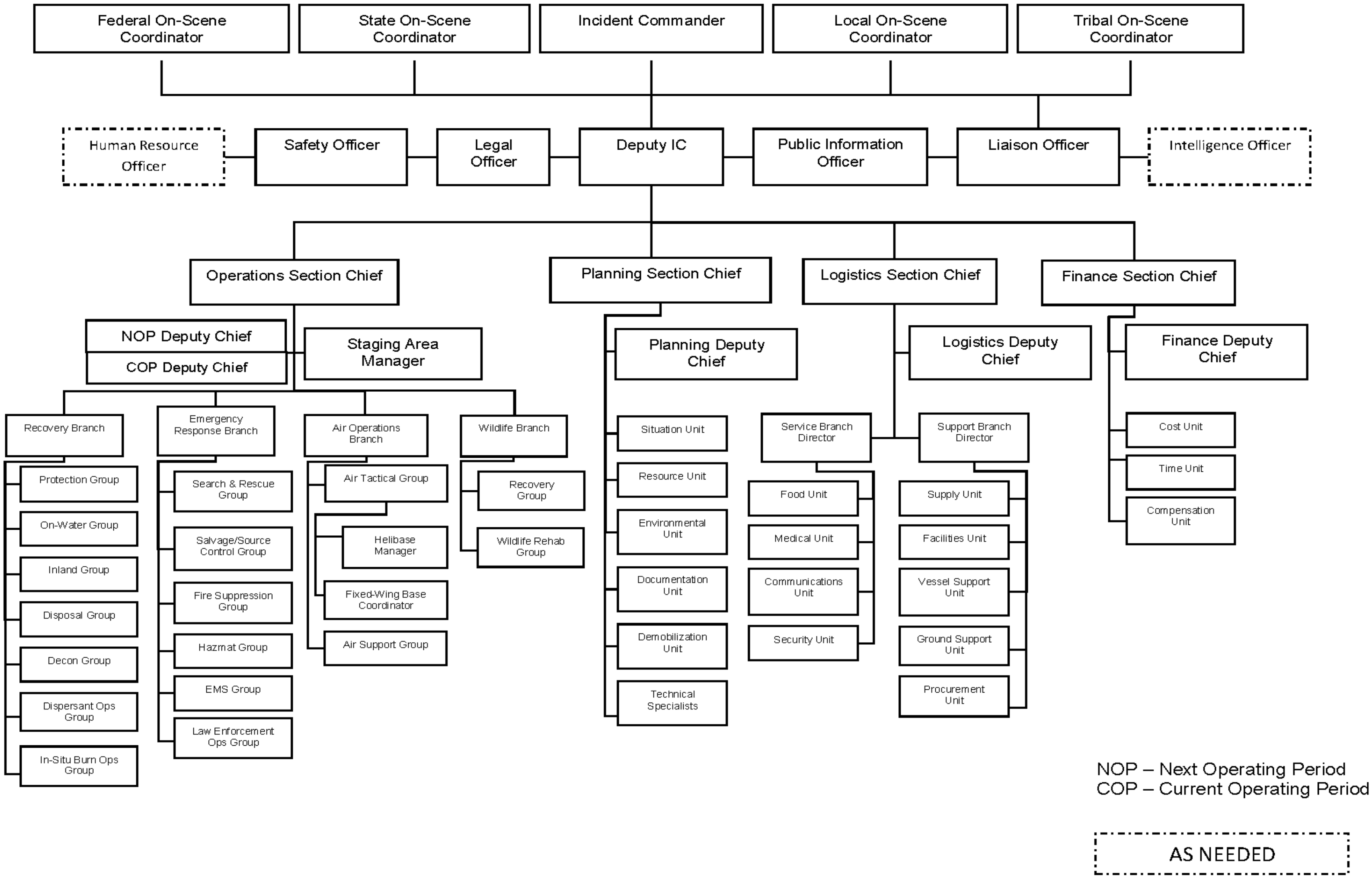

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Figure 4.1b
Incident Management Team Roster

NAME	POSITION
James Tangaro (Qualified Individual)	**I.C.**
Don Manuel (Alternate Qualified Individual)	**I.C.**
Matt Marusich (Alternate Qualified Individual)	Liaison
Matt Gill	Liaison
Darick Brewer	Safety
Jed Larson	Safety
Charles Magee	Legal
Stoney Vinning	Legal
Tiffany Wilson	P.I.O.
Mike Shea	P.I.O.
Roel Pedroza	Planning Chief
Craig Hyder	Planning Chief
Gary Mattson	Ops Chief
Terry Allen	Ops Chief
Tara Havard	Logistics Section Chief
Keith Lively	Logistics Section Chief
Rob Morris	Finance Section Chief
Bruce Gillett	Finance Section Chief

* The Tesoro SendWordNow call out system can be activated by the MAIN GATE upon request (360) 293-9119

Figure 4.2
Incident Command Team Duties and Responsibilities

Tesoro positions and roles described in the Anacortes Facility Response Plan are intended to be representative of the positions and roles described in the most currently updated NWACP. For the purpose of training and/or role clarification Anacortes will refer to the NWACP roles that apply to our ICS positions. Abbreviated role descriptions in the FRP are intended to help reduce the bulk of the plan. Tesoro may, from time to time, elect to fill certain ICS support positions with approved 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).

Tesoro will follow a Planning Cycle consistent with the NWACP.

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 FOG.

Deputy Incident Commander (DIC):

Assists by carrying out assignments and duties as given by the IC/RP. In the event the IC could no longer perform required duties the DIC would assume those duties. The DIC is trained to perform the role of the IC/RP.

COMMAND STAFF

Legal Officer: Provides advice on all 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 is gathered and preserved. Assists members of the IMT 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 Incident Management Team (IMT) and/or Unified Command are taking to address concerns. This position may be filled by an agent of the WDOE rather than the Company unless otherwise directed by the Unified Command.

Information Officer: Responsible for the formulation and release of information about the incident to the news media. The Information Officer Is expected to work in concert with other members of the Joint Information Center (JIC) when the magnitude of an event warrants formation of a JIC. Provides Company based information to be used in dissemination of facts and information regarding incident. This position may be filled by an agent of WDOE 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 FOG and NWACP 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. The Security Officer may work directly with LOSC or other local authority upon request.

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 IAP. The Operations Section Chief follows the guidance of the NWACP 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 Incident Action Plan, 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 Incident Action Plan. 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 as 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 NWACP Section 2100.

Resources Unit: Responsible for the 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. The Situation Unit is responsible for the evaluation, analysis, and display of that information.

Documentation Unit: Maintains accurate and complete historical files, and 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 RP/IC designee, or until such time the RP/IC or U.C. directs the change to be made.

The E. U. determines extent of environmental damage and evaluates the effects of clean-up 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; function within an existing unit such as the situation unit, form a separate unit if required, or be reassigned to other parts of the organization. Technical Specialists are filled by contract services personnel.

LOGISTICS SECTION

Logistics Section Chief: Responsible for providing facilities, services and materials in support 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.

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

Radio Dispatch: They maintain communication links between command post and filed supervisors. Provide 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.

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SECTION 5 INCIDENT PLANNING/DOCUMENTATION

5.1 DOCUMENTATION PROCEDURES

The Company has adopted the National Incident Command System (NIMS) as their response management system. The 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 information as the following, 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 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

Tesoro establishes the claims process when an incident poses a potential impact to personal injury and/or property, as determined by Unified Command. Responsibility for activating the claims process resides with the Director, Business Insurance within the Finance Section.

The individual ultimately responsible for managing the claims process is the Director, Business Insurance. In addition, the company contracts with a claims processing contractor to manage the claims process.

Actions to be taken by Finance Section:

- Contact Director, Business Insurance to notify him/her of the incident.
- Provide a point of contact for Director, Business Insurance within the Finance Section (Should be Finance Section Chief, Deputy, or Claims Unit).
- Provide Public Information Officer with the predefined Claims phone number (1-800-753-6737) to post on the company incident response website (www.tesoronews.com) and also communicate it to the local media via news release.
- Inform the response team of the predefined claims number.

Actions to be taken by Director, Business Insurance:

- Contact Broadspire to initiate their management of the claims process.
- Appoint a representative to provide supervision and guidance for the claims processing contractor.
- Keep IC informed by providing regular updates through the designated Finance Section liaison.

Actions to be taken by the claims processing contractor:

- Monitor the predefined claims phone number and provide a report of activity when requested.
- Provide claim forms (**FIGURE 5.2 Oil Spill Claim Form**) to claimant.
- Document, evaluate, and adjudicate claims. There is no time limit for filing claims.

Tesoro captures incident data on the Incident Notification Form to communicate to Broadspire for claims activation.

Broadspire can handle third party injury and damage claims resulting from explosions, fires, chemical releases and oil spills. They also offer a cost containment program which 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.

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

<u>How To Initiate Claim:</u>

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.

Figure 5.1
Incident Notification Form

INCIDENT NOTIFICATION FORM
PAGE 1 OF 1

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 5.2
Oil Spill Claim Form

Form CL-1

TESORO

Oil Spill Claim Form

1. Claimant Information :

Name:

Address:

Telephone:

Fax:

Email:

2. Provide Incident Details, if available:

Date & Time Injury or Damage Discovered:

Location of Injury or Damage:

3. Describe the injury or damage you are claiming:

4. Did you have any prior contact with Tesoro regarding your claim? If so, who?

Form # CL-1

5. **What type of claim are you submitting and what is the total monetary amount you claiming in U.S. dollars?**

Claim Type: ______________________

Total Amount Claimed $______________________

6. **Describe the nature and extent of injuries or damages claimed, as supported by the documentation you are submitting with this claim:**

7. **Description of how the injury or damage was caused:**

8. **What actions did you take, if any, to minimize the injury or damages you claim:**

9. **Witnesses:** (Provide the name, address, telephone number, & email address) of anyone who witnessed the injury or damage you claim. Also provide a summary of each witness's knowledge of the injury or damage claimed, and/or the incident which caused the injury or damage.

   Name:

   Address:

   Telephone Number:

   Fax:

   Email:

   Summary

Page 2 of 2

5.2 DISPERSANT PLAN

Figure 5.3
Washington Dispersant Use Checklist

[1] Indicates seasonal considerations

The following steps should be utilized in deciding if the use of dispersants will be required. (An immediate threat to life which can be substantially lessened by the use of dispersants pre-empts the following matrix by the OSC.)	
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	
d. Applicability to spilled oil	
e. Other	
8. Application methods	
9. Miscellaneous	
(b) Type of transportation and	

The following steps should be utilized in deciding if the use of dispersants will be required. (An immediate threat to life which can be substantially lessened by the use of dispersants pre-empts the following matrix by the OSC.)	
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	
3. Marine animals (pupping, migration)[1]	
4. Waterfowl use (nesting, migration)	
5. Shellfish (spawing, harvesting)	
6. Finfish (spawing, 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:	

The following steps should be utilized in deciding if the use of dispersants will be required. (An immediate threat to life which can be substantially lessened by the use of dispersants pre-empts the following matrix by the OSC.)	
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?	

Figure 5.4
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 dispersible? 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

Part 3
Support Information For
Quick Approval Process

1. On-Water Mechanical Cleanup Equipment Availability

<u>Equipment Type</u>	<u>Skimming Capacity</u>	<u>Estimated Time of Arrival</u>

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):
____

____

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 hrs) (attach)

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

Wind Speed/Direction (present and 48 hour projection)

____

Salinity: ________________________ Water Depth: ________________________

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 5.5
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.		

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.

     <u>Option 1.</u> 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.

     <u>Option 2</u>. Water column samples to be collected at various depths and analyzed onsite using flow-through fluorometric techniques. Periodic samples will be collected for laboratory checks.

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5.3 BIOREMEDIATION

Figure 5.6
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:	

	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

Figure 5.7
In-Situ Burning Checklist

A detailed description of In-Situ Burning procedures can be referenced in the MSRC Approved PRC Application**, APPENDIX B**.

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.

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): __________________________

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 ___

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 ___

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 ___

(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:

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 5.8
Oil Spill Decanting Authorization Form(Northwest Area Contingency Plan Section 9411)

Oil Spill Decanting Authorization Form	
The federal and state On-Scene Coordinators (OSCs), under authority of RCW 90.56.320(1) and WAC 173-201A-110 (In Washington), or ORS 468B.305 (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 form 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.	

5.6 WASTE DISPOSAL PLAN

TESORO

PERMIT & PLAN
SIGN-OFF SHEET

INCIDENT NAME: ______________________ **DATE PREPARED:** __________

OPERATIONAL PERIOD: ______________________

Waste Disposal Plan

APPROVED BY:

RPIC	**DATE**
FOSC	**DATE**
SOSC	**DATE**
LOSC	**DATE**
TOSC	**DATE**

COMMENTS:

WASTE MANAGEMENT AND DISPOSAL PLAN

Incident Name:____

Date Prepared:____________________ **Time Prepared:**____________________

Location(s)/Division(s) Covered By Plan:____

ACP/Other References Consulted: ____

GENERAL INFORMATION

Source Of Spill:____

Total Amount Spilled:____

Total Amount At Risk: ____

Type Of Material Spilled:____

AGENCY INFORMATION

Lead Agency:____

Agency Representative(s):____

Telephone(s):____

Comments: ____

VARIANCES

Inquiry Made To Obtain Variances On:____

Individual(s) Contacted For Variances: ____

Telephone(s): ____

Comments: ____

SAMPLES

Media(s)/Date(s) Sampled:____

Sample(s) Sent Via:____

Laboratory Name(s):____

SAMPLING/ANALYSIS PLAN(S) ATTACHED? ☐ YES ☐ NO

CHAIN OF CUSTODY FORM(S) ATTACHED? ☐ YES ☐ NO

Comments: ____

____

WASTE COVERED BY PLAN

SOLIDS

Type	Description(s)	Estimated Volume(s)
☐ Oiled Natural Inorganic (Sand, Peebles, Etc.)		
☐ Oiled Natural Organic (Driftwood, Seaweed, Etc.)		
☐ Man-Made Materials (PPE, Sorbents, Etc.)		
☐ Unoiled Solids		
☐ Other(s)		

Suspected Hazardous Waste? ☐ Yes ☐ No

Determination By Generator Knowledge? ☐ Yes ☐ No

Hazardous Waste Code(s):____

Comments:____

____

LIQUIDS

Types	Description(s)	Estimated Volume(s)
☐ Oil/Water Mixtures	______________	______________
	______________	______________
☐ Uncontaminated Petroleum Products	______________	______________
	______________	______________
☐ Waste Water	______________	______________
	______________	______________
☐ Spent Solvents/ Dispersants/ Fuels	______________	______________
	______________	______________
☐ Other(s)	______________	______________
	______________	______________

Suspected Hazardous Waste? ☐ **Yes** ☐ **No**

Determination By Generator Knowledge? ☐ **Yes** ☐ **No**

Hazardous Waste Code(s):______________________________

Comments:______________________________

TEMPORARY WASTE STORAGE

Estimated Storage Required (Roll Offs, Tanks, Etc.):

Storage Type	**Estimated Capacity/Number Required**
______________________	______________________
______________________	______________________
______________________	______________________
______________________	______________________
______________________	______________________
______________________	______________________
______________________	______________________

Prefered Location(s): ____

____

____

Permit(s) Required For Temporary Storage: ____

____

____

Ground/Runoff Protection Required For Storage Area? ☐ **Yes** ☐ **No**

Liners/Cover Protection Required For Storage? ☐ **Yes** ☐ **No**

Comments: ____

____

____

WASTE TRANSPORTATION

Proposed Transportation Method(s):

Waste Type/Description	**Proposed Transport Method**

Permit(s)/License(s) Required For Transportation:____________________________________

____

Liners/Cover Protection Required For Transportation? ☐ **Yes** ☐ **No**

Comments:____

____

____

____

____

____

DISPOSAL METHOD(S)

Method	Waste Type/Description	Available	Selected
Natural Degradation/ Dispersion	______________________ ______________________	☐	☐
Wastewater Treatment Plant	______________________ ______________________	☐	☐
Landfill	______________________ ______________________	☐	☐
Land Farms	______________________ ______________________	☐	☐
In Situ Burning	______________________ ______________________	☐	☐
Open Pit Burning	______________________ ______________________	☐	☐
Portable Incineration	______________________ ______________________	☐	☐
Process Incineration	______________________ ______________________	☐	☐
Reprocessing	______________________ ______________________	☐	☐
Reclaiming	______________________ ______________________	☐	☐
Recycling	______________________ ______________________	☐	☐
Well Injection	______________________ ______________________	☐	☐
Other	______________________ ______________________	☐	☐

Comments:____
____

DISPOSAL RESOURCE(S)

Proposed Resource(s) For Disposal Method(s) Selected (Landfill Operators, Incinerator Facilities, Etc.):

Disposal Method	**Resource(s)**
______________________	______________________
______________________	______________________
______________________	______________________
______________________	______________________
______________________	______________________
______________________	______________________
______________________	______________________

Permit(s) Required For Disposal:____

____

Comments:____

____

____

____

____

____

HEALTH AND SAFETY PROCEDURES

Health/Safety Plan Attached? ☐ **Yes** ☐ **No**

Comments:

ADDITIONAL COMMENTS

____

____

____

____

____

____

CONTACTS AND APPROVALS

Contact For Further Information:______________________________

Approved By:______________________ **Time/Date:**______________

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: ______________________________

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**.

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, 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 Tesoro,

B. Injected into a Tesoro refinery wastewater or bilge water treatment plant, 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 Tesoro 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 **Figure 5.8**. More information on decanting is found in Section 7.3.4.

3.0 DISPOSAL OF RECOVERED OIL AND OILY WATER

Recovered oil and oily water will be transported by vacuum trucks or transferred from on-water storage to on-site tankage. Applicable company names and contacts for the off-site disposal of recovered oil and oily water are as follows:

1. ____

2. ____

3. ____

5.8 RECOVERED OIL QUANTIFICATION PLAN

Incident Name: ____

Date: ____

Submitted By: ____

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 safety data sheet (SDS) 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/ft3) = gallons of oil

Where:

TPH =	Unweighted mean of TPH results (including duplicate) to date inn mg/kg
Volume =	Volume of recovered contaminated soil in yd^3
COARSE =	Discount for coarse material >2 inches (default estimated at 20% 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 skimming's 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					

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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SECTION 6 SENSITIVE AREAS/RESPONSE TACTICS

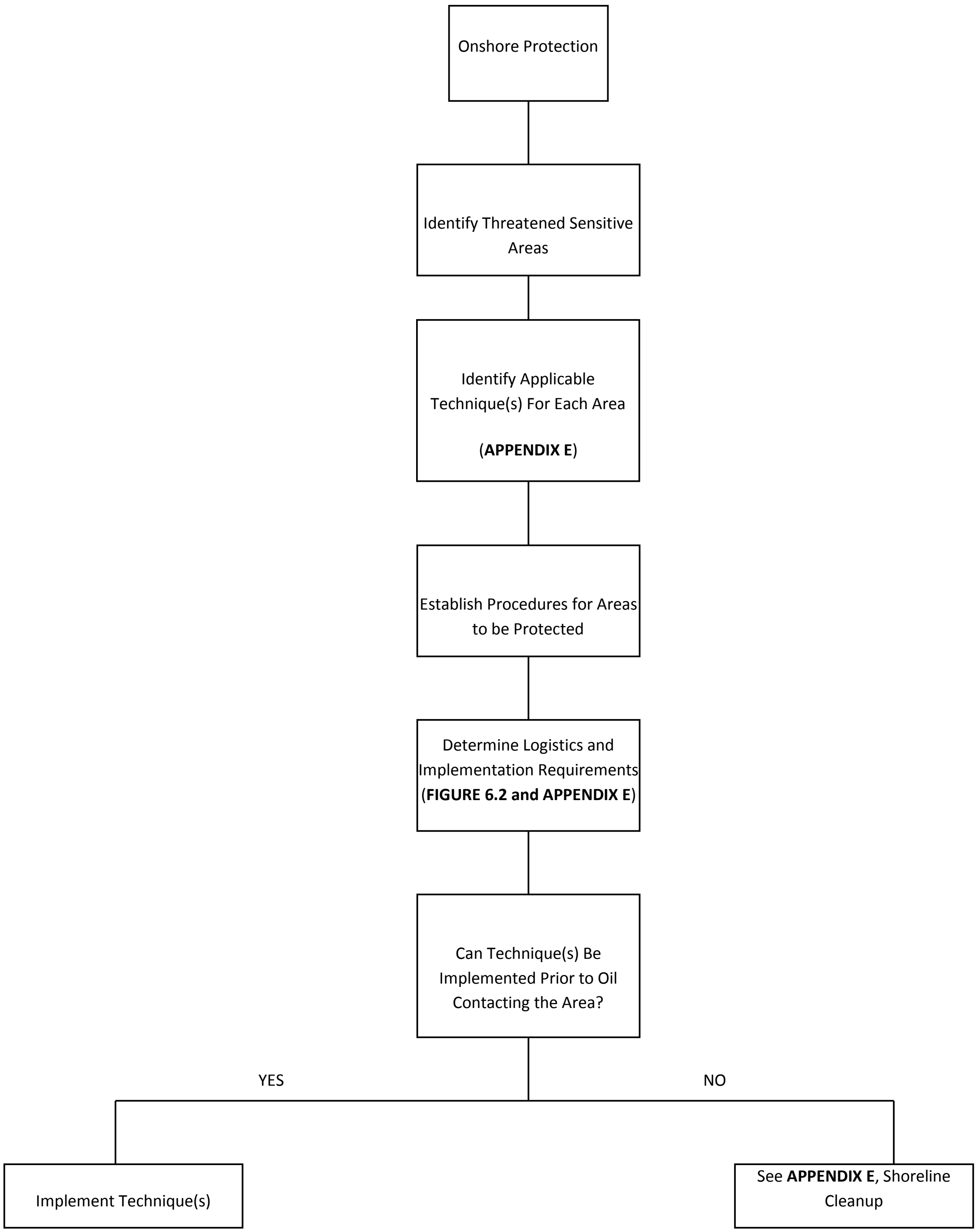
6.1 INTRODUCTION

- Sensitive resources that may be impacted by a spill must be identified.
- Protection strategies and priorities for allocated of 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 an off-site spill from the Company and are provided in the Northwest Area Committee Geographic Response Plans, specifically the San Juan Islands/North Puget Sound GRP.
- Methods for protecting these sensitive resources are also discussed in **APPENDIX E** and discussed in the 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 ESI classification scheme.

Figure 6.1
Sensitive Area Protection Implementation Sequence



6.2.1 Key Sensitive Resources

Padilla Bay is an environmentally sensitive area which is home to many different kinds of birds, invertebrates, and sea mammals; of particular importance is the National Estuary and Reserve in Padilla Bay. Padilla Bay is very close to the Refinery at March Point, and is therefore of particular concern.

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 E**. Shoreline types indicative of the North Puget Sound area may be found in the ACP. Shorelines types in the area immediately around the facility are located in **FIGURES 6.2, and 6.3**.

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

There are environmentally and economically important sites in the vicinity of this Facility, however, there are no known culturally important sites.

The Anacortes Refinery is located at the north end of March Point on Fidalgo Island, at the northern approach to Puget Sound. This gently sloping point has a maximum elevation of 200 feet and forms a peninsula between Fidalgo and Padilla Bays (refer to **FIGURE 1.5**). The area of Padilla Bay between the mainland and the northern part of Fidalgo Island is largely occupied by drying flats. Deep water is found east of Anacortes and Guemes Island. Entrance to the bay from Rosario Strait is via Guemes Channel and a passage east of Guemes Island serves as an approach into Padilla Bay from the north. Fidalgo Bay is a shallow arm of Padilla Bay that extends south from the east end of Guemes Channel. Anacortes is located on the south shore of Guemes Channel and is a fishing and lumber center with a salmon cannery and plywood plant. Commerce by the port includes logs and lumber products and petroleum products (NOAA 1991).

Swinomish Channel, a dredged channel at the southern end of Padilla Bay, connects the waters of Skagit Bay with those of Padilla Bay. The channel is used extensively for towing logs and by private boaters going between Bellingham and Seattle who prefer Swinomish Channel to Deception Pass because of its calmer water and shorter run. La Conner, near the south end of Swinomish Channel, is the center of the Agricultural district. There are several marinas along the channel at La Conner and commercial fishing boats operate out of the port. There are also several fish canneries (NOAA 1991).

Whidbey Island lies just to the south of Fidalgo Island. Deception Pass, the narrow two-mile passage between the islands noted for its strong tidal currents (i.e., velocities in excess of eight knots), connects the north end of Skagit Bay with the south end of Rosario Strait. Whidbey Basin contains the waters eastward of Whidbey Island and covers the second largest area of the four major subdivisions of Puget Sound (Downing 1983).

The marine and estuarine waters within the San Juan Islands and North Puget Sound are among the most biologically rich and sensitive areas of the State of Washington. A wide diversity of shoreline and marine habitats (estuaries, rocks, reefs, and islands), abundant food resources, and exceptional water quality all contribute to making this area especially valuable to wildlife.

This region contains a number of small to medium-sized seabird nesting colonies, a multitude of marine mammal breeding and resting sites, rearing and feeding habitat for marine fish, and one of the most impressive arrays of marine invertebrates in the world. The region is also a temporary home to many species of marine birds and mammals that are seasonal residents or pass through the area during migration.

Flight restriction zones exist in the area to protect sensitive wildlife species. Zones immediately around the Refinery are provided in **FIGURES 6.2**. Additional information is located in the Northwest ACP.

6.3.1 Marine Mammals

Common species of whales and dolphins found within the area include gray whale, orca, Dall's porpoise and harbor porpoise. In addition, the harbor seal is a permanent resident of the area. Three additional species occur as regular seasonal residents or migrants: the Steller sea lion, California sea lion, and northern elephant seal. Although relatively few Steller sea lions are found in this area, this species is of special concern because it is listed as a Threatened species. This region also supports a large population of river otters which are largely marine in their habits.

The islands, nearshore rocks, and beaches of the region provide pupping and resting sites for harbor seals. The largest concentrations are found in the vicinity of Boundary Bay and Padilla Bay. Other smaller sites are scattered throughout the entire area.

Nearshore waters are used as feeding areas by seals, seal lions, gray whales, harbor porpoise, and river otters.

6.3.2 Birds

Many species of marine birds and shorebirds are either residents or seasonal visitors with this area. Much of the seabird nesting is scattered throughout the region on offshore rocks, exposed rocky coasts or on pilings.

Bald eagles and peregrine falcons nest within the area and are closely associated with the marine ecosystem because of their feeding habits and choice of resting sites. These birds are either listed as Threatened or Endangered and are therefore of particular concern. This area hosts a large wintering population of bald eagles.

Marbled murrelets are unique among the areas seabirds because they nest inland in old-growth forests yet spend much of their time feeding and resting on marine waters in the nearshore environment. This species is of special concern since is been shown to be highly vulnerable to oil spills and gillnet entanglement, and is listed as a Threatened or Endangered species.

In addition to supporting a wide variety of resident birds, North Puget Sound is recognized as one of the most important waterfowl wintering areas on the Pacific flyway for waterfowl. This area has been identified as a key component in the North American waterfowl plan.

Bird Colonies

Most of these species follow the coast during their southward movement; many species winter around these 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. Consequently, in the event of a spill, certain protective measures may be required to minimize the effect on waterbirds. For example, during a critical spill situation, 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.

6.3.3 Eelgrass

Eelgrass meadows in protected bays provide food sources for variety of species within the marine food chain. Additionally, it provides habitat and protection and acts as a nursery for many marine species. In the event of an oil spill near eelgrass meadows, protective measures should be implemented to reduce the impact.

Measures such as booms may be effective when conditions permit deployment. If placed from shore, minimize trampling and dragging equipment over the habitat. For cleanup, natural cleansing is still preferable to most cleanup methods. Manual removal results in the removal of sediments and organisms and should be used in the "wade zone" only. Trampling and dragging of equipment over the habitat should be minimized.

Substrate removal may delay or prevent re-establishment of the original ecosystem and vacuum pumping may result in removal of organisms and sediment. Both methods are not advisable. In intertidal areas, low pressure flushing may be viable. Vegetation cropping should be avoided since it modifies the habitat and may kill important habitat plants.

6.3.4 Inlets, Intakes, Harbors, and Marinas

Inlets, intakes, harbors and marinas are inhabited by a variety of fish, invertebrates, and waterbirds 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.

Recreational Areas

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, and
- Other applicable areas.

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

6.4.1 Environmentally Sensitive Areas

- Padilla Bay
  - Padilla Bay National Estuarine Sanctuary is an extremely sensitive area that provides habitat for many fish and wildlife species.
  - Extensive sheltered tidal flats and eelgrass beds are present throughout the Bay.
  - Glaucous-winged gulls and pigeon guillemots nest in Padilla Bay, and harbor seals and other sensitive species are common throughout the Bay.
- Jack Island, Huckleberry Island, Saddlebag Island, Dot Island, Burrows Island and Allan Island
  - Nesting sites during spring and summer for glaucous winged gulls.

- Williamson Rock (San Juan Islands National Wildlife Refuge)
  - Nesting site during spring and summer for glaucous winged gulls, double crested cormorants, pelagic cormorants, pigeon guillemots, and black oyster catcher.

6.4.2 Economically Important Resources

Recreational and economically important areas in the Fidalgo Bay/Padilla Bay area, which may require special protection in the event of an oil spill include fishing areas, recreational areas and marinas.

Marinas in the area include:

- Fidalgo Marina
- Anacortes Marina
- Cap Sante Boat Haven

Recreational areas include:

- North Beach Park
- Samish Council Campfire Camp
- Washington State Park
- Bay View State Park

Commercial Fishing areas include:

- Commercial shellfish beds in Southwest Samish Bay

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

6.5 SENSITIVE RESOURCES BASED ON TRAJECTORY ANALYSIS

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 Ecological Sensitivity Index (ESI) system used by the National Oceanic and Atmospheric Administration (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 maps contained in the ACP for areas and their priorities within the overall spill envelope for the Company. The maps include information on:

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

Figure 6.3
Environmental Response Map Index

Potential Spill Origin: NPS-G

Priority	GRP Booming Strategy	Location	Strategy Description	Boom Required (feet)
1	NPS-59	Causeway Across Fidalgo Bay	Exclusion	2,300
2	NPS-58	Fidalgo Bay, Weaverling Spit	Exclusion	4,000
3	NPS-55	NE Shoreline of March Point	Exclusion	2,000
4	NPS-56	March Pt, Tidal Lagoon N of Crandall Spit	Exclusion	200
5	NPS-57	March PT., Crandall Spit	Exclusion	1,400
6	NPS-46	Long Bay (SE corner of Guemes Island)	Exclusion	1,000
7	NPS-47	Second Pocket Beach on N Side of Fidalgo island	Exclusion	800
8	NPS-49	Pocket Beach on N Side of Fidalgo Island	Exclusion	600
9	NPS-51	Ship Harbor	Exclusion	2,600
10	NPS-50	Cap Sante Park	Exclusion	1,600
11	NPS-53	NE Corner March Point	Collection, Deflection	1,500
12	NPS-45	Guemes Island E side, Boat Harbor	Exclusion	500
13	NPS-54	NW Fidalgo Island, Sunset Beach	Exclusion	1,100
GRP NPS-G				**19,600 feet**

6.6 WILDLIFE PROTECTION AND REHABILITATION

Major oil spills can adversely impact wildlife that may be in the vicinity of the spill.

In responding to impacted wildlife, two priority items should be addressed:

1. Protecting the affected habitats using technologies that minimize ecological impacts, and
2. Minimizing impacts to exposed resident wildlife through cleaning and rehabilitation efforts.

With few exceptions, most wildlife populations are so large and dispersed that they would not be affected by a single oil spill incident. Other sections within this plan identify means to protect and minimize the impact of a spill on wildlife habitats.

A variety of pre- and post-spill issues should be addressed. These include:

- Identification of the potentially affected regional wildlife resources and habitats;
- Determination of sensitive species with specific consideration given to threatened and endangered species;
- Identification of regulatory and jurisdictional responsibilities as well as lines of authority for key species at risk;
- Identification of the appropriate professionals and/or organizations needed for rescue/rehabilitation efforts;
- Implementation of steps to care for oiled animals; and
- Preparation and implementation of a plan to deal with the media and public concerns.

A Wildlife Branch can be established within the Operations Section to manage this aspect of the response. Responsibility for the management and supervision of the capture, transport, cleaning drying, rehabilitation and release of oiled marine wildlife resources rests with the Washington State Department of Fish and Wildlife (WDFW), and other responsible agencies (e.g. U.S. Fish and Wildlife and National Marine Fisheries Service). The public would be directed to report all oiled wildlife sightings to the Washington Department of Emergency Management (contact information is in **SECTION 3**). This would be accomplished through various media outlets.

Tesoro is a member in good standing with both MSRC and Island Oil Spill Association (IOSA). MSRC has the equipment resources that meet the Level III response requirements identified in Section 9301 Table 1 of the NWACP. IOSA is a local non-profit organization experienced in wildlife capture and treatment that can provide trained personnel capture to rehabilitate wildlife utilizing MSRC's equipment. IOSA is currently permitted to conduct wildlife rescue and rehabilitation under permit # WR-4-400 with the Washington Department of Fish and Wildlife, and permit # MB783323-0 with the U.S. Department of Fish and Wildlife Service. IOSA will be used to assist in the event of an incident affecting wildlife. In addition, Focus Wildlife located in Anacortes can be used to support wildlife response activities. Focus is an approved WA State Primary Response Contractor, and a list of their wildlife response equipment can be found on the Western Response Resource List (www.wrrl.us). Contact information can be found in **SECTION 3** and Proof of Membership can be found in **Appendix B, B.1**.

Tesoro will approach marine wildlife rescue and rehabilitation activities in accordance with the Northwest Area Contingency Plan, Chapter 9310, "Northwest Wildlife Response Plan".

Responsibility for the capture, transport, cleaning, rehabilitation, and release of oiled marine mammals rests with the aforementioned government agencies.

If the responsible government agencies decide to conduct offshore capture operations, they will be carried out by teams of State Fish and Wildlife and USFWS personnel. These agencies will also manage and direct onshore capture operations incorporating non agency personnel as necessary.

6.7 PROTECTION/RESPONSE STRATEGIES

The current GRP for the San Juan Islands/North Puget Sound GRP will be utilized for location of sensitive areas and response strategies.

6.8 GROUND SPILLS

Immediate assessment of ground spills are addressed in the refinery's Environmental Procedures #42 and #44, as well as facility's Spill Prevention Control and Countermeasure Plan.

The refinery has ground water monitoring in place. Surface waters inside the refinery are collected and routed to the effluent plant where water is separated from oil and treated before being pumped out.

6.8.1 Reporting Procedures For Spills To Ground And To Permeable Secondary Containment That Threaten To Impact Waters Of The State (Surface Or Ground Water)

Spills to ground greater than 42 gallons (1 barrel) shall be reported immediately using the contact information in **SECTION 3**. If the spilled quantity is unknown or the release is ongoing a report shall be made. The form in **FIGURE 6.4** can be used to document the decision process for spills to ground notification and includes factors such as whether the spill is ongoing, whether it is in an area with environmental conditions that make ground water impact more likely.

A spill is considered to have not impacted ground if it occurs on a paved surface such as asphalt or concrete. A spill to dirt or gravel is considered to have impacted ground and is reportable. Surface waters inside the refinery are collected and routed to the effluent plant, where water is separated from oil and treated before being pumped out. This helps to prevent oil from reaching surface or ground waters of the state during rain events.

All spills are considered reportable spills except;

- Spills which are known to be less than forty-two gallons that do not impact surface or groundwater
- CERCLA releases
- On-facility air releases to the atmosphere only
- Releases from underground storage tanks regulated under chapter 173-360 WAC
- Preexisting sources of releases identified as RCRA solid waste management units
- Spills contained within areas controlled by NPDES
- Permitted systems that are not likely to threaten groundwater and do not exceed applicable federal reportable quantities

Spills to ground will be assessed as soon as practicable using the following procedures:

All spills involving a reportable quantity (RQ) of a hazardous substance will be immediately reported following the notification process detailed in **SECTION 3**. In the event that a release is known or suspected of impacting soil and/or groundwater notification will be made to the Washington Department of Ecology Toxics Cleanup Program within 90 days in accordance with the Model Toxics Cleanup Act (WAC 173-340). As soon as practicable a groundwater spill assessment will be performed. The goals of the assessment will be to determine the nature and extent of the impact, the gradient and flow direction of groundwater in the vicinity of the release, identify down-gradient sensitive receptors that may require protection, and identify potential preferential pathways that may be in proximity to the release location. The following paragraphs describe the general methods to fulfill the goals of the groundwater spill assessment.

- Groundwater assessment will be performed using existing wells if they are in the vicinity of the release, and with additional grab sampling via direct-push or other intrusive techniques if the impact is known or suspected of extending beyond the existing monitoring well network.
- If existing wells are not present, then assessment will be performed using grab samples collected via direct-push drill rig or other intrusive methods. Wells will be installed as appropriate to supplement data from grab samples and to collect data

to evaluate groundwater flow direction and gradient. Wells will be installed by a well driller licensed in Washington State and installed according to Washington State Department of (Ecology) regulations.

Samples selected for chemical analysis will be submitted to an analytical laboratory licensed by Washington Department of Ecology (WDOE). Chemical analysis methods will include methods approved by WDOE or the United States Environmental Protection Agency (USEPA)

- A sensitive receptor survey will be performed to evaluate the location of municipal water supply wells, wetlands, surface water bodies, and/or other sensitive receptors that may be adversely impacted by the release. Sensitive receptor surveys may include, but not necessarily be limited to: reviewing appropriate maps, reviewing WDOE well records, and visual reconnaissance.

- Where groundwater discharges or is suspected to discharge to surface water, visual inspection of surface water and/or surface water sampling and analysis will be performed to evaluate the groundwater to surface water pathway.

- If underground utilities, pipelines or other buried infrastructure are located in proximity to the spill, their locations will be confirmed and their potential to act as preferential pathways will be evaluated.

Tesoro maintains a contract with Pacific Groundwater Group (PGG) for the management of spill response involving releases to groundwater. PGG is also Tesoro’s contractor for ongoing soil and groundwater remediation projects.

Figure 6.4
Decision Process For Spills To Ground Notification

Yes	No	Potential Notification Triggers	Notes:
		The source of the spill is unknown.	
		The volume of the spill is uncertain.	
		The volume of the spill is greater than 42 gallons **and is not** entirely contained on an asphalt or concrete surface that drains to an oily water sewer.	
		The spill is uncontained.	
		The spill is located in an area where there is a pathway to waters of the state, and environmental conditions, such as rain events, make an impact to state surface or ground water likely.	
		The spill has the potential to impact groundwater.	

(If any of the boxes are marked yes WDEM must be notified immediately, see Page 3-3.)

6.8.2 Impacted Groundwater Mitigation Protocol

Upon discovery or imminent threat of impacts to groundwater at or around Tesoro facilities, 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:

- Tesoro 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.
- Tesoro 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 (COC's).
- 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.

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SECTION 7 SUSTAINED RESPONSE ACTIONS

7.1 RESPONSE RESOURCES

7.1.1 Firefighting Equipment

The Facility maintains a large inventory of firefighting equipment throughout the refinery and marine terminal. A listing of all fire extinguishers is maintained on the Refinery computer network system and with the Senior Safety Inspector in the Refinery Safety Office. The Senior Safety Inspector also serves as the On-Site Fire-Fighting Coordinator and is located in the Safety Offices Building, Office # 7. Phone number is listed in **FIGURE 3.3.**

7.1.2 Facility Response Equipment

The Facility maintains a large inventory of spill response equipment. Containment boom can be mobilized for deployment within 30 minutes of confirmation that a spill has occurred. A list of equipment at the facility is provided in **FIGURE 7.2**.

In order to maintain response equipment in a constant ready state, on-site response equipment is tested and inspected on a weekly basis and records are retained at the Wharf. Any discrepancies found on the check-sheet are reported to the Logistics Supervisor in order to affect repair or replacement in a timely manner. In addition, a preventive maintenance program was developed and implemented that places equipment on a monthly, quarterly or yearly maintenance schedule. The inspection checklist and maintenance schedule can be found in the Wharf Manual. Operations and Maintenance are responsible for conveying and retaining information on the operational status of all equipment for a minimum of 5 years and are responsible for ensuring that the following response equipment and testing procedures are implemented. These consist of:

- <u>Containment Boom</u>: During semi-annual boom deployment exercises, boom will be inspected for signs of wear, or structural deficiencies. If tears in fabric or rotting are observed, boom will be repaired or replaced. In addition, end connectors will be inspected for evidence of corrosion. If severe corrosion is detected, equipment will be repaired or replaced.

- <u>Response Boats:</u> Primary response boats are deployed at least bi-monthly. If any mechanical problems are detected, they will be repaired in a timely manner.

- <u>Miscellaneous Equipment</u>: 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 Wharf Operator. A blank form is provided in **FIGURE 7.2.**

Deployment of Facility equipment listed in **FIGURE 7.2** will begin within one half hour of the origination time 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 B**.

7.1.3 Contractor Equipment and Manpower

The Company's primary response contractor (PRC) and telephone numbers for the Facility are noted in **SECTION 3 and APPENDIX B**. **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.

The Company has ensured by contract the availability of private personnel and equipment necessary to respond, to the maximum extent practicable, to the worst case discharge or the substantial threat of such discharge. **FIGURE B.2** contains a summary of resources available for boom deployment. **FIGURE B.3** describes the oil recovery and interim storage resources available through the PRC. MSRC is an Ecology approved PRC and maintains detail information regarding temporary storage, recovery systems and effective daily recovery capacity to meet the required planning standards.

Where available, the response equipment lists contain the following equipment categories:

- Skimmer/Pumps
- Boom
- Sorbents
- Tools and miscellaneous equipment
- Communication equipment
- Firefighting equipment and 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

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

The Company is a member of Marine Spill Response Corporation (MSRC), a national spill response company. MSRC is the Company's primary response contractor for offshore containment and clean-up equipment and personnel. MSRC has equipment and personnel stationed at Anacortes and can respond to a spill at the Company's dock within one hour. As an Ecology approved PRC, MSRC has the equipment and resources available to meet the (most stringent) planning standard for Padilla Bay as outlined under WAC 173-180-375. A detailed listing of MSRC resources can be found in the Western Regional Resource List. http://www.wrrl.us/index.html. Also see **FIGURE 7.1**. WDOE Planning Standard Summary. Evidence of membership is provided in **APPENDIX B**.

7.1.5 Other Resources

Other contractors available are listed in **FIGURE 3.3**.

The U.S. Coast Guard (USCG) and Navy also have stockpiles of equipment available to the private sector, generally after sources of equipment provided by private contractors have been exhausted. Local USCG and Navy equipment is listed on the Western Response Resource List (WRRL) and can be accessed through the website www.wrrl.us. The Navy also has salvage equipment which is listed on the WRRL. Requests for federal equipment can be expedited when made through the U.S. Coast Guard's On-Scene Commander.

7.1.6 Oil Spill Response Equipment

For the purposes of a worst case spill scenario, the Company's largest tank has a capacity of 600,000 barrels. Pursuant to WAC 173-182-355 and WAC 173-182-375, the Company must have oil spill response equipment available capable of recovering 12,500 barrels within six hours, 36,000 barrels in 12 hours, 48,000 barrels in 24 hours, and 60,000 barrels in 48 hours. Each of these requirements exceeds that of the U.S. Environmental Protection Agency and the U.S. Coast Guard. **APPENDIX D** 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 Company will notify the Washington State Department of Ecology.

The WDOE Planning Standard Summary Analysis developed by the WDOE for both WAC 173-182-355 and WAC 173-182-375 show that this plan meets these requirements accurate as of Sept 6, 2013. For a current updated version of these planning standard spreadsheets please visit ftp://ecy.wa.gov/spills/C-plans/Planning_Standard_Spreadsheets/Tesoro_Anacortes_Refinery/.

Figure 7.1
Washington DOE Planning Standards

Plan Holder: Tesoro Anacortes Refinery

Planning Standard Summary Analysis: WAC 173-182-355 Transfer sites for covered vessels and facilities with vessel terminal.

The summary analysis spreadsheet is based on a conceptual model 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 in spills will depend on the conditions of the day. An electronic version of the equipment detail spreadsheet which lists all equipment can be made available by Ecology upon request. The planning standard summary analysis indicates total access to boom, storage and recovery resources required to meet the planning standard. Equipment access is based on information listed on the WRRL and information provided through the plan holder contingency plan and Primary Response Contractor applications as of **9/6/2013**. This information is subject to change as additional equipment is acquired and/or relocated. Substantive changes will result in an update of the spreadsheets.

PRC(s): MSRC, Global Diving, IOSA

Plan Holder owned equipment: Yes

Worst Case Spill Volume (bbls): 600,000

Oil Products Handled by Group (Group 1-5): Group 1- Full range Alkylate Naptha, Chemically Neutral Light Naptha, Diesel, JetA, Hydrotreated Light Naptha, Heavy Catalytic Reformed Naptha, Light Catalytic Reformed Naptha, Regular Unleaded Gasoline, Premium Unleaded Gasoline. Group 2- Crude Oil, Light Catalytic Cracked Gas Oil. Group 3- Heavy Straight Run Gas Oil, Low Sulfur Catlytic Cracker Feed, Medium Sulfur Catalytic Cracker Feed. Group 4- Marine Fuel Oil Blendstock NW. Group 5- Catalytically Cracked Oil (slurry) (decant), Industrial Fuel Oil.

Mutual Aid/Letters Of Intent: Mutual aid agreement with Shell Anacortes Refinery.

Analysis point description: 48.499, -122.57, the approximate location of Tesoro Anacortes Dock.

Marine 50% or Freshwater 65% shore side storage credit: YES/NO? Yes, tank 165 can be used as interim storage and has a capacity of 600,000 bbls.

Alternative Planning Standard: If the plan holder meets the standard through an approved alternative planning standard. Provide a narrative of the standard in this box and/or a reference to where detail about the approve alternative planning standard is described in the plan.

	On-water Storage (bbls)	Shore side Storage (bbls)	Total Storage (bbls)	Calm Water (EDRC)	Protected Water (EDRC)	Open Water (EDRC)	Total Recovery (EDRC)	B1 Boom (ft)	B2 Boom (ft)	B3 Boom (ft)	Total Boom (ft)	Personnel (12 hour shift)
6 hr available	31,457	176	31,633	1,223	34,869	34,567	70,659	16,520	93,630	6,800	116,950	209
6 hr required			12,500				12,500				10,000	
meets standard			**Yes**				**Yes**				**Yes**	
12 hr available	94,543	180	94,723	1,333	67,161	80,689	149,183	25,800	117,710	6,800	150,310	277
12 hr required			36,000				36,000				30,000	
meets standard			**Yes**				**Yes**				**Yes**	
24 hr available	129,953	180	130,133	1,333	67,161	91,256	159,750	30,810	118,710	6,800	156,320	293
24 hr required			72,000				48,000				50,000	
meets standard			**Yes**				**Yes**				**Yes**	
48 hr available	169,953	180	170,133	1,333	67,161	91,256	159,750	30,810	118,710	6,800	156,320	294
48 hr required			72,000				60,000				50,000	
meets standard			**Yes**				**Yes**				**Yes**	

Plan Holder: Tesoro Anacortes Refinery

Planning Standard Summary Analysis: WAC 173-182-375 Padilla Bay Planning Standard

The summary analysis spreadsheet is based on a conceptual model 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 in spills will depend on the conditions of the day. An electronic version of the equipment detail spreadsheet which lists all equipment can be made available by Ecology upon request. The planning standard summary analysis indicates total access to boom, storage and recovery resources required to meet the planning standard. Equipment access is based on information listed on the WRRL and information provided through the plan holder contingency plan and Primary Response Contractor applications as of **9/6/2013**. This information is subject to change as additional equipment is acquired and/or relocated. Substantive changes will result in an update of the spreadsheets.

PRC(s): MSRC, Global Diving, IOSA

Plan Holder owned equipment: Yes

Worst Case Spill Volume (bbls): 600,000

Oil Products Handled by Group (Group 1-5): Group 1- Full range Alkylate Naptha, Chemically Neutral Light Naptha, Diesel, JetA, Hydrotreated Light Naptha, Heavy Catalytic Reformed Naptha, Light Catalytic Reformed Naptha, Regular Unleaded Gasoline, Premium Unleaded Gasoline. Group 2- Crude Oil, Light Catalytic Cracked Gas Oil. Group 3- Heavy Straight Run Gas Oil, Low Sulfur Catlytic Cracker Feed, Medium Sulfur Catalytic Cracker Feed. Group 4- Marine Fuel Oil Blendstock NW. Group 5- Catalytically Cracked Oil (slurry) (decant), Industrial Fuel Oil.

Mutual Aid/Letters Of Intent: Mutual aid agreement with Shell Anacortes refinery.

Analysis point description: Padilla Bay planning standard area.

Marine 50% or Freshwater 65% shore side storage credit: YES/NO? Yes, tank 165 can be used as interim storage and has a capacity of 600,000 bbls.

Alternative Planning Standard: N/A.

	On-water Storage (bbls)	Shore side Storage (bbls)	Total Storage (bbls)	Calm Water (EDRC)	Protected Water (EDRC)	Open Water (EDRC)	Total Recovery (EDRC)	B1 Boom (ft)	B2 Boom (ft)	B3 Boom (ft)	Total Boom (ft)	Personnel (12 hour shift)
1.5 hr available	0	50	50	674	0	0	674	0	13,100	0	13,100	4
1.5 hr required			0				0				1,000	
meets standard			**Yes**				**Yes**				**Yes**	
2 hr available	380	50	430	674	14,558	6,000	21,232	0	21,620	0	21,620	22
2 hr required			0				0				3,000	
meets standard			**Yes**				**Yes**				**Yes**	
6 hr available	31,457	176	31,633	1,223	34,869	34,567	70,659	16,520	93,630	6,800	116,950	209
6 hr required			6,250	6,250			12,500				13,000	
meets standard			**Yes**	**Yes**			**Yes**				**Yes**	
12 hr available	94,543	180	94,723	1,333	67,161	80,689	149,183	25,800	117,710	6,800	150,310	277
12 hr required			27,000	7,200			36,000				33,000	
meets standard			**Yes**	**Yes**			**Yes**				**Yes**	
24 hr available	129,953	180	130,133	1,333	67,161	91,256	159,750	30,810	118,710	6,800	156,320	293
24 hr required			48,000				48,000				53,000	
meets standard			**Yes**				**Yes**				**Yes**	
48 hr available	169,953	180	170,133	1,333	67,161	91,256	159,750	30,810	118,710	6,800	156,320	294
48 hr required			48,000				60,000				53,000	
meets standard			**Yes**				**Yes**				**Yes**	

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7.1.7 Communications Equipment

Routine Communications

Telephones at the wharf are available at the following locations:

- Two telephones in the wharf control house (Ext. 636)
- Telephone at the head of causeway (Ext. 090)
- Telephone at wharf pull-out No. 2 (Ext. 091)
- Telephone at the boat shed (Ext. 092)
- Wall phone in basement of wharf office (Ext. 094)

Each Wharf Operator has a two-way radio available. When a vessel docks, the Chief Officer or Tanker-man is issued at two-way radio during the pre-transfer conference for instant communication with the Wharf Operator and the base station at the shipping pump area.

Emergency Communications

Emergency notification and activation of refinery response personnel would be accomplished through the refinery's audible alarm system, emergency telephone system, and Send Word Now Communication System. The latter two systems include automated notification (call down) of selected response personnel. The refinery's radio and cellular telephone system also aid in emergency communications and response personnel notification.

In the event of any oil spill emergency, the refinery radio system would be used as the major source of radio communications, although a major cleanup effort may require supplemental communications equipment from the Company's corporate communications system and the Marine Spill Response Corporation (MSRC). The Refinery Send Word Now system would also be used to contact individuals in vehicles without radios.

Field Command Post(s) and Call Center

Telephones (e.g. fixed and/or cellular) would be provided at the emergency operations center and at each field command post, as requested. Emergency phone installations would be provided by the Special Systems Group. For the purposes of handling all outside telephone calls and controlling communications traffic in regard to the emergency, an emergency call center will be established in the Administration Building basement telephone room. The Special Systems Group is responsible for setting up this command center and supervising its operation. The call center would direct incoming calls to the proper personnel and will give the proper priority to outgoing calls.

Portable Radios

The refinery has approximately 450 radios. The units can send out about 2-5 miles, depending on geography, and can receive within 10-15 miles of the refinery. Two-way mobile radios, which operate only on Channel 1 (i.e. Maintenance Channel) are also mounted in automotive equipment. The wharf control house is equipped with a VHF radio and a hand-held VHF with channels 7, 10, and 16. The two workboats (Eager Beaver and Yellow Sea Truck) also have permanently installed VHF radios which may be used for oil spill communications on Channel 7A. Channel 10 may be used as an alternate for oil spill communications. These radios may be used as back-up communications (i.e. Channel 16 with Coast Guard and Channel 28 for marine operations).

All telephones, including cellular telephones, utilized in the response shall be intrinsically safe.

Radio System Operation

The system consists of a number of separate frequencies that are as follows:

Zone 1	**Description**
Channel 1) Maintenance	Maintenance Talk group
Channel 2) Wharf	Wharf Talk group
Channel3) Zone A OPS 1	Crude, CR/NHT Talk group
Channel 4) Zone B OPS 1	CCU, ALKY Main Talk group
Channel 5 Zone C	Zone C Logistics Talk group
Channel 6) BoilerHouse	BoilerHouse Talk group
Channel 7) Zone B OPS 2	CCU, Alky Back Up Talk group
Channel 8) Zone A OPS 2	Crude, CR/NHT Back Up Talk group
Channel 9) I/E	I/E Shop Talk group, all I/E radios hear this channel no ma channel they are on.
Channel 10) Machinist	Machinist Talk group
Channel 11) Shop 2	Shop 2 Talk group
Channel 12) Safety	Safety Talk group, all safety radios hear this channel no m channel they are on.
Channel 13) Zone A Maint.	Zone A Maintenance Talk group
Channel 14) Zone B Maint.	Zone B Maintenance Talk group
Channel 15) Zone C Maint.	Zone C Maintenance Talk group
Channel 16) Security	Security Talk group
Channel 17) Crane 1	Crane 1 Simplex
Channel 18) Crane 2	Crane 2 Simplex
Channel 19) Construction 1	Construction 1 Talk group
Channel 20) Construction 2	Construction 2 Talk group
Channel 21) Construction 3	Construction 3 Talk group
Channel 22) I/E Cutover 1	I/E Cutover 1 Talk group
Channel 23) I/E Cutover 2	I/E Cutover 2 Talk group
Channel 24) Zone E Maint.	Zone E Maintenance Talk group
Channel 25) Scaffold	Scaffling Talk group
Channel 26) Insulation	InsulationTalk group
Channel 27) Zone A Training	Zone A Operations Talk group
Channel 28) Zone B Training	Zone B Operations Talk group

Channel 29) Zone C Training	Zone C Operations Talk group
Channel 30) Spare 1	Active Spare 1 Talk group
Channel 31) Spare 2	Active Spare 2 Talk group
Channel 32) Spare 3	Active Spare 3 Talk group
Channel 33) Shutdown 1	Shutdown Talk groups (To be assigned at Shutdown)
Channel 34) Shutdown 2	Shutdown Talk groups
Channel 35) Shutdown 3	Shutdown Talk groups
Channel 36) Shutdown 4	Shutdown Talk groups
Channel 37) Shutdown 5	Shutdown Talk groups
Channel 38) Shutdown 6	Shutdown Talk groups
Channel 39) Shutdown 7	Shutdown Talk groups
Channel 40) Shutdown 8	Shutdown Talk groups
Channel 41) Shutdown 9	Shutdown Talk groups
Channel 42) Shutdown 10	Shutdown Talk groups
Channel 43) Shutdown 11	Shutdown Talk groups
Channel 44) Shutdown 12	Shutdown Talk groups
Channel 45) Shutdown 13	Shutdown Talk groups
Channel 46) Shutdown 14	Shutdown Talk groups
Channel 47) Shutdown 15	Shutdown Talk groups
Channel 48) Shutdown 16	Shutdown Talk groups
Channel 49) Shutdown 17	Shutdown Talk groups
Channel 50) Shutdown 18	Shutdown Talk groups
Channel 51) Shutdown 19	Shutdown Talk groups
Channel 52) Shutdown 20	Shutdown Talk groups
Channel 53) Shutdown 21	Shutdown Talk groups
Channel 54) Shutdown 22	Shutdown Talk groups
Channel 55) Shutdown 23	Shutdown Talk groups
Channel 56) Shutdown 24	Shutdown Talk groups
Channel 57) Shutdown 25	Shutdown Talk groups
Channel 58) Shutdown 26	Shutdown Talk groups
Channel 59) Shutdown 27	Shutdown Talk groups
Channel 60) Shutdown 28	Shutdown Talk groups
Channel 61) Shutdown 29	Shutdown Talk groups
Channel 62) Shutdown 30	Shutdown Talk groups
Channel 63) Shutdown 31	Shutdown Talk groups
Channel 64) Shutdown 32	Shutdown Talk groups
Channel 65) Clean Sound Simplex	Clean Sound radio to radio
Channel 66) Clean Sound	Clean sound repeated
Channel 67) Oil Spill	Oil Spill Talk group
Channel 68) Zone C & Boilerhouse	Zone C Supervisors only
Channel 69) Security 2	Security officers only
Channel 70) CROF 1	CROFand Zone C
Channel 71) CROF 2	CROF only
Channel 72) Crof Simplex	CROF only radio to radio
Channel 96) CAER	Safety, EOC, Zone C Supervisors only
Channel 97) Safety	Safety, EOC, Zone C Supervisors only
Channel 98) Safety	Safety, EOC, Zone C Supervisors only
Channel 99) Safety	Safety, EOC, Zone C Supervisors only
Emergency button	All radios heard by Saftey and Maingate
Maintenance All Call	Maintenance Supervisors can make a all call to Maintenar
ALL CALL	Safety, EOC, Zone C Supervisors can only make a ALL Call

Zone 2 Emergency

In case Trunking system fails

Channel 1 Maintenance Emer
Channel 2 Security Emer
Channel 3 Zone A Emer
Channel 4 Zone B Emer
Channel 5 Zone C Emer
Channel 6 Boiler House Emer
Channel 7 Alky Emer
Channel 8 CR/NHT Emer
Channel 9 Safety 1 Emer Safety Radios only
Channel 10 Safety 2 Emer Safety Radios only

Corporate Communication System

During a major spill response, the local telephone company and cellular service would be contacted as soon as possible to augment the existing telephone service.

Marine Spill Response Corporation

Supplemental communications capabilities are available to the Company through the MSRC Network. This listing is on file at the Refinery and is available upon request from the Supervisor Contingency Planning and Emergency Response.

7.2 SECURITY

The Tesoro Anacortes Refinery is regulated under 33 CFR 105 (MTSA, Maritime Transportation and Security Act of 2002). The facility is a Tier Two C-TPAT compliant importer under CBP's Trade Partners against Terrorism, supply chain security program. The facility maintains a Facility Security Plan that is audited annually for compliance and inspected biannual by US DHS inspectors from the USCG. Annual security exercises and quarterly security drills are conducted to ensure compliance with the Facility Security Plan, including internal and external emergency notifications. All personnel requiring unescorted access to the facility, including employees and contractors, possess a Transportation Workers Identification Credential, TWIC. The TWIC is a biometric tamper resistant photo identification credential issued by TSA that ensures the facility and DHS that works at the site meet personnel surety requirement (identity verification and validation), have been vetted against terror database, and have been cleared to work at this critical infrastructure facility.

Specific Measures

All process, storage, internal pipe lines, and valves are contained within the facility's restricted area. The restricted area is monitored by a dedicated security force 24/7/365. The security force provides access control monitoring and internal and external patrols of the facility. The restricted area is enclosed by chain link fencing. The enclosure is punctuated by vehicle and personnel gates. These gates are locked and secured when not in use, and manned by security when in use. Access to the restricted area of the facility is granted only after preapproval and issuance of a facility access control card. The perimeter and interior of the plant have lighting to provide for deterrence, and detection of unauthorized entry to the facility restricted area. Major facility gates, and key facility infrastructure, including the wharf, are monitored by CCTV system. This CCTV system is monitored by dedicated security force 24/7/365.

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.

Request assistance from the Skagit County Sheriff Department, or in the event that traffic control is required on Highway 20, contact the Washington State Patrol to:

- Set up road blocks 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:

- Utilize barricades in establishing 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, to maintain strict control of all personnel and vehicular traffic entering the spill site by:

- Positioning security personnel to effectively control non-responder 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 Facility has security gates at all main entrances and traffic points that are manned or monitored on a continuous basis, 24 hours a day. Perimeter surveillance is also continuously maintained.

The Security Group consists of the Main Gate Guard and the Roving Guard who primary responsibilities are to:

- Control access to the facility.
- Direct initial contact from the media to location PIO or SAT Corporate Communications.

The Main Gate Guard is responsible for directing media calls to the location Public Information Office (PIO) or San Antonio Corporate Affairs Office. Security will assist with escorting media to the Media Room, which will be identified by the PIO. Two locations that have been used in the past are the Training Trailer, and the Tera Building. When an on-site Joint Information Centers (JIC) has been established, all outside calls will be referred to the JIC, and all media personnel will be directed to the Media Room. The Main Gate Guard is responsible for ensuring that all other entrance gates are secure.

The Roving Guard would control entry to the refinery at the intersection of Tesoro Avenue and West March Point Road. The Roving Guard would be under the direction of the Main Gate Guard and would remain in radio communication with the Main Gate. Only authorized Company personnel would be allowed to enter the refinery. Entry by other individuals must be approved by senior management approval.

Security services would be provided at the following locations:

- Refinery.
- Refinery Wharf.
- Spill site.
- Field operations sites.
- Command post(s)
- Staging areas.
- Warehouses.

The names and phone numbers of companies in the area capable of providing security services are provided in **SECTION 3**.

When an emergency is sounded at the Facility, all roads are cleared and traffic is carefully regulated and monitored. This is to:

1) Ensure that emergency crew vehicles have clear access to all critical areas;
2) Prevent unauthorized and excessive traffic at the facility; and
3) Direct personnel and resources to the desired locations.

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

Site Security and control during an oil spill incident 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 4.2.**

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 non-mechanical 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) which 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 FOSC are provided in **SECTION 5.2**. For more information regarding the FOSC approval process, consult Section 9406 of the Northwest Area Contingency Plan (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 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. It 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 7.3** provides a federal decision guide for bioremediation consideration. A Bioremediation Checklist is provided in **FIGURE 5.3**.

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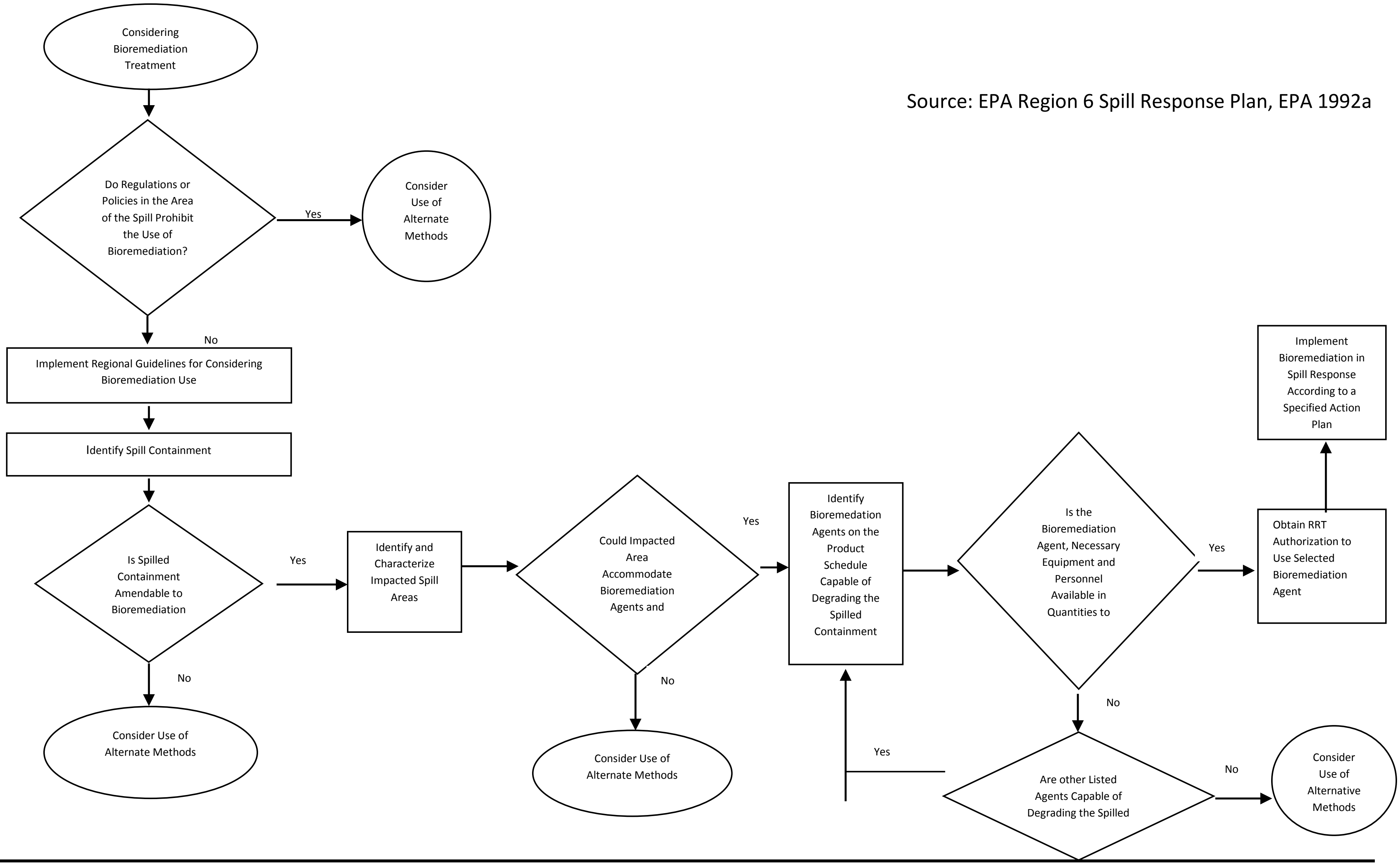
Figure 7.2
Onsite Oil Spill Response Equipment

TYPE/Equip #	QTY	MAKE	MODEL	AGE	LOCATION	OPERATIONAL STATUS	DAILY DESIGN CAPACITY (GPM)	MAX. OIL REC/24 HRS (Gal.)	EQUIPMENT DESIGN
CONTAINMENT									
Spill Boom	500’	O.S.S.	Type 3	1974	Wharf Corner NE	In Operation	N/A	N/A	36-inch
Spill Boom	400’	O.S.S.	Type 3	1974	Wharf Corner SE	In Operation	N/A	N/A	36-inch
Spill Boom	500’	O.S.S.	Type 3	1992	Wharf Causeway	In Operation	N/A	N/A	36-inch
Spill Boom	400’	O.S.S.	Type 3	1992	Wharf Causeway	In Operation	N/A	N/A	36-inch
Spill Boom	4 @ 500’	O.S.S.	Type 3	1990	Wharf Causeway	In Operation	N/A	N/A	36-inch
Sorbent Boom	4	3M			Wharf - Green Shed	In Operation	N/A	N/A	20 ft. each
Sorbent Boom	8	3M			Wharf - Gray Shed	In Operation	N/A	N/A	10 ft. each
RECOVERY									
Sorbent pads	20 bales	Type 156			Effluent Equipment Storage/Wharf	In Operation	N/A	N/A	18”x18” 100 pads ea.
Sorbent rolls	20 rolls	Type 100			On Wharf and Effluent Storage	In Operation	N/A	N/A	36”x150’ long
Oil Sweeps	20	3M			Wharf & Effluent	In Operation	N/A	N/A	8”x100
Oil Snare	27 boxes				Wharf & Effluent	In Operation	N/A	N/A	30/box
TRANSPORTATION									
Work Boats – Sea Truck X-892	1	Sea Truck		1972	Wharf	In Operation	N/A	N/A	25’ 2/90 HP O.B.
Work Boats – Eager Beaver X-891	1	Raider		1975	Wharf	In Operation	N/A	N/A	25’ 2/90 HP O.B.
Skiff – Sea Slug X-893	1	Crowley		1976	Wharf	In Operation	N/A	N/A	16’ 1/50 HP O.B.
MISCELLANEOUS									
Anchors	8	Danforth			Wharf Equipment Storage	In Operation	N/A	N/A	With ground tackle
Tools/rope	Misc.				Wharf Equipment Storage	In Operation	N/A	N/A	Hand tools, pitch forks

Figure 7.3
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. Section 9407 of the Northwest Area Contingency Plan contains information and Operations Planning Tools for In-Situ burning.

Pre-approval areas are defined as those areas which are more than three miles from population. All other areas will be considered on a case-by-case basis. Monitoring and sampling will be conducted where there is the potential for people to be exposed to the smoke. As general guidance, people should not be exposed to small particles (PM-10) in concentrations that exceed 150 micrograms per cubic meter (wg/m^3) of air averaged over one hour. The concentrations should never exceed 150 wg/m^3 averaged over 24 hours.

Authorization Procedures

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 7.3** depicts the In-Situ Burn Authorization Process.

Authorization procedures will differ depending upon whether the spill location is in a pre-approval area or is decided on a case-by-case basis. **SECTION 5.5** provides checklists to determine if in-situ burning is an appropriate method.

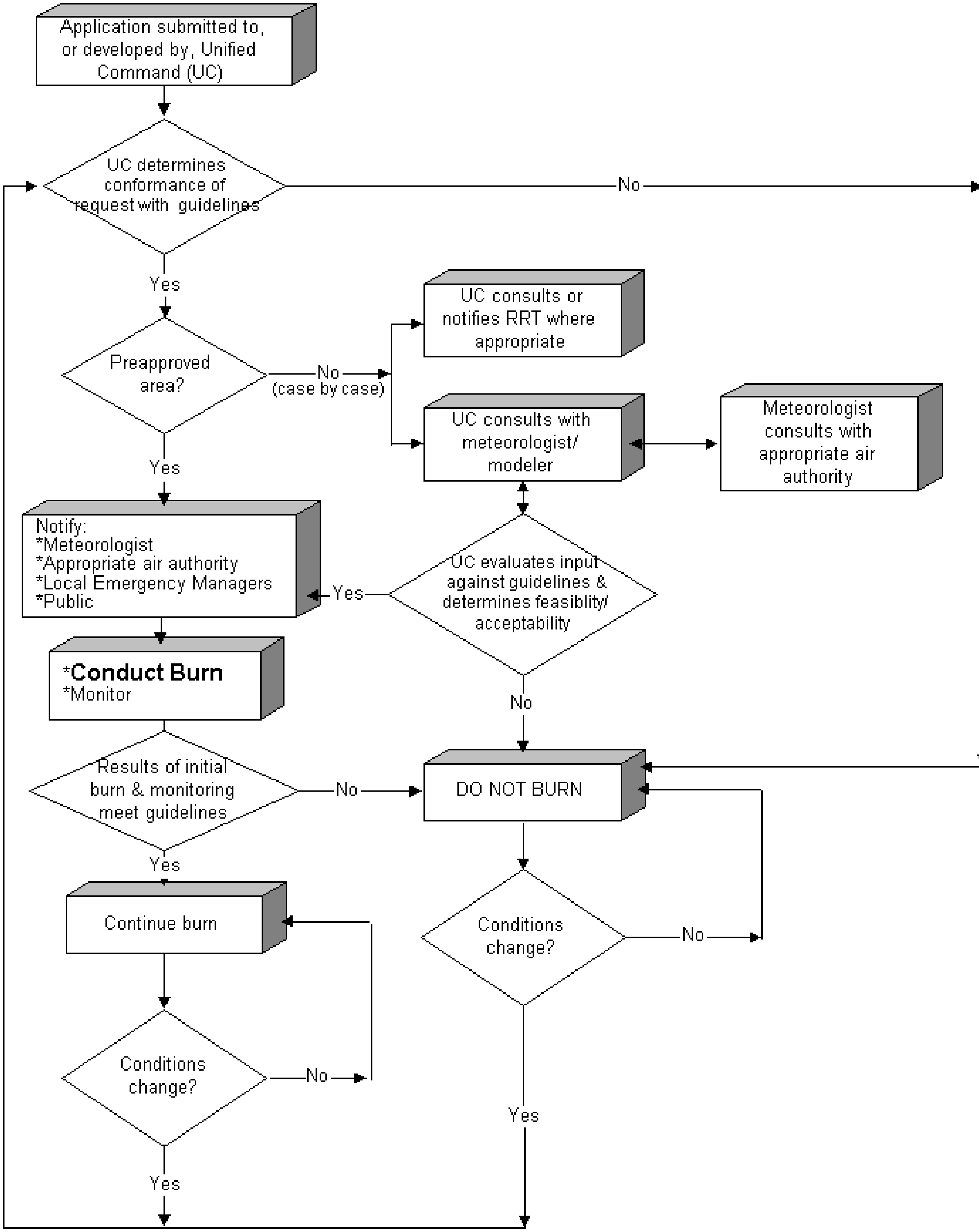
Once the UC determines the application to burn conforms to the PM-10 standard, the UC determines if the spill location is in a "pre-approval area. “Pre-approval areas include any area that is further than three miles from human population. Human population is defined as 100 people per square mile. If a potential burn site is in a pre-approval 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: Pre-approval 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 the application conforms with the guidelines but is not in a pre-approval 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 pre-approval areas. If the decision is no, then the burn will not be conducted. If conditions change, the application will be re-evaluated.

Figure 7.4
In-Situ Burn Decision Process



7.3.4 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 addressed in Section 9411 of the Northwest Area Contingency Plan (NWACP).

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, which may contain as much as 70% water and 30% 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.

The primary goal of mechanical recovery is to rapidly recover spilled oil from water. In many cases, the separation of oil and water and discharge of excess water is necessary for skimming operations to be effective. Decanting should be considered and authorized by the FOSC and/or SOSC because the discharged water will be much 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 FOSC and/or SOSC so that response operations do not cease or become impaired. An Oil Spill Decanting Authorization Form is provided in **FIGURE 5.8**. Expeditious review and approval, as appropriate, of such requests is necessary to ensure a rapid and efficient recovery operation.

Oils Pre-Approved for Decanting and Associated Conditions

Pre-approval for on-water decanting is authorized when pumping recovered oil and water ashore is not practical during the first 24 hours after initial spill discovery for the following products:

- All crude oils,
- Vacuum gas oils,
- Atmospheric gas oils
- Recycle oils not containing distillates,
- Bunker fuels,
- No. 6 fuel oils,
- Cutter stocks, and
- Coker gas oils.

Decanting of the listed oils is pre-approved if the following conditions are met:

- Pre-approval is for the first 24 hours after spill discovery. Decanting requests for all the remaining operational periods will need to be completed and submitted to Unified Command. The responsible party (RP) must fill out the NWACP decanting request (Figure 5.8) and submit for approval.
- The Incident Commander must be notified within one hour of decanting being initiated and must then immediately notify Unified Commnd.
- The RP assures the Unified Command that they are quickly obtaining adequate oil storage and skimming capacity within the first 24 hours and the responding contractors are expeditiously getting sufficient storage and skimming capacity to alleviate the need for prolonged decanting.
- Criteria on the Decanting Authorization Form (Figure 5.8) are being followed.

Oils Requiring Approval by Unified Command Prior to Decanting

During a response, when decanting has not been pre-approved for lighter oils, which are not listed above, it will be necessary for response contractors or the RP to request from the Unified Command written authority to decant using figure 5.8. The Unified Command will consider each request on a case by case basis.

7.3.5 Group 5 Oils

From time to time, Tesoro handles Group 5 oils. Tesoro's PRC for responding to Group 5 oil is Marine Spill Response Corporation (MSRC). Contact information for MSRC can be found in either **SECTION 3** or **APPENDIX B**. These materials either float or remain suspended in the water column, or sink to the sea floor. The locations of the non-floating oil may be determined through aerial observations, diver intersects, subsurface modeling or side scan sonar surveys. Recovery can be attempted using manual removal by divers, removal by pump and vacuum equipment, or dredging. Removal methods will be approved by unified command. The primary response contractor (PRC) maintains the resources for locating and recovering oil on the bottom or suspended in the water column. The equipment is capable of being on scene within 12 hours of spill notification. For a detailed list of response equipment and response capabilities refer to the MSRC's PRC application.

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 he/she takes 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 his/her hands and face
- An impermeable surface to sit on
- Refuse containers
- An eyewash station

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 he/she 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 he/she will remove his/her work clothes and clean himself/herself 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.

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

- All decanting should be done in a designated "Response Area" within a collection area, vessel collection well, recovery belt, weir area, or directly in front of a recovery system.
- Vessels employing sweep booms with recovery pumps in the apex of the boom should decant forward of the recovery pump.
- All vessels, motor vehicles and other equipment not equipped with an oil/water separator should allow retention time for oil held in internal or portable tanks before decanting commences.

- When deemed necessary by the FOSC and/or SOSC or the response contractor a containment boom will be deployed around the collection area to minimize loss of decanted oil or entrainment.
- Visual monitoring of the decanting area shall be maintained so that discharge of oil in the decanted water is detected promptly.
- Decanting in areas where vacuum trucks, portable tanks or other collection systems are used for shore cleanup will be subject to the same rules as vessels.

The Company will seek approval from the FOSC and/or SOSC prior to decanting by presenting the Unified Command with a brief description of the area for which decanting approval is sought, the decanting process proposed, the prevailing conditions (wind, weather, etc.) and protective measures proposed. The FOSC and/or SOSC will review such requests promptly and render a decision as quickly as possible. FOSC authorization is required in all cases and SOSC authorization is also required for decanting in state waters. **SECTION 5.8** provides guidance on developing a decanting plan.

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 Anacortes Refinery, MSRC on-water storage barges which are listed on the Western Response Resource List (www.wrrl.us) can be used as interim storage among other on-water storage platforms listed in **APPENDIX B**. Additional storage capacity located at the refinery consists of shore, hill, ballast and slop tanks. Tank 165 or 166 can be used as interim recovered oil storage. They each have 600,000 barrels of storage capacity. Depending on product storage during an event either of these shore tanks could be utilized as needed for storage. Determination for product movement would be made at the time of the event based on time line for storage needs, shore tank product types, and tank levels. Product transfers to hill storage tanks would be made as needed to create any additional storage requirements.
- The Operations Manual for the unloading of barges to facility storage tanks and product transfer within the facility are governed by WAC 173-180-415 and 420. These documents are provided to and approved by WDOE. Only trained operators will be performing these operations.

The Company will use only licensed transporters and approved (or permitted) treatment and disposal facilities for waste handling and disposition, unless otherwise directed by the WDOE.

In the event of an oil spill, the Refinery has the capability to recycle recovered oil through the Effluent Plant. Normally, oil can be pumped into the API separator inlet or at the refining slop tanks.

- Oily debris will be segregated on site and containerized for temporary storage prior to disposal in accordance with RCRA/CERCLA regulations.
- After draining liquids to the Effluent Plant, sorbents can be bagged and sent to the appropriate disposal site as per guidelines below.

Temporary storage of oily debris and oil is available at the Refinery at the RCRA Land Treatment Facility. Prior to utilizing this storage site, appropriate approvals must be obtained through the State of Washington Department of Ecology. Any debris temporarily stored at these locations will be labeled for identification pursuant to 40 CFR 260-262 and/or WAC 173-303.

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

Incident specific disposal plans will be developed in accordance with the Northwest Area Contingency Plan (NWACP), Washington State Disposal Guidance, Section 9620 and follow the "Sample Disposal Plan" format provided in **SECTION 5**.

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.

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 Waste Management Plan found in **SECTION 5** and the Recovered Oil Quantification Plan in **SECTION 5.6**.

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

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 Manager, Human Resources. During emergency situations, media relations become more complex and a number of other personnel become involved. The Company will utilize the Joint Information Center (JIC) Manual, Section 9202 of the Northwest Area Contingency Plan,as a guideline to media relations.

7.7 SITE SAFETY & HEALTH PLAN

PERMIT & PLAN
SIGN-OFF SHEET

INCIDENT NAME: ______________________ **DATE PREPARED:** __________

OPERATIONAL PERIOD: ______________________________

Site Safety & Health Plan

APPROVED BY:

RPIC	**DATE**
FOSC	**DATE**
SOSC	**DATE**
LOSC	**DATE**
TOSC	**DATE**

COMMENTS:

SECTION 1 – INCIDENT DESCRIPTION

WORK SITE:	**INCIDENT:**
DATE/TIME:	**SHIFT:**
PRODUCT:	**MSDS (Attached):**
SAFETY OFFICER:	**CONTACT RADIO FREQUENCY & PHONE NUMBER:**
INCIDENT COMMANDER:	**CONTACT RADIO FREQUENCY & PHONE NUMBER:**

1.1 EVENT DESCRIPTION

Type of Event:

__ **SHIP OR BARGE** __ **PIPELINE** __ **STORAGE TANK**

__ **OTHER:** ________

Event Description:

1.2 HAZARDS

Check all that apply:

__	**Oxygen**	__	**Slips, Trips & Falls**
__	**Explosive Vapors >10% LEL**	__	**Wind Chill**
__	**Benzene**	__	**High Winds**
__	**H2S**	__	**Working 4' Over the Ground**
__	**High CO**	__	**Night Ops**
__	**Fire Hazard**	__	**Pinch Points**
__	**Skin Exposure**	__	**Hypothermia**
__	**Eye Hazards**	__	**Other (working on water)**
__	**Heat Stress**		

1.3 METEOROLOGICAL OUTLOOK

Current Weather Conditions		**Forecasted Weather Conditions**	
Wind Speed:	Wind Direction:	Wind Speed:	Wind Direction:
Air Temperature:	Ceiling:	Air Temperature:	Ceiling:
Precipitation: Rain	Snow	Precipitation: Rain	Snow
Comments:		Comments:	
Current Water Conditions		**Forecasted Water Conditions**	
Water Temperature:		Water Temperature:	
Wave Height:	Wave Direction:	Wave Height:	Wave Direction:
Current Speed:	Current Direction:	Current Speed:	Current Direction:
Tide Forecast Location:		Tide Forecast Location:	
Low Tide Times:	Low Tide Levels:	Low Tide Times:	Low Tide Levels:
High Tide Times:	High Tide Levels:	High Tide Times:	High Tide Levels:
Comments:		Comments:	
Today's Sunrise/Sunset		**Tomorrow's Sunrise/Sunset**	
Sunrise Time:	Sunset Time:	Sunrise Time:	Sunset Time:
Comments:		Comments:	
Watches/Warnings/Advisories:			

1 knot = 1.15 mph

SECTION 2 – SAFETY GUIDELINES

2.1 SITE SAFETY

1. This initial plan is intended to provide guidance for the Site Supervisors, Responders and Contractors for post-emergency response to an oil spill.

2. No smoking, eating or drinking is allowed in contaminated areas; smoking will be allowed in the support zone (cold zone) in designated areas only.

3. Work sites and boats are limited to authorized personnel only.

4. A list of personnel on each job site will be kept for each shift showing arrival and departure from the site.

5. The operator of any vessel is responsible for the overall operation of the vessel and is in charge of all emergencies aboard that vessel.

6. Employees and contractors shall:

- **a. Report all injuries, illness or near miss incidents to the Site Supervisor, Safety Officer or Section Chief.**
- **b. Read and sign the Site Safety Plan before starting work at the job site.**
- **c. Sign the log sheet for each safety briefing.**
- **d. Report all illness, injuries, or medications they are taking to their Site Supervisor prior to entry or upon exiting the job site.**
- **e. Report unsafe acts or conditions to the Site Supervisor or the Site Safety Officer. If unsafe conditions or work practices are observed, stop those operations immediately.**
- **f. Be responsible for inspecting their personal protection equipment (PPE) prior to entry into a job site.**
- **g. Use the "buddy system" and monitor each other for job-related injuries, exposure to the elements, or any other abnormal behavior.**

2.2 MATERIAL SAFETY DATA SHEETS

1. **An MSDS will be made available and reviewed by all employees and subcontractors at the job site as part of the Site Safety Plan.**

2. **Specific Information that should be noted from the MSDS is: Product name, Date of MSDS, Hazardous components, Chemical and Physical characteristics and Health hazards.**

2.3 SAFETY EQUIPMENT – PPE

Conventional Safety Equipment

REQUIRED		**PPE TYPE**	**COMMENTS**
YES	**NO**		
		Personal Floatation Device	Over water/onboard ship
		Hardhat	At all times
		Safety Glasses	Helo pad/wildlife handling
		Goggles	Clean up/chemical handling /splash hazards
		Hearing Protection	Helo pad/equipment operation
		Gloves (Material)	Nitrile/PVC when handling oils and/or chemicals/clean up operations
		Rubber Boots	Nitrile/PVC when handling oils and/or chemicals/clean up operations
		Yellow Rain Gear	Inclimate weather/handling oils and/or chemicals/clean up operations
		Other	Chemical Tyvek may also be used for oil clean up

Additional Safety Equipment

REQUIRED		PPE TYPE	COMMENTS
YES	NO		
		Half Mask Respirator	As required by air monitoring results
		Full Face Respirator	As required by air monitoring results
		Supplied Air	As required by air monitoring results
		Other	

PPE indicated above is required for entry into Hot Zone areas.

2.4 DAILY DECONTAMINATION GUIDELINES FOR PERSONNEL

1. **Three zones will be established and identified as the Hot Zone, Decon Areas and Cold Zone. Decon of equipment and/or personnel will take place in the two designated Decon Areas.**

2. **Personnel working inside the Hot Zone must check in and out of the Hot Zone. The Buddy System is in effect for all work parties. No one is allowed to enter or leave the site alone.**

3. **Decon Areas are provided as a control point for decontamination of individuals leaving a contaminated area. It is key in preventing the spread of contamination as well as providing worker support. These areas are identified on the Spill Plan Worksheets.**

4. **Decon procedures will be explained to response personnel prior to starting work at the job site. This document provides an organized method by which levels of contamination are reduced.**

2.5 OFFSITE CONTROL

Response Zones

Control boundaries have been established and the Hot Zone (contaminated area), Decon Areas, and Cold Zone have been identified as follows, (refer to the Spill Plan Work Sheet):

- **<u>Hot Zone - areas involved with the clean up operations.</u>**

- **<u>Decon Areas and Wildlife handling areas will be adjacent to the hot zones.</u>**

- **<u>Cold Zone - all areas immediately outside the hot zone.</u>**

- **No unauthorized person should be within these areas. No persons shall be in the Hot Zones without proper PPE.**

Coordinating access control and on site security will be coordinated by: <u>Tesoro Safety</u>

The Onsite Command Post has been established at: ________________________________

Community Safety:

Roads:

Boaters:

Surrounding Community:

Sheriff:

Air:

2.6 COMMUNICATIONS

1. Channel __________ has been designated as the radio frequency for personnel in Hot Zone.

Other channels for spill activities are:

- **Air Ops. –**
- **Air medical to Ambulance –**
- **Bird Rescue –**

2. **Personnel in the Hot Zone will remain in constant radio communication or within sight of the Site Supervisor. Any failure of radio communication requires an evaluation of whether personnel should leave the Hot Zone.**

3. **The emergency signal to indicate that all personnel should leave the Hot Zone is to announce "Evacuate" over all radio channels.**

4. **The following standard hand signals will be used in case of radio failure:**

- **Hands on top of head:** ***Need assistance***
- **Thumbs up:** ***I am all right, I understand***
- **Thumbs down:** ***Negative***

2.7 PERSONNEL AND ENVIRONMENTAL MONITORING

Monitoring plan must include substance monitored, monitoring equipment and frequency.

HAZARD	MONITORING INSTRUMENT	FREQUENCY (*select one)			
LEL	Industrial Scientific TMX 410	continuous	hourly	daily	other
BENZENE	Drager model GV-100	continuous	hourly	daily	other
H2S	Industrial Scientific HMX 271	continuous	hourly	daily	other
OTHER		continuous	hourly	daily	other

Personnel Monitoring

Initial Air monitoring performed. Based on findings, respiratory protection is not required. Monitoring results for LEL, Benzene, and H2S have shown that all exposures are below the PEL's. Air monitoring will be performed prior to each shift and/or prior to each new task being performed. Area monitoring for LEL and H2S to be performed while working under dock.

Environmental Monitoring

Initial monitoring to be performed and additional monitoring performed based on initial readings and changing conditions.

2.8 TRAINING

All Responders involved in these operations shall have been appropriately trained in emergency response procedures in accordance with the Tesoro Northwest Oil Spill Response Plan. They shall have been trained to the HAZWOPER level prescribed for them by the Tesoro training database.

All Tesoro Contractor personnel involved in these operations shall have been appropriately trained in emergency response and the appropriate HAZWOPER level.

2.9 EMERGENCY PROCEDURES

Onsite personnel will use the following standard emergency procedures. The Site Safety Officer shall be notified of any onsite 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, Operations Coordinator and Site Supervisor should evaluate the nature of the injury, and the affected person should be decontaminated to the extent possible prior to movement to the Cold Zone. The onsite first responders shall initiate appropriate first aid, and contact should be made for an ambulance. No persons shall reenter the Hot Zone until the cause of the injury or symptoms is determined.

Personnel Injury in the Cold Zone:

Upon notification of an injury in the Cold Zone, the Operations Coordinator and Site Safety Officer will assess the nature of the injury. If the cause of the injury of loss of the injured person does not affect the performance of the onsite personnel, operations may continue. If the injury increases the risk to others, the designated Emergency Stop Alarm will 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, or the need for rescue, the designated Emergency Stop Alarm will be sounded and all site personnel shall assemble at the decontamination line. Onsite coordinators will account for their personnel and all unaffected personnel will be moved to a safe distance from the involved area.

Personnel 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 Operation Coordinator 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 and appropriate actions taken.

Emergency Escape Routes:

The following emergency escape routes are designated for use in those situations where egress from the Hot Zone cannot occur through the Decon Area: Take the shortest, upwind evacuation route out of the HOT ZONE. Assembly point for evacuation is the closest, safest Decon site.

In all situations, when an onsite emergency results in evacuation of the Hot Zone, personnel shall not reenter until:

- **The conditions resulting in the emergency have been corrected.**
- **The hazards have been reassessed.**
- **The Site Safety Plan has been reviewed.**
- **Site personnel have been briefed on any changes in the Site Safety Plan.**

SECTION 3 – RESPONDER SAFETY INFORMATION

The ultimate responsibility for safety rests with the individuals. At all times, they should keep the following safety cycle in mind:

1. Decide to work safely.
2. Exercise good judgment and common sense.
3. Observe all safety regulations and instructions.
4. Think about prevention of unsafe acts.
5. Stop if unsafe conditions are observed.

It is also important to watch out for your fellow worker. Whenever possible, the buddy system should be adopted. Keep an eye out for unsafe acts or unsafe conditions that your fellow worker may not be aware of.

During the conduct of response operations, there may be exposure to chemical and / or physical hazards such as:

- Inhalation of vapors
- Irritation of the skin
- Elevated or lowered body temperatures due to work environment.
- Exhaustion from long hours of demanding work.
- Stress, both physical and mental.
- Injuries due to lifting and body positioning.
- Cuts, bruises, sprains and strains.
- High levels of noise.

To eliminate or reduce these hazards to the maximum extent, it is imperative that the procedures prescribed in the following sections are followed.

3.1 GENERAL SAFETY PRACTICES

- Exercise good sound judgment and common sense
- Follow supervisor's instructions
- Be alert to health and safety hazards
- Attend all required safety meetings
- Wear proper safety equipment
- Set good examples for others
- Make sure tools and equipment are in good working condition
- Use all tools and equipment as designed
- Store tools and equipment safely after use
- Avoid carrying loads that extend above eye level or otherwise obstruct vision
- Size up loads before attempting to lift. Get help when needed
- Observe all warning signs
- Report all injuries when they occur
- Keep work areas clear. Good housekeeping is a must

3.2 BOAT AND WATER SAFETY

When boarding a boat, each individual should:

- Have their hands free to ensure good balance
- Know who the vessel captain is. The vessel captain has ultimate authority over all persons on the boat
- Become familiar with the layout of the boat
- Know where emergency equipment is located and how to use it (i.e. fire extinguisher, life jackets, life rings, and life rafts)
- Board a vessel only with a U.S. Coast Guard approved personal floatation device. Wear the device properly

Onboard Vessel

While onboard the vessel:

- Watch out for slippery deck surfaces, especially if they are covered or stained with spilled oil. Use sorbent pads to clean up oil and/or to improve traction along walkways
- Watch for erratic boat motions. Use safety lines when working on the deck
- Avoid taking medicines for seasickness because they induce drowsiness
- Maintain awareness of other activities underway while performing your tasks
- Maintain good housekeeping practices. Keep clear of ropes and lines
- Wear gloves while handling ropes and cables
- Wear a personal floatation device
- Keep safety railings and/or chains in place until it is necessary to remove them to work. Replace railings/chains as soon as possible

Capsized Craft

If the craft capsizes:

- Make every effort to get out of the water and onto the hull of the craft. If the craft continues to float, it is usually better to remain with it.
- The craft will be seen, and more easily located by rescue personnel than a lone person.
- If you cannot get out of the water, remain calm. Conserve your energy. Float as still as possible with legs together, elbows close to sides, and arms folded across the front of your lifejacket.
- Try to raise an alarm.

Overboard Victim

If a person sees someone fall overboard, the observer should:

- Watch victim constantly. Point to the victim while raising the alarm.
- Notify others by calling "Man Overboard".
- Obtain a life ring to assist in retrieving the victim.

If the overboard victim is rational but shivering when pulled onboard, have them remove wet clothes, put on dry clothing or a blanket, and rest in a warm environment.

If semiconscious or unconscious:

- Check for breathing and heartbeat. Administer CPR in necessary.
- Move victim to a warm environment
- Remove victim's clothes. Do not massage the skin.
- Insulate the victim from further heat loss. Wrap in a blanket.
- Do not attempt aggressive warming.
- Gentle warming can be attempted by placing a bottle filled with warm water next to victims head, neck, arm pits, or groin
- Do not give the victim anything to eat or drink, and never offer alcohol.

3.3 VEHICLE SAFETY

All persons called upon to operate a vehicle should:

- Always carry a valid driver's license
- Wear a seat belt
- Be familiar with the vehicle's equipment and operation
- Keep windows and mirrors clean and unobstructed at all time
- Report any accident or unsafe condition to their supervisor
- Obey all rules of the road
- Never engage in horseplay

3.4 EQUIPMENT SAFETY

The key to equipment safety is knowing how to operate a piece of equipment. If you have not been trained and understand how to operate a piece of equipment, notify your supervisor. While operating equipment, observe the following:

- Keep alert at all times. Know and follow signals of the operators.
- Wear the proper PPE.
- Do not wear loose fitting clothing. Keep hair tied up in such a way that it cannot come into contact with rotating parts.
- Know the safety features of the equipment. Know how to shut down and secure the equipment should an emergency occur.

- Do not operate electrical equipment while standing in water.
- Use walkways and steps where provided. Do not take short cuts.
- Use the proper tools. Do not use tools or equipment for something they were not intended.
- Follow manufactures recommendations and guidelines for equipment and tools.

3.5 HELICOPTER SAFETY

When approaching a helicopter, a person should;

- Look for the pilot to give a hand signal when it is safe to approach the helicopter.
- Always walk towards the front of the helicopter. Never walk towards or around the rear of a helicopter, even when it is idle.
- Wear a hard hat, and use one's hand to secure it to one's head.
- Wear proper eye protection.
- Ensure the pilot brief's the passenger on safety procedures before each flight.

3.6 CHEMICAL HAZARDS

Depending on the specific operations conducted at the spill scene, a person may be exposed to the following substances:

- Fuel Oil Residual
- Catalytically Cracked Clarified Oil
- Hydrogen Sulfide

Material Safety Data Sheets (MSDS), describing the specific hazards and precautions to be taken when handling each of these products will be available for inspection on the site. Follow precautions carefully.

All containers should be labeled as to their contents. If the containers are unidentified or unlabeled, they should notify their supervisor and not handle the container until it has been properly identified and labeled.

3.7 PHYSICAL HAZARDS

Hypothermia

Water Temperature and air temperature can be low enough to expose the body to rapid heat loss and a cooling of the body core temperature. In cold water, the body will lose heat many times faster than in the air. Even outside the water, wet clothing will conduct heat away from the body much faster than dry clothing. Normally a combination of climatic/environmental and body factors results in a person suffering from hypothermia.

Symptoms of hypothermia include:

- Continual shivering and paleness.
- Lack of coordination
- Slurring of speech
- Lack of concentration
- Dazed or confused behavior

When a person suffers from severe hypothermia, shivering will stop, blood pressure will drop substantially, consciousness will be clouded, respiration will decrease, and the victim's muscles will become rigid. Unconsciousness will ultimately occur, and death may be imminent.

To protect against hypothermia, a person should:

- Be aware of the weather, check the forecast
- Wear appropriate clothing
- If clothing becomes wet, remove it and dry it as much as possible before putting it back on
- Control sweating by removing layers of clothing so that a uniform body temperature is maintained
- Replenish energy by taking breaks for food and warm liquids

Wind Chill Indicator

Temperature (F)

Wind (MPH)	30	25	20	15	10	5	0	-10	-15	-20	-25
5	25	19	12	7	1	-5	-11	-22	-28	-34	-40
10	21	15	9	3	-4	-10	-16	-28	-35	-41	-47
15	19	13	6	0	-7	-13	-19	-32	-39	-45	-51
20	17	11	4	-2	-9	-15	-22	-35	-42	-48	-55
25	16	9	3	-4	-11	-17	-24	-37	-44	-51	-58
30	15	8	1	-5	-12	-19	-26	-39	-46	-53	-60
35	14	7	0	-7	-14	-21	-27	-41	-48	-55	-62
40	13	6	-1	-8	-15	-22	-29	-43	-50	-57	-64
45	12	5	-2	-9	-16	-23	-30	-44	-51	-58	-65
50	12	4	-3	-10	-17	-24	-31	-45	-52	-60	-67
55	11	4	-3	-11	-18	-25	-32	-46	-54	-61	-68
60	10	3	-4	-11	-19	-26	-33	-48	-55	-62	-69

Frostbite occurs in 15 minutes or less

Noise

Response operations may require the use of generators, pumps, compressors, engines, and other equipment that generate high levels of noise. Short-term exposure to extremely loud noise and/or long-term exposure to low level noise can cause hearing loss. If a worker is assigned to a high noise area, they should wear proper hearing protection.

Dehydration and Heat Stress

Response operations can involve strenuous activities that can, even in relatively cool weather, lead to excessive sweating. This is even more likely to occur when wearing protective clothing that may reduce the body's ability to discard excess heat. This may lead to dehydration, heat rash, heat cramps, heat exhaustion, and possibly heat stroke.

Symptoms of dehydration:

- Cramping in arms, legs or abdomen
- Feeling faint, dizziness or fatigue

Need to take time to rest, preferably in a shady area, and rehydrate by drinking decaffeinated, non-alcoholic fluids

Symptoms of heat exhaustion:

- Faint, dizzy, nauseous feeling
- Sweating heavily or has pale skin color
- Rapid shallow breathing

- Dilated pupils, weak rapid pulse

Need to report to a first aid station immediately

Heat stroke is a life threatening condition. The body must be cooled down immediately. It is imperative to get medical attention at once.

Lifting hazards:

The following rules for safe lifting practices should be observed:

- Plan the lift and route to travel with the load prior to lifting.
- Know the approximate weight of the object prior to lifting.
- Lift with legs, keep back straight, knees bend, squat down to lift.
- Stand up slowly, keeping the load close to the body.
- Use wide balanced stance, with one foot ahead of the other.
- Move feet to change direction; do not twist at the waist.
- Avoid carrying loads that extend above the eye.
- If lifting/carrying with a partner, communicate all moves prior to performing.
- Push, do not pull heavy objects.
- Do not stand under a suspended load.

Slips, Trips, and Falls

Oily surfaces are extremely slippery. Even in slip resistant footwear, walking through an oily area may be hazardous. Also the decks of ships, the scene of shoreline protection and/or clean up operations and equipment in staging areas can contain numerous obstacles. When engaged in response operations:

- Be alert for oily surfaces.
- Use handrails and safety lines when available.
- Be aware of your surroundings. Identify tripping hazards and address the hazards appropriately.
- Keep all walkways, work surfaces, etc. free of debris, tools, or obstacles that could create a tripping hazard.
- Never engage in horseplay.

3.8 DRUM HANDLING

All drums and containers should be properly labeled. Material in unlabeled drums should not be used. Any such drums should be reported to supervision for action.

Drums and containers should be in good condition prior to being moved. Drums larger than 5 gallons should be lifted and moved with mechanical equipment.

If a drum spill occurs, notify supervision and use appropriate absorbent material or other methods to contain the spill.

3.9 PERSONAL PROTECTIVE EQUIPMENT

The primary objective of personal protective equipment is to prevent accidental contact with hazardous chemicals. Before a chemical can have an adverse effect, it must come into contact with a vulnerable area of the body. There are four methods of contact:

1. Injection - puncture wounds
2. Absorption - through healthy, intact skin or eyes
3. Inhalation - through the mouth or nasal passages. This is the most common route of entry.
4. Ingestion - direct or indirect consumption while eating or drinking

When engaged in response activities:

- Know how to don/doff personal protective equipment
- Know the limitations of the PPE
- Wear hearing protection when noise levels could cause hearing damage
- Safety glasses and slash goggles are not the same. Do not use safety glasses for protection against chemical.

Use only PPE that has been approved for use with the chemicals being handled. Leather gloves are not rated for use with oils, corrosive chemicals or hydrocarbons

Wear proper footwear. Steel toe shoes are recommended when working around heavy equipment.

3.10 PERSONAL HYGENE

Good personal hygiene practices are essential to maintaining worker's states of health during response operations. Working with oils and oily wastes is dirty work. The nature of the work should not be allowed to lead workers to forsake basic personal hygiene considerations.

The following guidelines are recommended for all members of the response team:

- Shower and shampoo daily before reporting to work.
- While showering, check for unusual rashes, cuts, infections, etc.
- On sunny days, apply protective sunscreen to exposed skin.
- Use a barrier cream on hands before putting on protective gloves.
- If skin becomes contaminated with a hazardous chemical, report to a decontamination area and wash the affected area thoroughly with soap and water.
- If eyes become contaminated, report to a decontamination area and rinse the eyes for at least 15 minutes with clear water.
- If injured or ill at the work site, report to one's supervisor without delay.
- Do not touch food or drink with contaminated gloves or hands.
- Do not track oil into "clean" areas.
- Do not litter while on the work site.
- Ensure all toilet facilities are clean and sanitized to maintain healthy living conditions. Report any unhealthy conditions to your supervisor.
- Keep change rooms clean and orderly.
- Dispose of garbage and refuse in a sanitary manner.
- Water coolers or cans should be properly covered, labeled, and equipped with a spigot or valve.

3.11 DECONTAMINATION

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

Decon 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 that a worker cleans their hands and face to avoid injecting or spreading oil or other chemicals to otherwise protected parts of their body.

In the field, the workers will be provided with:

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

3.12 SANITATION

Proper sanitation facilities must be provided at the clean-up site. Lack of proper sanitation can result in outbreaks of dysentery, food poisoning, or other debilitating diseases.

Adequate facilities need to be provided for:

- Potable water
- Non-potable water (clearly labeled)
- Toilet facilities
- Food handling
- Temporary buildings
- Washing facilities
- Shower and change rooms

3.13 ILLUMINATION AND VISIBILITY

Poor visibility can lead to accidents. Clean up workers performing night operations should have personal flashlights. All work areas performing night operations need to be well lit.

3.14 CONFINED SPACES

Any area, which may contain or have the ability to contain toxic/flammable atmospheres, or oxygen deficient or excess, shall be considered to be a confined space. When entry to confined spaces needs to be performed, a safe work permit needs to be issued. The Safety Officer shall issue the safe work permit. The following are hazards and procedures, which need to be addressed on the permit:

- Atmospheric Monitoring – (Toxic, Flammable, Oxygen Deficient or Excessive.)
- Energy Isolation – LO/TO
- Mechanical Hazards
- Electrical Hazards

Procedures needed:

- Training
- Qualified Standby
- Emergency Notification
- PPE requirements
- Rescue

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SECTION 8 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

The Company 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 EQUIPMENT/PERSONNEL DECONTAMINATION

Regardless of the decontamination facilities available, all efforts to minimize personnel exposure should be taken.

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 life saving 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.

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

Figure 8.1
Demobilization Plan

Incident Name: ____________________ **Plan Location:** ____________________________

Effective Date of Plan: ____________________________ **Effective Time Period of Plan:** ________

Spill Location: ____ **Plan Prepared By:** ___________

1. 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 re-deployment. Transports for equipment will be required if remote from staging area.
- The Planning Section will document all demobilization and decontamination activities.
- Equipment designated for re-assignment will be mobilized to the appropriate staging area.
- The Operations Section Chief will maintain a log documenting proper decontamination procedures for 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.

8.3 POST INCIDENT CRITIQUE

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.

8.3.1 Outline of Post Spill Critique

Given below are items that 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.

POST INCIDENT CRITIQUE (PIC) FORM

Location of Incident Command Post: (include scene map or drawing)
Did ‘Command’ and other officers don command vests. (YES/NO)
If no, explain.
Was the Emergency Personnel Accountability System used: (YES/NO)
If yes, How?
If no, explain.
Action Items:
Recommended Corrective Action:

Evacuation:

Was Level I initiated: (YES/NO) How:
Was Level II initiated: (YES/NO) How:
Was Level III initiated: (YES/NO) How:
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:

Response Activation:

How was the system activated: (radio emergency channel, radio emergency button, phone, other)
Who was the reporting party:
Who performed initial dispatch:
Were additional PSP responders paged or called to respond: (YES/NO)
Action Items:

Recommended Corrective Action:

Safety:

Was PPE requirements clearly identified for ERT: (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 a Rapid Intervention Team set-up? (YES/NO)

Was area monitoring performed: (YES/NO)
If yes, What kind?
If no, explain.
Action Items:
Recommended Corrective Actions:

Initial Response:

How was the initial incident handled by incipient responders: (incipient firefighting, fixed systems, hazard control, first aid)
Action Items:
Recommended Corrective Actions:

ERT Response:

Emergency Response Team (ERT): (which teams and # of responders)
PPE used: (SCBA, bunker gear, Hazmat gear...)
Fire Suppression: (fixed systems, monitors, deluge systems, hose lines, foam application, hose teams)
Rescue: (high angle, confined space, medical)
Action Items:
Recommended Corrective Action:

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: (primary e.g. command vehicle, Texaco Aid 1, Engine 1...)
Was there enough equipment: (YES/NO)
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:	

Outside Agencies:

What agencies were activated and why: (Skagit DEM, Med-Flight, Fire Department)
Was inter-refinery mutual aid activated: (YES/NO)
If yes, How?
If no, explain.
Which refineries and type of support requested: (equipment, foam, personnel, Industrial Hygienist)
Action Items:
Recommended Corrective Action:

Post Incident:

What areas of response need corrective action:
Individuals who performed beyond the call of duty:

PIC Attendees:

1.	6.
2.	7.
3.	8.
4.	9.
5.	10.

This critique is to be completed within one week of the incident and submitted to the ____.

The PIC was held on the ______ day of ________________________ in 20 ____. The PIC was completed by ____.

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APPENDIX A TRAINING AND EXERCISES

A.1 EXERCISE REQUIREMENTS AND SCHEDULES

The Company participates in the National Preparedness for Response Exercise Program (NPREP) in order to satisfy the exercise requirements of the EPA and USCG. Additionally, Tesoro is committed to the Washington Department of Ecology's drill program as outlined in WAC 173-182-700 & 710. Tesoro is committed to provide WDOE an opportunity to help design and evaluate all tabletop and deployment drills for which drill credit is desired. This commitment will follow the scheduling guidelines referenced in **FIGURE A.2**. The facility meets all applicable drill components established in the Spill Drill Evaluation Checklist in the Washington Department of Ecology's Publication #12-08-002/March 2012. If plan deficiencies are identified in the WDOE written evaluation, Tesoro may be required to make specific amendments to the plan, or conduct additional trainings to address the deficiencies. 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.

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	Demonstrate the ability of the spill response organization to work within a unified command.
• Response Management System	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.
13. Equipment Maintenance and Support	Demonstrate the ability to maintain and support all equipment associated with the response.
14. Procurement	Demonstrate the ability to establish and 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.

Response exercise will be designed to:

- Provide an opportunity for IMT personnel to practice responding to a spill.
- Test Facility Response Plan for shortcomings or errors.
- Improve Company personnel's spill response expertise in specified ICS positions.
- Comply with PREP guidelines.

Anacortes Refinery supplies the IRT, Brigade, and IMT with initial 8-hour spill response training and annual refresher training, including review of ICS, ICS Forms, with emphasis placed on the greatest exposure for a given group. In addition to general review, each Section of the Command Structure is encouraged to meet on a quarterly basis for specific review and/or instruction identified by the Contingency Planner or Section Chief.

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 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 Incident Management Team will receive 8 hours of ICS training in addition to all other training required under the Washington Oil Spill Contingency rule Chapter 173-182 WAC prior to being assigned to a position. Newly assigned individuals will normally have a coach working with them.

While the Company encourages employees to volunteer for certain positions on the Incident Management Team, a number of positions are assigned and will only be filled by the most experienced individuals. It is recognized that IC and Section Chief Positions carry an overall responsibility for a number of other positions. Persons assigned into these roles will receive 8 hours initial ICS training, 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.2
Exercise Requirements

Exercise Type	Exercise Characteristics
Facility/QI Notification	• Conducted quarterly • Facility initiates mock spill notification to QI • Lead Contingency Planner documents time/date of notification, name and phone number of individual contacted • Document in accordance with forms referenced in **SECTION A.2**
Equipment Deployment	• Conducted semiannually • Response contractors listed in FRP must participate in annual deployment exercise • Scheduled with WDOE at least 30 days in advance • Document in accordance with form in **SECTION A.2**
GRP Deployment	• Conducted twice triennially • Response contractors listed in FRP must participate in annual deployment exercise • Document in accordance with form in **SECTION A.2**
Wildlife Deployment Drill	• Conducted once triennially • Response contractors listed in FRP must participate in annual deployment exercise • Scheduled with WDOE at least 30 days in advance • Document in accordance with guidance in **SECTION A.2**
IMT Tabletop	• Conducted annually • Tests IMT’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 • Must be scheduled with WDOE at least 60 days in advance, except the worst case discharge scenario at least 90 days in advance • Document in accordance with form in **SECTION A.2**
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	
Exercise Type	**Exercise Characteristics**
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.)

A.2 Documentation of Drills/Exercises:

Exercise documentation will consist of the following forms and guidance documents. Some exercises may not require all of these documents; each exercise will be evaluated in accordance with NPREP and WDOE requirements. Applicable documentation will be taken into consideration during the exercise design process.

- QI Notification Drill Log
- ICS -201 Form
- Spill Notification form (**SECTION 3**)
- Initial response checklist (**SECTION 2**)
- Initial Site Safety Plan (**SECTION 2**)
- Incident Action Plan (Product of IMT Table Top Drill documentation)
- WDOE Drill Checklist (Available at address referenced below)
- WDOE Drill matrix (Available at address referenced below)

Note:
http://www.ecy.wa.gov/programs/spills/preparedness/Drills/Drill%20Checklist%20October%202011%20update.pdf

A.3 TRAINING PROGRAM

The following table lists training requirements for spill responders:

Training Type	Training Characteristics
Training in Use of Oil Spill Plan	• All field 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.5.
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
Incident Management Team Personnel Training	• See recommended PREP Training Matrix (**FIGURE A.4**)
Training for Volunteers	• Use of volunteers will be decided by Unified Command. Use and training is addressed in section 4326 of the Northwest Area Contingency Plan.
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 Anacortes RefineryLead Contingency Planner will document all applicable training.

A.4 IMT TRAINING GUIDANCE

The following table lists training guidance for the Incident Management Team:

Position	Name/Affiliation	ICS Training	NWACP, GRPs, Facility Contingency Plan
Incident Commander	Tesoro Senior Management	IAP Forms and Tools, Features of ICS, Planning Process, Requisition Process, ICS Process - Forms (ICS 202-204a)	*Annually*
Information Officer	Tesoro Employee	IAP Forms and Tools, Features of ICS, Planning Process,	*Annually*
Safety Officer	Tesoro Safety Representative or Tesoro Employee with applicable experience	IAP Forms and Tools, Features of ICS, Planning Process, Requisition Process, ICS Process - Forms (ICS 202-204a)	*Annually*
Liaison Officer	Tesoro Employee	IAP Forms and Tools, Features of ICS, Planning Process,	*Annually*
Operations Section Chief	Tesoro Employee	IAP Forms and Tools, Features of ICS, Planning Process, Requisition Process, ICS Process - Forms (ICS 202-204a)	*Annually*
Planning Section Chief	Tesoro Employee	IAP Forms and Tools, Features of ICS, Planning Process, Requisition Process, ICS Process - Forms (ICS 202-204a)	*Annually*
Logistics Section Chief	Tesoro Employee	IAP Forms and Tools, Features of ICS, Planning Process, Requisition Process	*Annually*
Finance/Admin Section Chief	Tesoro Employee	IAP Forms and Tools, Features of ICS, Planning Process, Requisition Process	*Annually*

Figure A.4
Training Program Matrix

(Based upon the Training Reference for Oil Spill Response-USCG, RSPA, EPA, MMS, 1994)

Applicable to designated job responsibilities.

Training Element	Qualified Individual (QI)	Incident Management Team (IMT)	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 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
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.			
The responsibilities and duties of each oil incident management team within the organizational structure.			
The drill and exercise program to meet federal and state regulations as required under OPA.			
The role of the Qualified Individual in the post discharge review of the plan to evaluate and validate its effectiveness.			
The Area Contingency Plan (ACP) for the area in which the facility is located.			
The National Contingency Plan (NCP).			
Roles and responsibilities of federal and state agencies in pollution response.			
Available response resources identified in response plan.			

Training Element	Qualified Individual (QI)	Incident Management Team (IMT)	Facility Responders
Contracting and ordering procedures to acquire oil spill removal organization resources identified in the response plan.			
OSHA requirements for worker health and safety (29 CFR 1910.120).			
Incident Command System/Unified Command System.			
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 incident 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.			
Specific procedures to shut down affected operations.			
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.			
Name of the Qualified Individual and how to contact him or her.			

Figure A.5
Personnel Response Activities Training Description and Log (Example)

Tesoro

Class Sign-up/Grading Sheet

Class Code: OILSPILLRSP012 **Class Title:** Oil Spill Response
Class Date: 01/22/2014 **Class Time:** 07:30:00 AM **Classroom:**

Instructor ID: **Instructor Name:**
Course Code: ANA-EmRsp-OilSpRsp **Rev:** 2
Course Title: Oil Spill Response

Description:

Topics:

1. Regulatory requirements.
2. Familiarization with content of the Facility Oil Spill Response Plan:
   a. Assessment
   b. Control
   c. Initiate Response
   d. Perform Notifications
3. Proper use of facility spill response equipment.
4. Boat Operator Training
5. Spill Boom Deployment

Learning Objectives:

Upon completion of training, the employee will be able to:

1. Reference applicable regulatory requirements;
2. Identify content of the Facility Oil Spill Response Plan with regards to:
   a. Assessment
   b. Control
   c. Initiate Response
   d. Perform Notifications
3. Locate and use facility spill response equipment;
   a. Proper use of Infatable Life Vests
      i. Donning and Doffing
      ii. Care and inspection
4. Describe the proper use of the facility's spill response equipment;
5. Perform skills acquired in the Boat Operator Training Course
   a. Boat safety
   b. Boat launch
   c. Boat operation
5. Deploy the spill boom using the spill response boats at the direction of the Incident Command:
   a. Remove boom from the box
   b. Pull the boom
   c. Place the boom effectively

Regulations:

40 CFR 112.7
WAC 173-182-700
WAC 173-182-710
WAC 173-182

Active Learning Center 1 of 3 01/22/2014 09:18:07 AM CST

Figure A.5 Cont.

Tesoro

Class Sign-up/Grading Sheet

Class Roll

ID	Name	Grade [0-100]	Sign Off

Total Employees Enrolled: 1

Instructor Sign-Off: ______________________________

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Figure A.6
DISCHARGE PREVENTION MEETING LOG

Tesoro Anacortes Meeting Signoff Sheet — Page 1 of 1

TESORO
Tesoro Refining and Marketing Company
10200 West March Point Rd.
Anacortes, WA 98221

DO NOT use for Training Sign Off or Drills

Category: Informational Meeting Subject: Annual Discharge Prevention Briefing

Date: Location: Duration:

Purpose: To assure adequate understanding of the SPCC Plan for that facility

Agenda / Topics:
Review the SPCC Plan in EP-04 (overview of responsibilities and location of information)
Review all known discharges from the past year
- Include all EP-41 reports since last briefing
- Include failures or malfunctions of equipment
Updates on recently developed precautionary measures and/or new equipment for spill prevention

Facilitator: Facilitator Signature:

	Print Name	Signature	Employee #
1			
2			
3			
4			
5			
6			
7			
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10			
11			
12			
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APPENDIX B CONTRACTOR RESPONSE EQUIPMENT

B.1 PRIMARY RESPONSE CONTRACTOR

The Company is a member of the Marine Preservation Association (MPA) which funds the Marine Spill Response Corporation (MSRC). Evidence of contract is located in **FIGURE B.1**.

Ecology has approved MSRC as a Primary Response Contractor (PRC). MSRC's response time to the Facility is 1 hour. See MSRC PRC application for current Effective Daily Recovery Capacity information (EDRC). 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. MSRC's equipment lists can be found in **FIGURE B.2**.

MSRC's contact information is as follow:

MARINE SPILL RESPONSE CORPORATION

Address: 1105 13th Street, Everett, WA 98201

24-hour Hotline:	**1-800-645-7745**
Alternate:	**1-800-259-6772**
Everett Office:	**1-425-252-1300**

B.1.1 OSRO Classification

An OSRO Classification process was developed by the U.S. Coast Guard (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.

MSRC is classified by the USCG as a category W3 OSRO for the inland/nearshore operating area in the Puget Sound Captain of the Port (COTP).

B.1.2 Other Oil Spill Response Organizations

Tesoro is a member of Clean Rivers Cooperative. 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.

B.2 NON-DEDICATED VESSELS

Through mutual aid and other 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 resource could have arrived on scene beginning at 48 hours.

WSPA Mutual Aid Organization

A Memorandum of Understanding exists among members of the Western State Petroleum Association (WSPA) Northwest Oil Refineries. In the event one refinery has an emergency, including an oil spill, which requires additional resources, member companies will send aid on a voluntary basis. Response equipment includes trained personnel and equipment. The following refineries have agreed to provide aid:

- BP Cherry Point Refinery
- ConocoPhillips, Ferndale Refinery
- Shell Puget Sound Refinery
- Tesoro Anacortes Refinery
- U.S. Oil & Refining Co.

A copy of the MOU can be found in **FIGURE B.1**.

Islands' Oil Spill Association

Tesoro is a member of Islands' Oil Spill Association (IOSA), a community-based, nonprofit organization that provides training, first response for oil spills, shoreline protection, wildlife rescue and spill cleanup in the San Juan Islands. Through IOSA, Tesoro has access to over 300 fishing vessels, trained local responders and wildlife rescue resources. A letter of intent and copy of the service agreement can be found in **FIGURE B.1**.

March Point Community Awareness and Emergency Response Group (CAER)

This group made up of local businesses, local emergency response agencies and community representation, also represents a component of the Local Emergency Planning Committee (LEPC) for Skagit County.

- March Point CAER community emergency plan allows for a coordinated mutual aid response of medical, engineering, fire, transportation, law enforcement and welfare services to Whatcom, Skagit, Island and San Juan counties, and any town within their boundaries which may be stricken by a disaster.
- This group works closely with the Local Emergency Planning Committee (LEPC) who reports to the State Emergency Response Commission (SERC) directed by the Governor of Washington State.
- A LEPC group is required under OSHA 40 CFR 300.125 SARA Title III Local Emergency Response Plans. Components of the LEPC are:
    - Routes likely to be used for the transportation of substances on the list of extremely hazardous substances;
    - Methods and procedures for response to such hazardous substances;
    - Designation of community and facility emergency coordinator;
    - Procedures for reliable, effective and timely notification to persons designated within the response plan, and to the public of such a release;
    - Methods for determining the occurrence of a release and the area or population likely to be affected;
    - Description of emergency equipment, including person(s) responsible for such equipment;
    - Evacuation plans, including provisions for precautionary evacuation and alternate traffic routes;
    - Training programs for training local emergency response personnel; and
    - Methods and schedules for exercising the emergency response plan. The Company is an active participant of the CAER and LEPC groups in Skagit County. It continually updates its emergency response plan to meet the needs of the community and its employees.

Outside Agencies

There are local outside agencies that will provide assistance. These agencies consist of nearby emergency response agencies (e.g., Summit Park Volunteer Fire Department, Skagit Valley and Island Hospital EMS Units, Anacortes Fire Department Paramedics and Skagit County Department of Emergency Management (SCDEM).

Pre-emergency Planning Guidelines are as follows:

- Outside Agency Response Groups will be requested to visit the Refinery to review pre-fire and emergency response plans.
- The Company will notify appropriate agencies of any major changes to Response Plans which may impact agency response actions.

Figure B.1
Evidence of Agreements/Contracts

MARINE SPILL RESPONSE CORPORATION
WSPA MEMORANDUM OF UNDERSTANDING
WSPA MUTUAL AID AGREEMENT (RAIL)
ISLANDS' OIL SPILL ASSOCIATION
GLOBAL DIVING AND SALVAGE INC.

MSRC
Marine Spill Response Corporation®

Judith A. Roos
Vice President
Marketing, Customer Services & Corporate Relations
(703) 326-5617

August 26, 2013

Mr. Craig Hyder
Tesoro Corporation Inc.
Anacortes Refinery
10200 West March Point Road
Anacortes, Washington 98221-0700

Re: Letter of Intent

Dear Hyder:

This letter certifies that Tesoro Corporation has entered into an Agreement with the Marine Spill Response Corporation (MSRC). Pursuant to this Agreement the Tesoro Anacortes Refinery 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 February 18, 2013 between Tesoro 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 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 A. Roos

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 AGREEEMENT attached hereto (together with this execution instrument, the "Agreement"), a standard form of agreement amended and restated as of September 27, 1996, as amended, is hereby entered into by and between

Tesoro Corporation
[Name of COMPANY]

a Delaware Corporation
[Type of entity and place of organization]

with its principal offices located at 19100 Ridgewood Parkway, San Antonio, TX 78259 (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. 6 MPA 346 [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 Feb. 18, 2013

Tesoro Corporaiton [COMPANY]

By: [signature] KC

Daniel R. Romasko [print name]

Title: Executive Vice President, Operations

Address: 19100 Ridgewood Parkway
San Antonio, TX 78259

Telephone: 210/626-6881 Fax: 210/626-4051

MARINE SPILL RESPONSE CORPORATION:

By:
Judith A. Roos
Vice President
Marketing, Customer Services & Corporate Relations
220 Spring Street, Suite 500
Herndon, VA 20170
(703) 326-5617; Fax: (703) 326-5660

Western States Petroleum Association

Memorandum of Understanding — Mutual Assistance for Emergency Response

I. INTRODUCTION

The purpose of this Memorandum of Understanding ("MOU") is to develop procedures whereby WSPA Members party to this MOU ("Signatory Members") can request or voluntarily provide fire fighting, rescue, hazmat, oil spill, and medical resources and personnel in the event of an emergency requiring such resources and/or personnel.

II. VOLUNTARY NATURE OF PARTICIPATION

Each Signatory Member recognizes the need to reserve manpower, material, and equipment for its own protection before releases can be made to aid another member. There is no obligation on any Signatory Member to contribute equipment or work force to any particular emergency. Participation by any Signatory Member in any particular emergency is strictly voluntary. It is not the intent of this Agreement to impose a standard of liability on WSPA or on any WSPA Member for the failure or an inability to respond to an emergency situation. Further, each Signatory Member agrees that it will not pursue legal action against any other Signatory Member for the latter's refusal to provide voluntary assistance for any reason when requested pursuant to this Memorandum of Understanding.

III. MUTUAL AID PARTICIPANT REQUIREMENTS

Signatory Members shall have at least one designated representative on the WSPA NW Health & Safety Committee. Emergency response personnel of Signatory Members must be trained in accordance with all Federal, State and local rules and regulations. The emergency response plan for each Signatory Member must include:

- Utilization of the Standard Incident Command structure.
- Procedures for receiving, requesting and sending mutual aid in accordance with this Memorandum of Understanding.

Each Signatory Member will supply to the other Signatory Members a phone list with a twenty-four-hour contact number with the job title of the person who has the authority to respond for a request for mutual aid.

Each Member Company will supply to the other Signatory Members a list of equipment/manpower and materials, as well as a list of personnel authorized to release this equipment as part of the response. Updates and changes to this list shall be sent out to the other Signatory Members promptly.

Any Signatory Member not utilizing National Standard Thread connections at a location where assistance is requested will supply the necessary adapters.

IV. GENERAL OPERATING PROCEDURES

A. Needing Mutual Aid Assistance

Contact for assistance will be made by telephone to the appropriate listed party per each Signatory Member. Information regarding the nature of the emergency and type of mutual aid needed will be provided.

A designated liaison shall be provided by the requesting Signatory Member to each responding Signatory Member on scene. The designated liaison is responsible for coordinating communications between Incident Command and the responding mutual aid team.

Any Signatory Member receiving assistance from other Signatory Members shall reimburse responding Signatory Members for actual personnel costs, reimburse for or replace material used, reimburse for any decontamination costs for equipment actually deployed, and repair or replace any equipment damaged or lost as part of the requested response. Signatory Members seeking reimbursement shall document costs if requested.

B. Providing Mutual Aid Assistance

Signatory Members receiving calls shall notify the appropriate person in charge who has the authority to respond to a request for aid according to that company's pre-arranged plans and supplied equipment/manpower list.

Signatory Members electing to send aid shall advise the requesting Signatory Member what type of assistance is being dispatched and, if possible, the estimated time of arrival.

All response personnel provided by Signatory Members under this MOU will enter the facility or area only as directed by the requesting Signatory Member personnel and will act directly under the supervision of the Incident Commander.

Each Signatory Member that requests assistance shall hold harmless and indemnify each responding Signatory Member and their agents, servants and employees against and from any and all liability and direct costs incurred, including, but not limited to attorneys' fees, direct out-of-pocket expenses not otherwise reimbursed by other sources, claims, fines and damages that the responding Signatory Member sustains or incurs or becomes liable for by reason of its responses under this Agreement except in the event of the negligence, gross negligence and willful misconduct of the responding Member Company. The indemnifying Signatory Member shall not be liable to the indemnified party hereunder for indirect, special or consequential damages, charges or expenses incurred by the indemnified party unless directly connected with the requested response and incurred by virtue of an adverse judgment or reasonable settlement in a lawsuit against the indemnified party filed by a third-party claimant.

V. MEETINGS

Meetings of the WSPA NW Health & Safety Committee shall be held three times each year. Meetings will be held at designated Member facilities. A meeting notice and agenda will be sent to all Members prior to the next meeting.

WSPA NW MEMBER
AGREEMENT SIGNATURES

BP Cherry Point Refinery
Print name: BILL KIDD
Signature/Date: BK 7/31/14
Title: DIRECTOR, C&EA

Phillips 66, Ferndale Refinery
Print name: Marjorie Hatter
Signature/Date: Marjorie Hatter
Title: Refinery Manager

Equilon Enterprises LLC d/b/a Shell Oil Products US **EQUILON** ("Equilon"),
Print name: THOMAS J. RIZZO
Signature/Date: Thomas J. Rizzo 7/31/14
Title: SITE GENERAL MGR.- SHELL PUGET SOUND REFINERY

Tesoro, Anacortes Refinery
Print name: DANIEL S. CAMERON
Signature/Date: Daniel S. Cameron 7/31/14
Title: VP, TESORO ANACORTES REFINERY

U.S. Oil & Refining Co.
Print name: Daniel H. Yoder
Signature/Date: Daniel H. Yoder 7/31/14
Title: VP, Manufacturing, US Oil and Refining

To Request Mutual Aid Contact: (as of 07/14/14)

PHILLIPS 66				
CONTACT	**TITLE**	**PLANT (360)**	**HOME(360)**	**CELL (360)**
EMERGENCY	Switch Board	384-1011		
Harbison, Rich	Refinery Manager	384-8343		310-347-2543
Rinesmith, Bill	Fire & Safety Supervisor	384-8267	318-0339	815-0701
Dale Thanjan	Safety Superintendent	384-8597		224-1246
Dan Toperosky	HSE Manager	384-7879	393-3182	281-714-1964

BP CHERRY POINT				
CONTACT	**TITLE**	**PLANT (360)**	**HOME(360)**	**CELL (360)**
EMERGENCY	Security	371-1301		
24 Hour	Shift Supervisor	371-1271		
Allendorfer, Bob	Refinery Manager	371-1747		630-254-1446
Millhollin, Kara	Operations Manager	371-1348	398-2499	789-9358
Wallace, Bob	H.S.S.E. Manager	371-1807		927-0502
Rodgers, Bill	Plant Protection Superintendent	371-1168	647-0747	303-5233
McCreery, Scott	Crisis Management Superintendent	371-1605	676-0844	303-5211

TESORO				
CONTACT	**TITLE**	**PLANT (360)**	**HOME(360)**	**CELL (360)**
EMERGENCY	Security	293-9119		
James Tangaro	V.P. Refining	293-9122	399-1898	801-560-4377
Mike Johnson	Regulatory Affairs Manager	293-9141	299-2052	395-8483
Derrick Brewer	Safety Superintendent	293-1430	757-3426	428-0577
Rory Eaton	Emergency Response Coordinator	293-9147		420-2297

SHELL PUGET SOUND REFINING COMPANY				
CONTACT	**TITLE**	**PLANT (360)**	**HOME(360)**	**CELL (360)**
EMERGENCY	Security	293-1701		
Rizzo, Tom	Refinery Manager	293-0819		832 264-2783
Dave Hanson	Emergency Response Coordinator	293-1707		770-3105
Yeo, Chet	H.S.S.E. Manager	293-1551		853-3179
Barge, Tony	Security Supervisor	293-1566		333-1566

U.S. OIL & REFINING CO.				
CONTACT	**TITLE**	**PLANT (253)**	**HOME(253)**	**CELL (253)**
EMERGENCY	Shift Supervisor	383-1651 x237		377-0910
Yoder, Dan	Refinery Manager / VP of Manufacturing	383-1651	426-0838	426-0838
Paul Borth	Operations Manager	383-1651	927-1858	377-0903
Smith, Rich	Engineering Manager	383-1651	863-8763	377-0927
Arnold, Stephanie	Safety & Security Manager	680-3202	446-0375	405-1498

Western States Petroleum Association

Mutual Aid Agreement for Rail Emergency Response

I. Introduction

The purpose for this Mutual Aid Agreement is to document and develop procedures for the sharing of personnel and resources during a rail incident in Washington State involving material destined to or from any of the responding Signatory Member's facilities in the state. These incidents could include fires or releases of hazardous materials or petroleum substances, including crude oil.

II. Voluntary Nature of Participating

Each Signatory Member recognizes the need to reserve manpower and equipment for its own protection before any additional manpower or equipment can be made available to aid another Signatory Member. Participation by any Signatory Member in any particular emergency is strictly voluntary. It is not the intent of this agreement to impose liability on any Signatory Member for the failure or inability to respond to a request for assistance pursuant to this Mutual Aid Agreement; likewise, a Responding Member does not assume any liability for the underlying accident or incident by virtue of this Agreement or by responding to a request for aid. Further, each Signatory Member agrees that it will not pursue legal action against any other Signatory Member for the latter's refusal or inability to provide voluntary assistance for any reason when requested pursuant to this Mutual Aid Agreement.

III. Mutual Aid Participant Requirements

Signatory Members shall have at least one designated representative for the purpose of receiving requests for assistance under this Mutual Aid Agreement. The designated representative for each Signatory Member is identified on the signature page below. Signatory members shall notify other Signatory Members in writing of a change in their designated representative.

Emergency response personnel provided by any Signatory Member in response to a request for assistance pursuant to this Mutual Aid Agreement must be trained in accordance with all applicable Federal, State and local rules and regulations. Each Signatory Member agrees that it will adhere to the following:

- It will utilize the Standard Incident Command Structure (NIMS), if possible, during a response; and
- It will follow the procedures for receiving, requesting and sending mutual aid, as set forth in this Mutual Aid Agreement.

Each Signatory Member will provide to the other Signatory Members a phone list with a twenty four hour contact number with the Job Title who has the authority to respond for a request for mutual aid. Updates and changes to this list shall be made in a timely manner.

IV. General Operating Procedures

A. Need For Mutual Aid Assistance

Contact for assistance will be made by telephone to the appropriate listed party per each Signatory Member. Information regarding the nature and type of mutual aid needed will be provided.

A designated liaison for the incident shall be provided by the requesting Signatory Member to each responding Signatory Member. The designated liaison is responsible for coordinating communications between Incident Command and the responding mutual aid team.

Any Signatory Member receiving assistance from other Signatory Members shall reimburse responding Signatory Members for actual personnel costs for personnel engaged in response, material used (unless the parties agree on replacement in lieu of reimbursement), decontamination cost for equipment actually deployed and requiring decontamination, and repairs or replacement of any equipment damaged or lost as part of the requested response. Signatory Members seeking reimbursement shall document cost if requested. Each Signatory Member agrees to bear its own overhead and customary costs not specifically deployed in response, including employee benefits, and other normal and ordinary costs and expenses.

B. Providing Mutual Aid Assistance

Signatory Members receiving calls shall notify the appropriate person in charge who has the authority to respond to a request for aid according to the company's pre-arranged plans.

Signatory Members electing to send aid shall advise the requesting Signatory Member what type of assistance is being dispatched and, if possible, the estimated time of arrival.

All response personnel provided by Signatory Member under this mutual aid agreement will enter the facility or area only as directed by the requesting Signatory Member personnel and will act at the direction and supervision of the Incident Commander pursuant to the Incident Command structure.

Each Signatory Member that requests assistance shall defend, indemnify and hold harmless any responding Signatory Member and its agents, servants, and employees from and against any and all liability and direct costs incurred, including but not limited to attorneys' fees, direct out of pocket expenses not otherwise reimbursed by other sources, claims, and damages (but not including punitive damages) that the responding Signatory Member sustains or incurs or becomes liable for by reason of its response under this Agreement except in the event of gross negligence or willful misconduct by the responding Member Company. The Indemnifying Signatory Member shall not be liable to the indemnified party hereunder for indirect, special or consequential damages, charges or expenses unless directly connected with the requested response and incurred by virtue of an adverse judgment or reasonable settlement in a lawsuit against the indemnified party filed by a third party claimant.

2/14/14

Craig Hyder, Lead Contingency Planning Coordinator
Tesoro Companies Incorporated

Re: Letter of Intent

Dear Craig,

This letter certifies that Tesoro's Anacortes Refinery and the Vancouver, Pasco and Port Angeles Terminals are entitled to cite Islands' Oil Spill Association's response resources in their Response Plan. IOSA equipment and personnel is listed in the attached resource list and service agreement. IOSA is prepared to meet the 2 & 3 hour planning requirements for San Juan county, and for all phases of a response provides containment, cleanup, and wildlife rescue resources. IOSA can provide spill response equipment/personnel in neighboring counties, and for more distant locations provides resources for wildlife rescue (response personnel, supplies & facility setup/operation). This agreement between IOSA and Tesoro will be in effect until terminated, with thirty days notice, in writing by either party.

Sincerely,

Julie Knight

Julie Knight
Executive Director, Islands' Oil Spill Association

IOSA is a private non-profit 501(c) 4 organization. TIN: 91-1326241

ISLANDS' OIL SPILL ASSOCIATION - POST OFFICE BOX 12 - LOPEZ, WA 98261
(360)468-3441, iosa@rockisland.com

GLOBAL
Diving & Salvage Incorporated

January 4th 2014

Tesoro Refining and Marketing Company
P.O. Box 700
Anacortes, WA 98221
Attn: Craig Hyder

Re: Environmental Response Under OPA-90

Work Scope and Performance:

Thank you for your inquiry into Global Diving & Salvage, Inc.'s response capabilities. You have our permission to list Global among the response resources in your facility/vessel contingency plans. It does not guarantee a performance standard or obligate Global to respond. Any response would be subject to the availability of our personnel and equipment. This authorization extends only to pollution services. Global's personnel, equipment and materials will be billed out in accordance with our most current tariff rates.

Period of Performance:

This listing is valid from January 1st, 2014 through January 31, 2019 for the Port Angeles, Anacortes, and Vancouver, WA facilities.

For your records, Global Diving & Salvage, Inc. is currently registered as a Washington State Department of Ecology Primary Response Contractor. Please contact Global directly should you require a copy of this certification.

Respectfully Submitted,

Connie Alvarez
Office Manager
Global Diving & Salvage, Inc.

3840 West Marginal Way SW • Seattle, Washington 98106 • 24 hours a day - 206-623-0621 • www.gdiving.com • Fax 206-932-9036

ADC Association of Diving Contractors American Salvage Association AGC Associated General Contractors of Washington

Figure B.2
Equipment Lists

MARINE SPILL RESPONSE CORPORATION WSPA

Current MSRC, Global, and IOSA equipment lists can be downloaded from the Western Response Resource List. To access the lists go to www.wrrl.us and select the “guest” login option. No username or password is needed with this option. You can then download an excel spreadsheet of all the equipment by going to the “download” tab and selecting the appropriate file.

WSPA NORTHWEST MUTUAL AID

FIRE EQUIPMENT INVENTORY

MEMBER	TYPE	CAPACITY (gpm)	FOAM			HOSE (feet)					SCBA's	
			MFG	TYPE	AMOUNT (gallons)	5"	3"	2 ½"	1 ¾"	1 ½"	Make	No.
BP	Tender 52		Williams	1 x 3	4000							
BP	Fire Pump 52	6000	Williams	1 x 3								
BP	Master Stream 52	6000										
BP	Quick Attack 52		Williams	1 x 3	95	600’					Survive Air	2
BP	Engine 51 - if authorized by the Whatcom County Department of Emergency Management.	3000	Williams	1 x 3	1250	2600’	600’				Survive Air	9
P 66	Pumper	4000	Thunder storm	AFFF 1x3%	1000	750	500		500		Scott 4.5	6
P 66	Pumper	1500	3M	AFFF-A+	1000	500	500		500		Scott 4.5	7
P 66	Bulk Foam (drums)		Thunder storm	FP	1000							
P 66	Foam Tender		CNF	AFFF-A+	3000							
P 66	Big Gun	3500										
P 66	Hose Trailer					1000						
Tesoro	Bulk Foam (Truck)		CNF	AFFF	3000							
Tesoro	Pumper	1750	CNF	AFFF	1500	1000		1500		700	Scott 4.5	14
Tesoro	Pumper	1250	CNF	AFFF	1000	400		1200		700	Scott 4.5	4
Tesoro	Hose Reel & Rack (2)					3600						
Tesoro	Foam Monitor	2000	CNF									
Tesoro	Foam Monitor	2000	CNF									
Shell	Foam Trailer		CNF	AR-AFFF	4000							
Shell	Hose Trailer					5000						
Shell	Hazmat ICS										Scott 4.5	4
Shell	SCBA Filling Unit/Lights (+ 50 spare bottles)										Scott 4.5	6
Shell	Foam Monitor x2	2000	CNF									
Shell	Storage				6000							
Shell	75’ ladder	2000	CNF	AR-AFFF 3x6	350	1000					Scott 4.5	16
Shell	Pumper	3500	CNF	AR-AFFF 3x6	1000	1000		800	550		Scott 4.5	16
Shell	Pumper	1500	CNF	AR-AFFF 3x6	1000	1000		800	550		Scott 4.5	16
US Oil	Quick Attack	3000	Thunderstorm	AFFF-A	95							
US Oil	Trailer Mounted Monitor	3000										
US Oil	Foam Trailer		Thunderstorm	AFFF-A	500							
US Oil	Foam Trailer		Thunderstorm	AFFF-A	500							
US Oil	Hose					200		1000		500		
US Oil	Foam Totes 265 gal (8 ea)		Thunderstorm	AFFF-	2120							

FP = Fluroprotein

AFFF-A = Aqueous Film Forming Foam – Alcohol

+ (plus) = Freeze Protected

HYDRANT

Company	Size	Threads
Phillips 66	2 ½, 5	NST, Storz
Tesoro	2 ½, 5	NST, Storz
BP	2 ½, 5	NST, Storz
Shell	2 ½, 5	NST, Storz
US Oil	2 ½, 5	NST, Storz

APPENDIX C FACILITY DESCRIPTION

Owner/Operator:	Tesoro Refining & Marketing Company LLC - 10200 West March Point Road Anacortes, WA 98221	Tesoro Logistics LP / Tesoro Logistics Operations LLC - 10200 West March Point Road Anacortes, WA 98221
Facility Name / NAICS Code:	Anacortes Refinery / 324110	
Name and Address of person to whom correspondence should be sent:	Eric Haugstad, Director, Contingency Planning and Emergency Response 19100 Ridgewood Parkway San Antonio, TX 78259	
Description of Facility:	Refinery complex, including marine transportation facilities and onshore storage and processing facilities. The marine transportation related facility includes the wharf with barge and tanker berths, and associated appurtenances.	
Description of Operations:	Oil refining and petroleum product manufacturing.	
Product Disposition:	Transfer of refined petroleum products to various companies via marine terminal.	
Hours of Operating/Manning:	24-hours per day, 7 days per week	
Facility Throughput:	115,000 barrels per day of crude oil.	
Products Handled:	Crude oil is received via pipeline, railcar or marine transfer and refined into products such as gasoline, diesel fuel, jet fuel, fuel oil, and liquefied petroleum gases. All intermediate streams in the refinery process are also handled and/or stored.	
Mailing Address:	Anacortes Refinery P.O. Box 700 Anacortes, WA 98221	
Location:	Latitude: 48°30’34” N, / Longitude: 122°34’35”W, one mile east of the City of Anacortes, Skagit County, Washington	
Telephone/FAX:	**(360) 293-9119 / (360) 293-1462**	
Primary Qualified Individual*:	**James Tangaro** Vice President, Refining (360) 293-9122 (Office) (801) 560-4377(Cellular)	
Alternate Qualified Individual*:	Don Manuel Technical Manager (360) 293-1688 (Office) (360) 420-1714 (Cellular) Matt Marusich HS & E Manager (360) 293-9141 (Office) (925) 260-0397 (Cellular)	Craig Hyder Manager, Regional Contingency Planning & Emergency Response (360) 293-1632 (Office) (907) 690-4322 (Cellular) Bob Gilbert Manager Terminals-Anacortes (Tesoro Logistics Operations LLC) (360) 293-7707 (Office) (360) 630-7263 (Cellular)
Date of Storage Startup:	1955	
Wellhead Protection Area:	No	
Dates(s) and Type(s) of Substantial Expansion:	2012 - Expanded Crude Train offloading facility at west refinery, March Point Road.	
Date Prepared/Updated:	August 2014	

***For further information on Qualified Individual’s training and qualifications, refer to SECTION 4** and **Appendix A** in this plan.

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C.1 OVERVIEW

The Anacortes Refinery is located near Anacortes, Washington on March Point in Skagit County, Washington. The plant is bound on the west by Fidalgo Bay, and on the east by Padilla Bay at north latitude 48° 30' and west longitude 122° 34' 35".

C.2 DESIGN AND OPERATIONS

C.2.1 General Operations Description

Crude oil is unloaded at the wharf and transferred to the Refinery by pipeline. Petroleum products shipped via or handled at the wharf include:

- Alklyate
- CC feed
- Crude oil
- Cutter stock
- Diesel
- Industrial fuel oil
- Jet A
- Gas oil
- Marine fuel oil
- NHT tops/CC naptha
- Reformate
- Unleaded gasoline

Physical properties of these products are provided in **FIGURE C.1**. Material Safety Data Sheets (MSDS) are on file in the Wharf Office, Logistics Control house, and on the Refinery computer system available 24 hours a day.

Anacortes Refinery may from time to time move Group V oils. In the event of a discharge, Tesoro will act in accordance with WAC 173-182-324 citing contractual agreement with Primary Response Contractor (PRC). PRC contracts are located in **Appendix B**.

C.2.2 Wharf Berthing and Transfer Operations

Two main segments of the facility are the causeway (wharf approach structure) and the wharf proper. The causeway extends approximately 3,100 feet from the shoreline and consists of a 15-foot-wide roadway and open pipeway (**FIGURE 1.6**). The structure is constructed entirely of timber and has turnout points to facilitate traffic movement.

The wharf proper is constructed of timber with the exception of the dolphins, sumps, new north manifold, and pipeway. The dolphins are concrete with prestressed concrete pilings and rubber fenders that absorb shock caused from the impact of vessels. The sumps at the loading and pumpout stations are made from reinforced concrete and the new north manifolds are constructed of steel. The pipeway on the wharf and the sumps are lined with grating to facilitate visual inspection.

Figure C.1
Properties Of Petroleum Products Handled At Wharf

PRODUCT NAME	DENSITY	SPECIFIC GRAVITY (H_2O=1)	API GRAVITY	OIL GROUP NUMBER	SULFUR CONTENT	VISCOSITY	POUR POINT
Full Range Alkylate Naphtha	839 Kg/M^3	0.7 approx.	55 to 65	1	<1%		
Heavy Straight Run Gas Oil	863 Kg/M^3	0.85-0.9	35	3	<1%	3.2	<18
Chemically Neutral Light Naphtha (Petroleum) Stream	839 Kg/M^3	0.75-0.80 approx.	55 to 65	1	<1.5%		
Crude Oil	865 Kg/M^3	>0.7	35 to 45	2	<1%		
Catalytically Cracked Clarified Oil (Slurry) (Decant)	995 Kg/M^3	>1	>11.2	5	<4.5%	240 to 380	<86
Diesel	876 Kg/M^3	0.8762	30 to 39	1	<1%	1.9 to 4.1	
Industrial Fuel Oil-NW	965Kg/M^3	>1	>11.2	5	<4.5%	240 to 380	<86
Jet A	840 Kg/M^3	0.81	37 to 51	1	<1%	<8.0	
Low Sulfur Catalytic Cracker Feed	839 Kg/M^3	N/A	18 to 22	3	<1%		<75
Medium Sulfur Catalytic Cracker Feed	839 Kg/M^3	N/A	18 to 22	3	<1.5%		<75
Light Catalytic Cracked Gas Oil	840 Kg/M^3	0.9 approx.	38	2	<1%		
Marine Fuel Oil Blendstock NW	965Kg/M^3	0.9958	10 to 20	4	<2.5%		
Hydrotreated Light Naphtha (Petroleum) Stream	839 Kg/M^3	0.68 approx.	55 to 65	1	<1%		
Heavy Catalytic Reformed Naphtha	839 Kg/M^3	0.72-0.76X	55 to 65	1	<1%		
Light Catalytic Reformed Naphtha	839 Kg/M^3	0.7 approx.	55 to 65	1	<1%		
Regular Unleaded Gasoline	719 Kg/M^3	0.72-0.76	<72	1	<1%		
Premium Unleaded Gasoline	719 Kg/M^3	0.72-0.76	<72	1	<1%		

"MSDS Sheets on products listed are located on Wharf and available 24 hours per day. The Safety Data Sheets (formerly MSDS) can also be accessed on the Tesoro Intranet at https://ssoportal.tesoropetroleum.com/sap/bc/webdynpro/sap/zwda_msds_search"

The wharf head proper is 650 feet long by 65 feet wide, with a 28-foot-wide pipeway in the center. An aft mooring dolphin extends from a 193.5-foot finger pier to the west. Three breasting dolphins for tankers are spaced approximately 210 feet apart on the north side (i.e. outside) of the wharf. A forward mooring dolphin extends from a 140-foot long finger pier to the east.

The outside berth can accommodate tankers about 950 feet in length and 125,000 Dead Weight Tonnage (DWT), with a draft suitable for 44 feet of water at Mean Lower Low Water (MLLW). The inside berth is limited by a distance of 357 feet from the centerline of the hose manifold to the bow fender dolphin. The inside berth can accommodate tankers up to about 650 feet in length and 50,000 DWT, with a draft suitable for 38 feet of water at MLLW.

Located midway on the wharf proper is the control house and personnel shelter. The lower floor of this two-story structure contains a pressurized electrical switchroom, a foam tank for firefighting, a restroom, and a vessel crew waiting room. There is also a centrally located storeroom for life preservers, rope, and operating gear. Full vision of the wharf, causeway, and vessels secured to the wharf is permitted at all times from the specially designed, pressurized second floor. The second floor contains the operating equipment, storage, desks, and telephones necessary to manage wharf operations.

Drip containment at the wharf consists of a drip pan covering all working areas adjacent to the wharf manifolds and sump containment at the manifold proper.

Slop oil and ballast water reception facilities are located at the east end of the wharf manifolds on both the north and south loading manifolds. Ships arriving with ballast aboard or with wash tanks discharge slop or ballast via an eight-inch or six-inch hose or combination of both to the wharf. The material is then transferred through pipelines to a 50,000-barrel tank (Tank 161).

The wharf is equipped with a number of safety features to ensure safe navigation, fire prevention, and transfer operation. These features include:

- Proper navigation lights and a foghorn are incorporated into current navigation charts.

Spill response equipment stored or stationed at the wharf or at an adjacent storage site includes booms, skimmers, sorbents, workboats, hand tools, etc. A complete list of Company response equipment is described in **SECTION 7**.

Hours of operation of the facility are 24 hours per day, 365 per year. The wharf can load or unload two vessels simultaneously. When a vessel is at the wharf, there is one Wharf Operator per vessel at all times. Access to the wharf is by way of the main gate which has a watchman on duty at all times.

Whenever there is a ship or barge at the wharf, the wharf is manned by the No. 1 Wharf Operator. The No. 1 Wharf Operator is the Person-In-Charge of transfer operations. If there is a second vessel, he is assisted by another qualified Wharf Operator, who is designated Person-In-Charge of the second vessel. The unmanned wharf is inspected three times during an eight-hour shift by the Logistics Operation's Supervisor, Security Guard, and/or Wharf Operator. When there is no vessel or maintenance being done at the wharf, the Wharf Operator is often assigned to duties elsewhere in the department.

A ship using the inner or outer berth must use two tugs on docking and undocking. A barge using the inner berth must use a tug or sufficient power to safely dock the barge or must ask for the assistance of an additional tug. A barge using the outer berth must use two tugs on both docking and undocking due to hazards of tide, winds, and distance (200+ ft) between dolphins. Unmanned tank vessels are not permitted at the wharf.

C.2.3 Refinery Oil Transfers

The refinery receives crude oil via Transmountain pipeline and the wharf. Transmountain pipeline deliveries occur approximately twice a week at a receiving volume of approximately 8,000 barrels per hour. Wharf crude deliveries occur approximately every 10 days via crude ships in the 75-125 DWT class. Discharge volumes on crude ships range from 25,000-30,000 barrels per hour. Crude is discharged to shore tanks which in turn are transferred to hill tanks at approximately 10,000 barrels per hour for feed to the crude unit. The crude unit processes approximately 90,000-100,000 barrels per day of crude. These products in turn are distributed to various tanks and process units. (Refer to **FIGURE C.8**, Process Flow Diagram).

Product ships range from 34,000-62,000 DWT and load approximately 240,000-275,000 barrels of gasoline, diesel, Jet A and intermediate products. These products are loaded from the hill tanks to the shipping pumps located at the Logistics Control House area to wharf lines and loading manifold at the wharf.

Loading rate varies from 3,000-7,000 barrels per hour. Tank barges load and offload products such as gasoline, diesel, Jet A, marine fuel oil, decanted oil, and cat cracker feed. Cat cracker feed is discharged to shore tanks at approximately 5,000-10,000 barrels per hour and transferred to hill tank for processing in the cat cracker unit. Products are loaded on barges in the same way ships are loaded.

The truck rack facility loads regular unleaded, ethanol, diesel and propane. Tesoro has rail facilities to load asphalt and load/offload butane and propane. The refinery receives crude oil via the rail car facility with 11,000 barrels per hour offload rate which has a pressure leak detection from the piping.

C.2.4 Storage Tanks

Tanks in oil service store crude feed, intermediates, and products. Many other smaller tanks are present on site which store treatment chemicals, additives, wastewater, etc. Tank information is provided in **FIGURE D.4**. Fail-safe operating features incorporated in petroleum bulk storage facilities include a centralized, continuously-manned VAREC computer system and full-time radio communications between tank farm operators and the control room from which storage and transfer operations are directed. Active tank gauges are logged every four hours and all tanks on the system are gauged every 24 hours. The remote level sensing device and the tank side gauges are checked monthly versus manual tape gauges. If the VAREC system is not operable, active tanks must be gauges with a tape.

The VAREC system gives audible alarms for high, high-high, low, and low-low levels, as well as flow rates into or out of an active tank. Alarms require acknowledgement by the boardman. If a tank has been inactive (constant level) and suddenly has a change in level, an alarm will sound requiring boardman acknowledgment. Tank farm tanks are protected from corrosion by a cathodic system.

C.2.5 Pipelines

- All piping carrying crude oil, liquid petroleum products, or intermediates including between the transfer facilities and the storage tanks and between the storage tanks and the process units.
- Includes all pumps, flanges, valves, pressure relieving devices, etc. on such piping.
- Includes pipelines for receiving crude oil or distributing oil products.

Pipelines run through the entire refinery. This plan will focus on those in the tank farm to the transfer facilities.

Nearly all of the refinery piping is above ground. The only piping that runs over water is that along the causeway and on the wharf. There are ten oil lines going to the wharf ranging from 6’ to 16’ carrying crude oil, oil products, slop oil, and ballast water. Each line contains a block valve approximately 400 feet south of the wharf proper (just south of the spill equipment building).

Pumps are located throughout the refinery. The cargo loading pumps are located near the main logistics control room, which is on the northern end of tank farm (near the center of the refinery).

A summary of pipeline specifications is provided in **FIGURE C.2**.

Figure C.2
General Pipeline Specifications

LINE NUMBER	SIZE/ SERVICE	LOCATION	CAPACITY (BBLS)	MAX. RATE PUMP DISCHARGE	PUMP TYPE
1	16" Crude	EOW to shore tanks.	1295	15 mb/hr	Vessel
2	16" Crude	EOW to shipping pumps	1468	2 mb/hr	Shore
3	16" Bunker	EOW to shore tanks	1295	15 mb/hr	Vessel
4	16" Bunker	EOW to shipping pumps	1526	7.5 mb/hr	Shore
5	12" Diesel	EOW to shipping pumps	932	5 mb/hr	Shore
6	12" Jet-A	EOW to shipping pumps	936	5 mb/hr	Shore
7	12" Prem. Gas	EOW to shipping pumps	928	5 mb/hr	Shore
8	12" Reg. Gas	EOW to shipping pumps	930	5 mb/hr	Shore
9	10" H.B. Gas	EOW to shipping pumps	930	5 mb/hr	Shore
10	6" Bunker	EOW to shipping pumps	1046	1 mb/hr	Shore

*EOW = End of wharf.

C.2.6 Rail Car Facility

- Crude oil unloading facility with a pump transfer rate of approximately 700 gallons per minute or about 10,000 barrels per hour (bph). The unloading facility can accommodate one 100-car unit train of crude oil.

- Piping, pumps, manifolds, meters, controls, and appurtenances accommodate unloading.

- Existing storage tanks within the Tesoro Refinery are used.

The fully loaded 100-car-unit train comes into the facility from the BNSF Railway main tracks. When unloading operations is complete (about 7 hours), the empty train is prepared for departure. The total turnaround time from arrival to departure is approximately 16 hours. Rail tank cars are bottom unloaded through heavy-duty 4-inch flexible rubber hoses connected to a dry-break quick-coupler adapter on each tank car. The risers from each unloading position would be connected to a 30-inch suction header below grade that is connected to four unloading pumps (3 operational and 1 installed standby) discharged to an 18-inch discharge header to the respective crude storage tanks in the existing tank farm.

Upon completion of unloading, the pumps stop and then the drain lines and adapters are disconnected and the vacuum breaker and ground connections are removed.

The unloading operation takes place over a concrete pad. Any water or oil that drips on the pad will drain into a 400,000-gallon storage tank and pumped to the refinery's wastewater treatment plant.

C.2.7 Truck Rack Facility

The truck rack loading facility supplies propane, diesel, ethanol, and regular unleaded fuel to commercial trucks. There are 3 tanks containing: diesel (12,000 bbls), ethanol (12,000 bbls), and regular unleaded fuel (20,000 bbls) that supply the truck rack. There are also 4 smaller tanks holding additives located adjacent to the loading area. The facility can accommodate 2 trucks loading diesel, ethanol, or regular unleaded fuel at one time and one truck loading propane. The facility is operational 24 hours/day.

The facility has automatic isolation valves between the loading area and the supply tanks. The loading area drains to a 10,000 gallon sump that is connected to an oil water separator and then to the refinery's wastewater treatment plant. Spills in the loading area would go to the wastewater treatment facility.

C.2.8 Secondary Containment

Tanks

Oil storage facilities at the refinery are protected by secondary containment systems earthen and reinforced concrete dikes, sewer systems, and impounding basins. If dike is earthen, it is covered with an asphaltic coating to prevent erosion and maintain integrity. These systems are designed to prevent oil from reaching navigable waters in the event of a primary containment system failure and are in accordance with the requirements of 40 CFR Part 112 and the National Fire Protection Association Code 30 (Flammable and Combustible Liquids Code).

Most of the larger tanks are in their own diked area, whereas many of the smaller tanks are in common areas. The volumetric capacity of the diked area is at least 100% of the volume of the largest tank in the diked area plus freeboard allowance for precipitation.

If a substantial amount of oil were to accumulate in a diked tankyard, the flow from the tanks in that yard to the oily sewer can be stopped by closing a valve located outside of the containment.

Drain valves in the dikes are always kept closed except to drain any accumulation of tankyard water. Before water is drained it is inspected (and analyzed, if necessary). Roof drains are closed when the dike drain valves are open to prevent escape of oil should a roof drain line develop leak. A limited number of drain valves are open at any one time, and they are periodically inspected while open. The status of each drain valve is indicated by an orange traffic cone by an open valve and by the drain valve position board in the main logistics control room.

In all storage situations, except for the four low elevation crude tanks (135, 136, 165, 166) and two high elevation crude tanks (1, 60), the refinery drainage system surrounds secondary containment dikes, supplying a tertiary containment capability in the wastewater holding ponds discussed in **APPENDIX C.2.7**. For portable oil storage tanks, containment is provided to protect against spills to bare ground or waters of the state.

The rail offload facility has a secondary containment to hold the capacity of the largest rail tank car.

Tank secondary containment capacities are outlined in **FIGURE C.3**.

Figure C.3
Tank Containment Capacities

*All tanks are welded construction - **(M) = 1,000 as 35 MBBLS = 35,000 BBLS**

Basin Tank(s)	Tank Capacity MBBLs	Basin Capacity to Mid Dike MBBLs	Total Capacity to Top of Dike Elev. MBBLs	*Tank Capacity M Gals	Basin Capacity to Mid Dike M Gals	Total Capacity to Top of Dike Elev. M Gals
1	150	35	318 to Elev. 204.0	6,300	1474	13,339 to Elev. 204.0
60	150	57		6,300	2394	
2	150		170 to Elev. 196.5	6,300		7,136 to Elev. 196.5
3	150		176 to Elev. 201.5	6,300		7,371 to Elev. 196.5
4	150		161 to Elev. 190.5	6,300		6,762 to Elev. 190.5
5	150		159 to Elev. 190.5	6,300		6,678 to Elev. 190.5
6	150		158 to Elev. 179.5	6,300		6,640 to Elev. 179.5
7	150		151 to Elev. 179.5	6,300		6,334 to Elev. 179.5
8	80	32	165 to Elev. 151.5	3,360	1,336	6,947 to Elev. 151.5
10	55	38		2,310	1,588	
9	80	30	178 to Elev. 143.5	3,360	1,243	7,459 to Elev. 143.5
11	80	35		3,360	1,462	
12	80		88 to Elev. 142.5	3,360		3,683 to Elev. 142.5
13	80	32		3,360	1,344	
14	80	31	207 to Elev. 138.5	3,360	1,302	8,694 to Elev. 138.5
114	125	22		5,250	903	
15	55	31	127 to Elev. 129.5	2,310	1,306	5,321 to Elev. 129.5
16	55	31		2,310	1,315	
17	55	31	127 to Elev. 121.5	2,310	1,302	5,321 to Elev. 1215
18	55	32		2,310	1,327	
19	30		68 to Elev. 114	1,260		2,873 Elev. 114.0
20	30			1,260		
21	30		74 to Elev. 107.0	1,260		3,100 to Elev. 107.0
22	30			1,260		
37	12		2 to Elev. 100.0	504		95 to Elev. 100.0
38	12		3 to Elev. 91.0	504		113 to Elev. 91.0
23	30	35		1,260	1,483	
113	30		157 to Elev. 172.0	1,260		6,602 to Elev. 172.0
24	80	36		3,360	1,529	
142	150	47	186 to Elev. 164.6	6,300	1,957	7,820 to Elev. 164.6
148	150	45		6,300	1,894	
25	30			1,260		
26	80		180 to Elev. 144.0	3,360		7,556 to Elev. 144.0
171	130			5,460		
27	30	37		1,260	1,533	
28	30		160 to Elev. 132.0	1,260		6,703 to Elev. 132.0
29	80	36		3,360	1,520	
91	30	48		1,260	2,024	
134	100		192 to Elev. 127.6	4,200		8,068 to Elev. 127.6
92	150	46		6,300	1,919	
30	30	39		1,260	1,617	
31	30		171 to Elev. 116.5	1,260		7,182 to Elev. 116.5
32	80	36		3,360	1,495	
33	30	38	177 to Elev. 99.5	1,260	1,588	7,434 to Elev. 99.5
334	80	37		3,360	1,550	
35	80	35	183 to Elev. 81.5	3,360	1,487	7,682 to Elev. 81.5
36	80	37		3,360	1,567	
88	10	37	183 to Elev. 815	420	1,567	7,682 to Elev. 81.5
89	10		20 to Elev. 65.0	420		844 to Elev. 65.0
90	10			420		

Basin Tank(s)	Tank Capacity MBBLs	Basin Capacity to Mid Dike MBBLs	Total Capacity to Top of Dike Elev. MBBLs	*Tank Capacity M Gals	Basin Capacity to Mid Dike M Gals	Total Capacity to Top of Dike Elev. M Gals
45	.3			13		
46	.3		130 to Elev. 74.0	13		130 to Elev. 74.0
47	.3			13		
48	.4			15		
53	1			42		
54	1			42		
55	1			42		
56	.5		7 to Elev. 74.0	21		301 to Elev. 74.0
109	.6			23		
115	.6			23		
160	2			84		
161	50		56 to Elev. 44.0	2,100		2,356 to Elev. 44.0
93	6			252		
94	12		27 to Elev. 45.0	504		1,151 to Elev. 45.0
133	12			504		
32	8		2,360 to Elev. 45.0	315		
39	30			1,260		
40	10			420		
41	1			42		
42	1		51 to Elev. 41.0	42		2,138 to Elev. 41.0
44	20			840		
57	1			42		
165	600		755 to Elev. 24.0	25,200		31,693 to Elev. 24.07
166	600			25,200		
135	177	35	277 to Elev. 22.7	7,434	14557	11,647 to Elev. 22.7
136	177	40		7,434	1697	
202	187	61	193 to Elev. 155	7,838	2582	7,476 to Elev.
203	193	84	193 to Elev. 145	7,838	3528	8,106 to Elev.
216	91	55	111 to Elev. 38	3,805	2345	4,690 to Elev.
230	30	16	39 to Elev. 90	1,260	688	1,644 to Elev.
231	101	53	119 to Elev. 120	4,241	2226	4,998 to Elev.
406	12			521		
407	20			863		
408	12			494		

(M) = 1,000 as 35 MBBLS = 35,000 BBLS

Piping

Because all of the refinery drainage is collected, nearly all leaks which could potentially develop on pipelines within the refinery (excluding those on the causeway and wharf) would be contained within the sewer system and retention ponds. Most of the piping in the tank farm area and between the tank farm and wharf causeway is located in trenches that run along the roads in the refinery.

Wharf

The wharf is provided with reinforced concrete sumps under each of the loading headers, MLA's, and slop pumpout area. In addition, there is a steel sump under the extended north wharf manifold and a steel sump west of the north hydraulic crane. Sumps are for the purpose of containing any leaking connections and for draining while disconnecting. Sumps are emptied prior to disconnecting hoses to minimize the chances of an overflow. High level lights with alarms at both the wharf and the main logistics control hose alert operators when a sump is nearly full. The sumps are inspected regularly during each shift. Drip pans are utilized whenever hoses must be connected or disconnected at any point other than over the sumps.

C.2.9 Containment Drainage

All diked areas associated with the tanks are equipped with drain valves that are so arranged that surface drainage is automatically routed to the storm water sewer system or the oily water sewer system during normal operations, and is subsequently recovered and/or treated at the effluent plant as needed.

C.2.10 Surface Drainage

The topography at the refinery and March Point in general controls the drainage and surface runoff at the facility. A diagram of the drainage routes is shown in **FIGURE C.5**.

Drainage within the developed refinery site is routed to the wastewater treatment plant via two principal sewer systems, the oily water sewer and the stormwater sewer. The oily water sewer is designed to accept drainage most likely to be oil contaminated (e.g. process water which has been in direct contact with petroleum products and also precipitation which falls within the immediate confines of a process area).

The refinery storm sewer collects runoff which is inherently free of contaminants, including oil, originating as precipitation in non-process areas including the storage areas. **FIGURE C.5** illustrates the refinery sewer system.

Drainage from diked storage areas is controlled by manually operated, normally-closed gate valves. Rainwater is intermittently drained into the refinery stormwater sewer system after confirming that it is not contaminated with oil. Water from the diked areas around tankers 135, 136, 165, and 166 is pumped to the Waste Water Treatment Plant since these areas cannot be drained by gravity.

Drainage from the tank truck and tank car loading facilities and adjacent area is intercepted in a catchment basin (1 MM gallons) near the western periphery of the refinery. From the basin, it is pumped automatically up into the oily water sewer for gravity flow with process water to the wastewater treatment plant.

At the wastewater treatment plant (**FIGURE C.7**) the oily water sewer flow is routed through two parallel API separators where the major portion of free-floating oil is removed for reprocessing. From the API separator, effluent passes through one of two primary clarifiers. If necessary at this point, up to 3.5 MM gallons of wastewater may be diverted and stored in a diversion pond for future recycle through the API separator. The water then goes to an activated sludge basin where a large portion of the organic contaminants are destroyed. Following biological treatment, the water passes through one of two secondary clarifiers and into retention and surge ponds in series (6.5 and 7 MM gallons, respectively).

The segregated stormwater stream enters the wastewater treatment plant via a separate storm flume equipped with an oil skimmer. The stormwater then enters the retention pond along with the water from the secondary clarifiers. The retention and surge ponds are also equipped with oil skimmers although oil is not routinely present in these ponds. Water is pumped into Fidalgo Bay from the surge pond under NPDES Permit # WA 000076-1. If necessary, water in these ponds can be isolated and recycled to the API separator for further treatment or it can be diverted to another holding basin for emergency storage (5 MM gallons).

Through routine visual observations and analytical testing, the operator of the wastewater treatment plant detects contamination that may be indicative of a plant upset or spill.

Drainage Retention System

The Company has impounding basins designed to act as secondary containment for oil and hazardous materials or substances from storage tanks and transfer lines. Accumulated oil can be recovered and the oily water can be pumped or drained to the oily water sewer for treatment at the Effluent Plant. **FIGURE C.5** illustrates the sewer systems.

C.2.11 Leak Detection System

Applicability

The Company has a pipeline leak detection system on all pipelines that are not contained. Pipelines in the tank farm or processing areas are all contained within dikes or treated oil water sewer systems. However, pipelines that service shore tanks and wharf facility are not contained by berm and drainage systems and are monitored by a pipeline leak detection system to meet provisions of state law.

The field monitoring system consists of flow meters and pressure transmitters on the pipelines at the wharf and at the head of the causeway or shore tanks. A leak detection computer system in the HP-1 Logistics control house is operated and monitored by the HP-1 Logistics board operator.

Monitoring Requirements

Monitoring is conducted only on active transfer lines. The system is disabled on static lines.

Wharf Hardware

Eight clamp-on sonic flow meters are installed on the dock lines under the grading at the east end of the wharf control house. These meters are installed on the following lines:

- 16” Crude 13 FE 8884 (PT #01)
- 16” Bunker 13 FE 8885 (PT #05)
- 6” Bunker 13 FE 8886 (PT #16)
- 12” RUL 13 FE 8887 (PT #24)
- 10” Housebrand 13 FE 8888 (PT #36)
- 12” Jet 13 FE 8889 (PT #32)
- 12” Diesel 13 FE 8890 (PT #20)
- 12” PUL 13 FE 8891 (PT #28)

Shore Tank Hardware

Two clamp-on sonic flow meters and two pressure transmitters are installed on the shore tank lines east of G Street. These meters and pressure taps are installed on the following lines.

- 24" Crude 13 FE 8912 (PT #03) & 13 PT 8892 (PT #02)
- 16" Crude 13 FE 8913 (PT #08) & 13 PT 8993 (PT #07)

Causeway Hardware

Eight clamp-on sonic flow meters and pressure transmitters are installed on the dock lines near the head of the causeway. These meters and pressure taps are installed on the following lines:

- 16" Crude 13 FE 8904 (PT #10) & 13 PT 8900 (PT #09)
- 16" Bunker 13 FE 8905 (PT #12) & 13 PT 8901 (PT #13)
- 6" Bunker 13 FE 8906 (PT #14) & 13 PT 8894 (PT #15)
- 12" RUL 13 FE 8907 (PT #22) & 13 PT 8895 (PT #23)
- 10" Housebrand 13 FE 8908 (PT #34) & 13 PT 8896 (PT #35)
- 12" Jet 13 FE 8909 (PT #30) & 13 PT 8897 (PT #31)
- 12" Diesel 13 FE 8910 (PT #18) & 13 PT 8898 (PT #19)
- 12" PUL 13 FE 8911 (PT #26) & 13 PT 8899 (PT #27)

Logistics Control House Hardware

The leak detection computer system and alarm panel are located in the Logistics control room at the board operator's control console. System programming and alarm acknowledgement are conducted from this location.

The leak detection system is equipped with a back-up computer that can be connected and placed in service should the primary computer fail.

System Design

Our system is a three meter "Pressure Point Analysis" system that is processed and monitored in the Logistics control house. All of the flow meters are sonic meters and will allow for flow in either direction.

Alarms

When the system detects a 90% leak probability, an alarm sounds on the annunciator panel in the Logistics control house. When an alarm sounds, operations will take action to respond to the alarm, including transfer shutdown and investigation.

If the system indicates a malfunction, the active transfer lines will be monitored visually until the system is functional.

The wharf operator is not to leave the wharf proper to conduct monitoring of transfer lines when his presence is required at the wharf, another person will have to be dedicated to the transfer line monitoring.

Refer to the over water leak detection manual located in the Logistics control house for further information.

Figure C.4
Shore Tanks Diagram

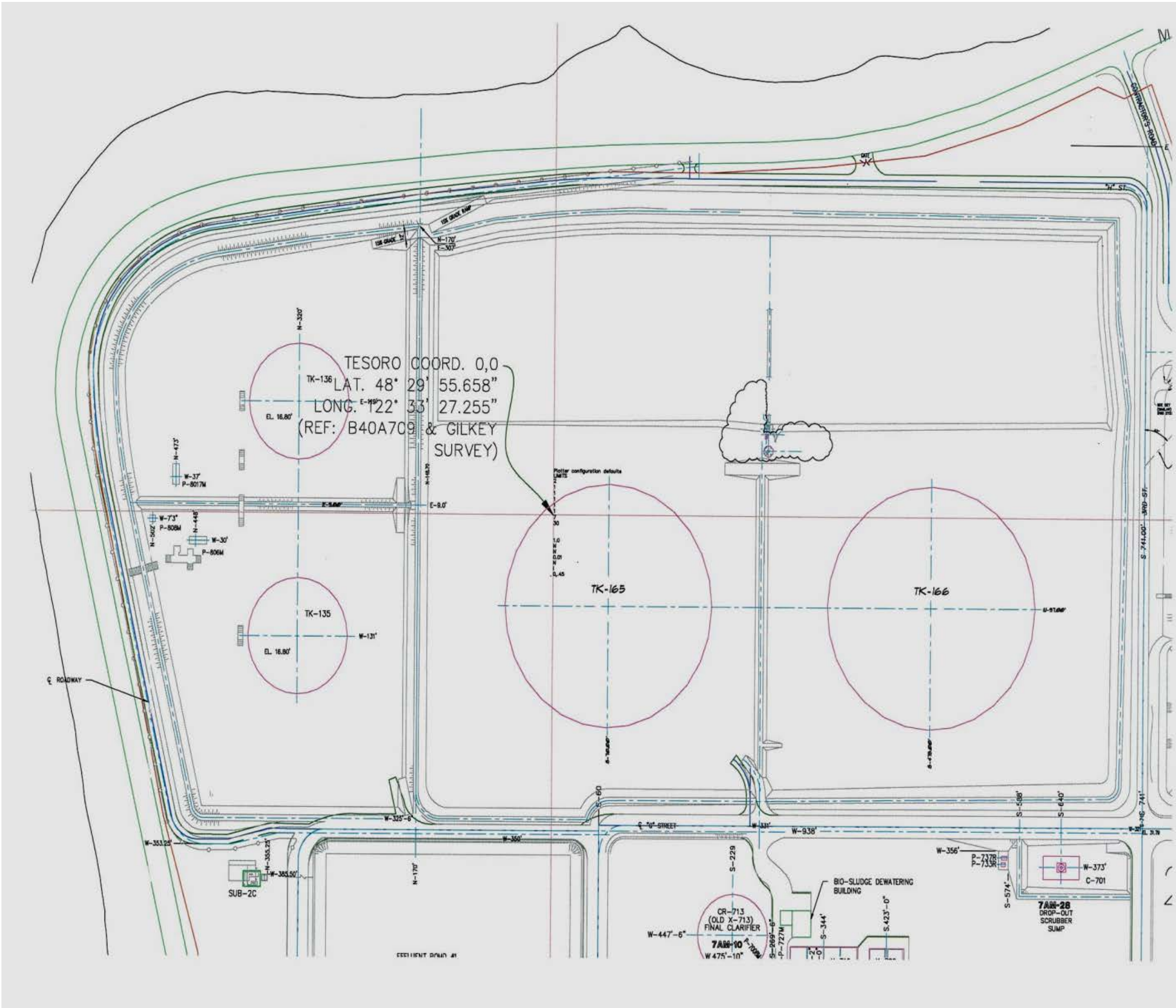

Figure C.5
Refinery Drain

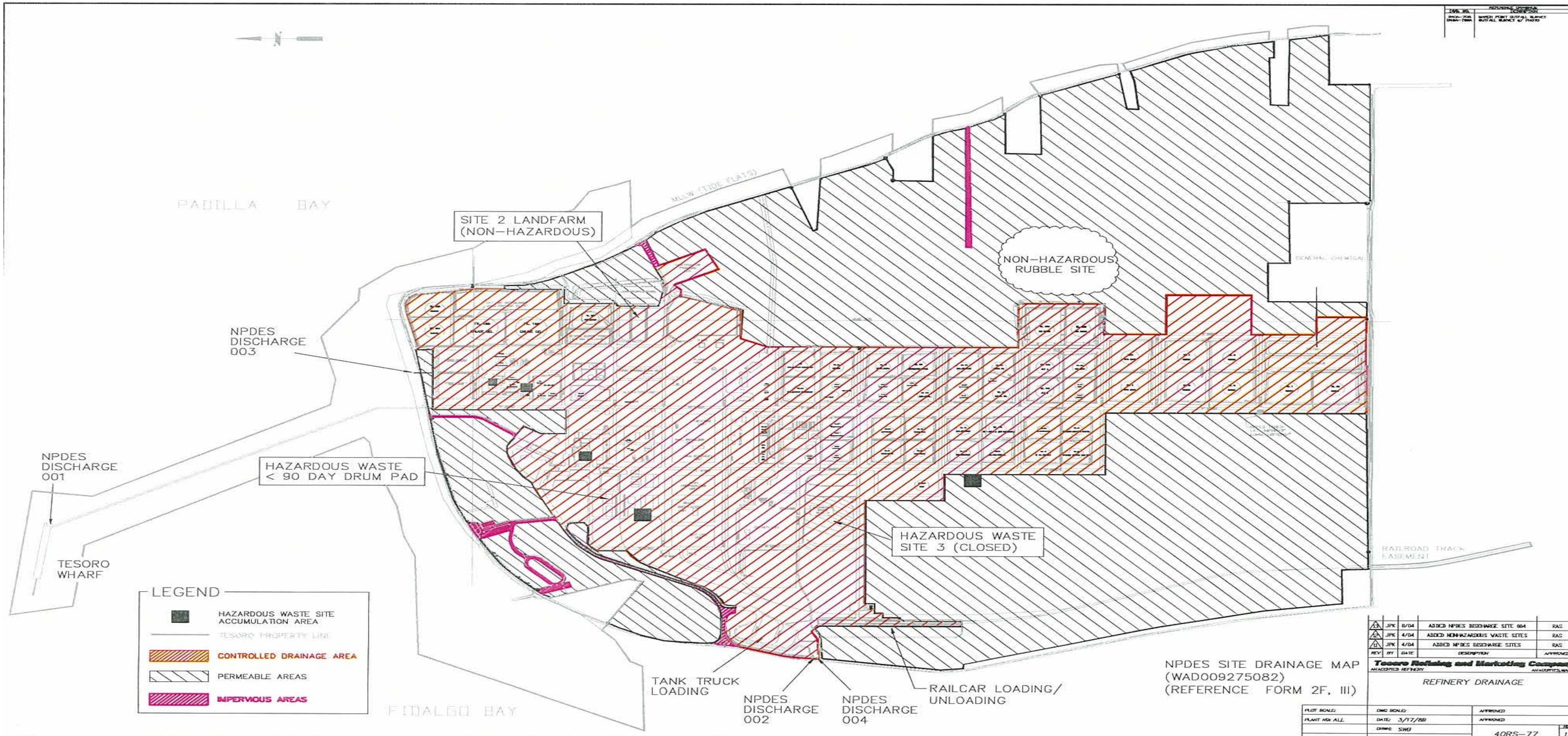

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Figure C.6
General Sewer Plan

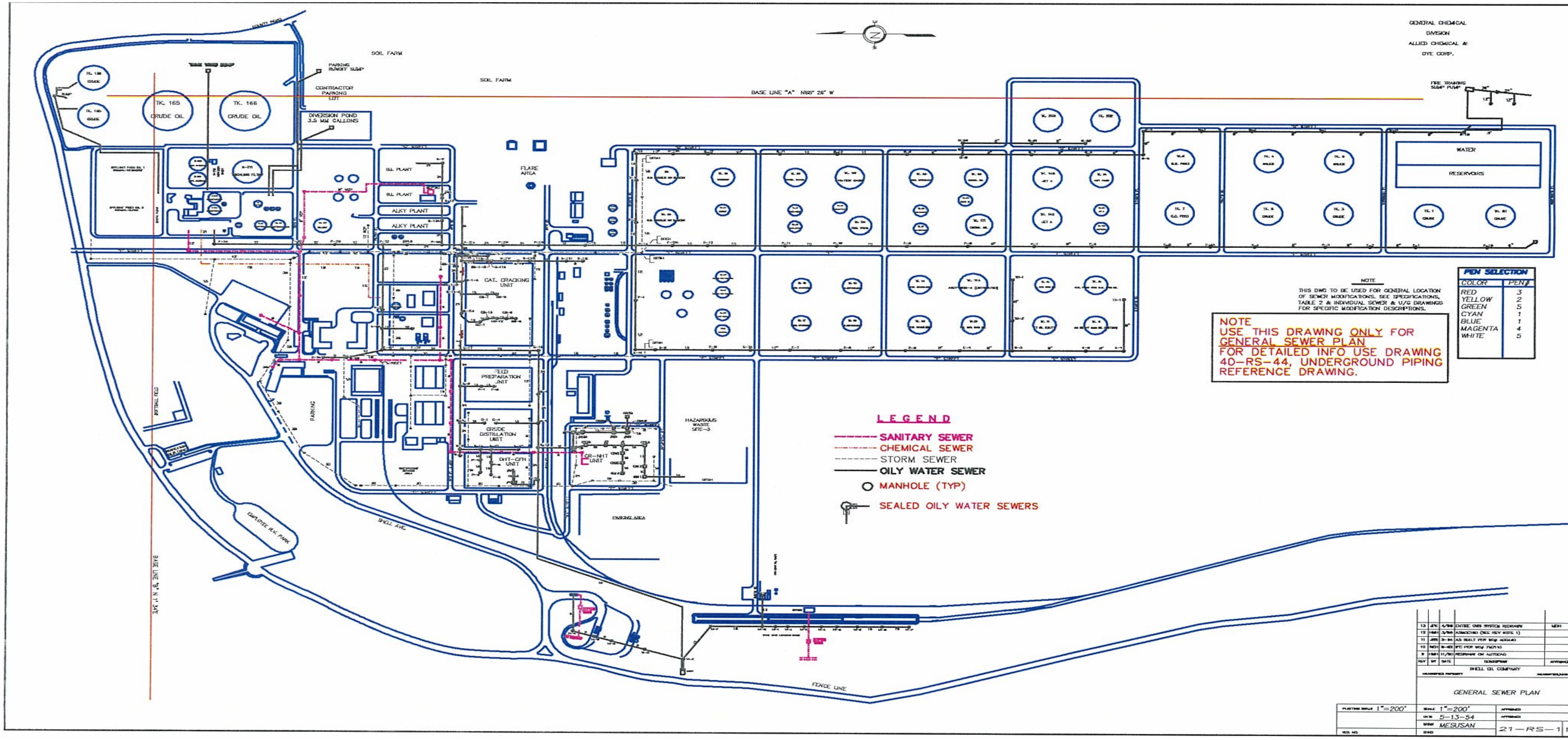

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Figure C.7
Refinery Wastewater Treatment Plant

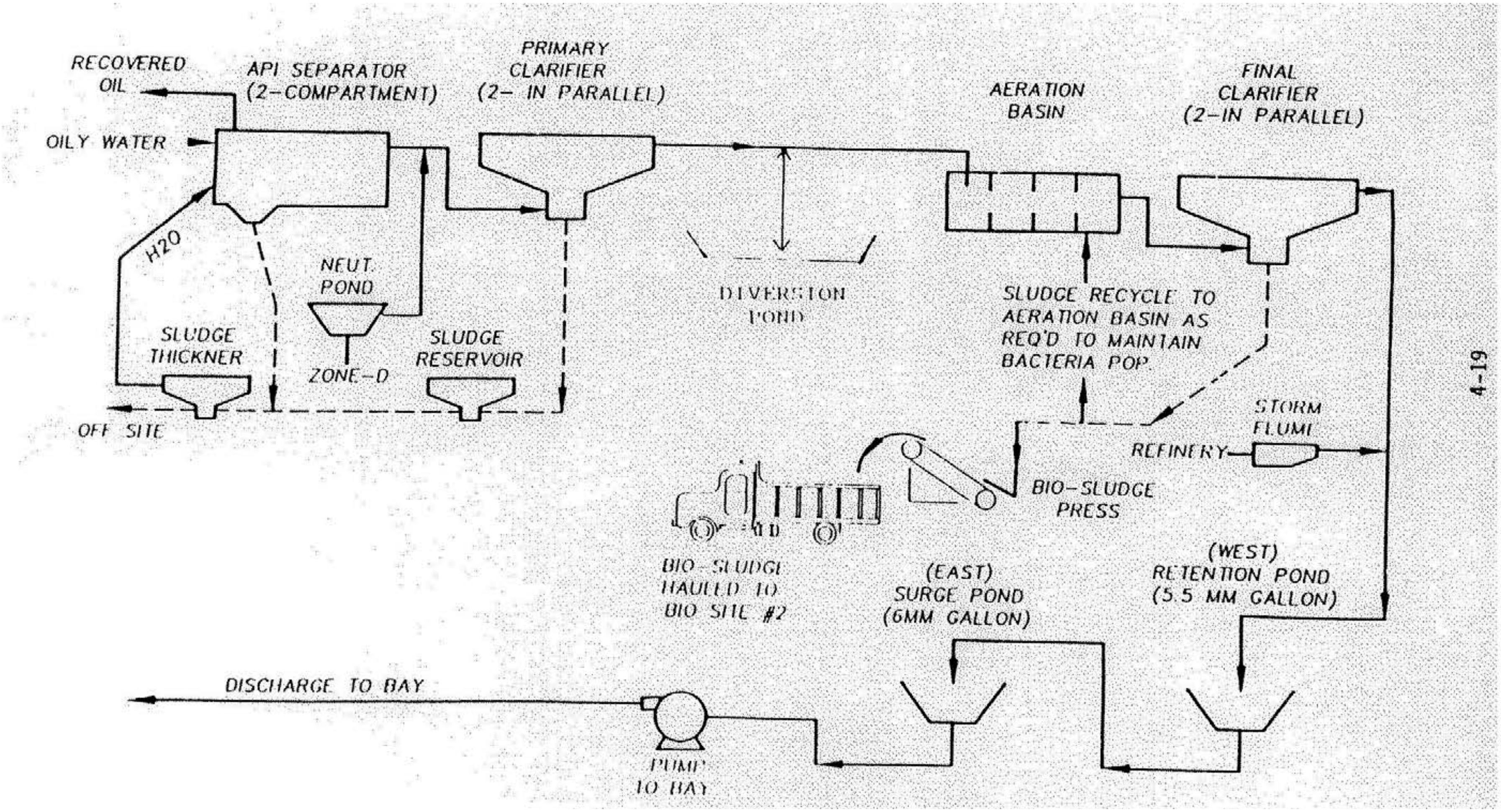
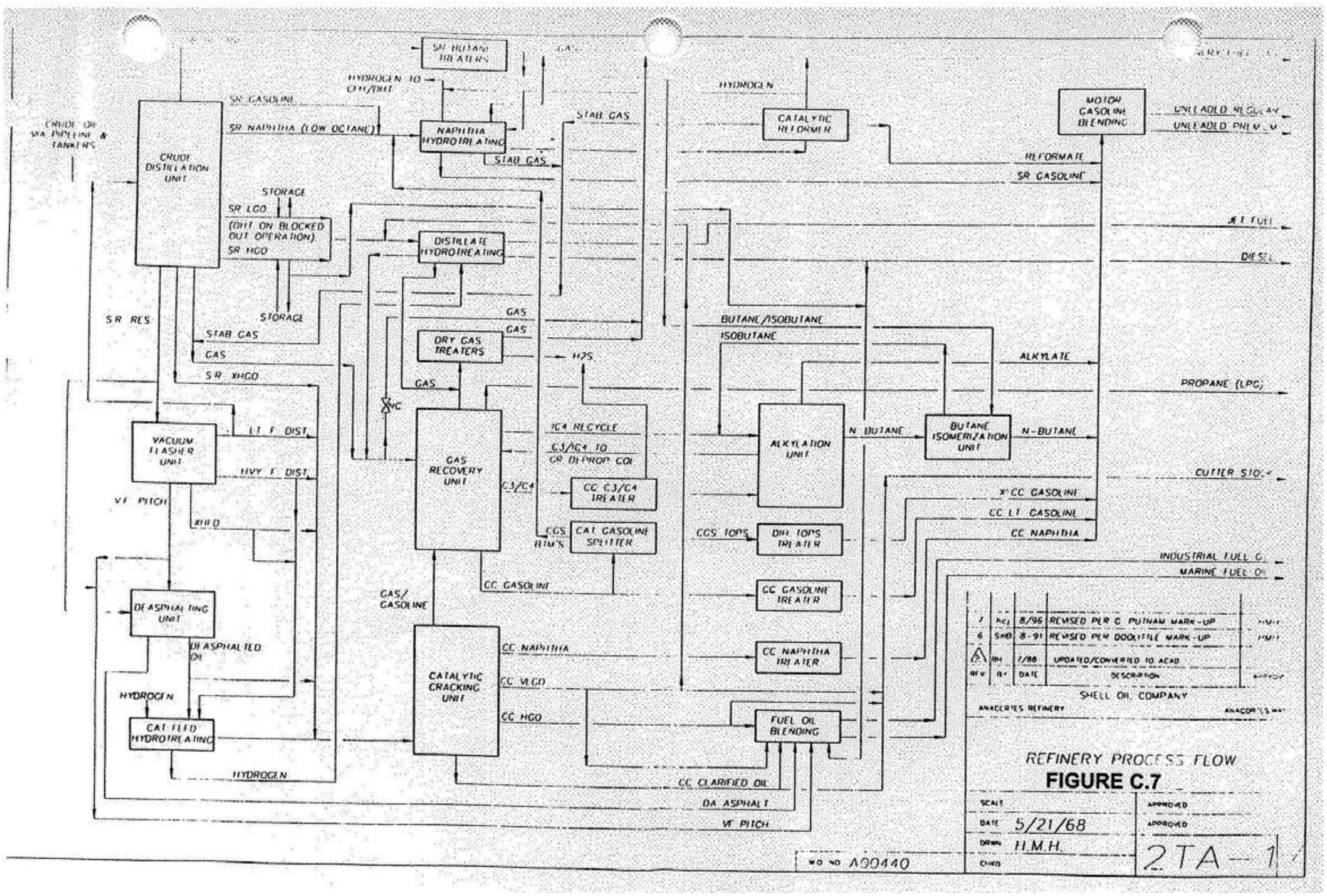


Figure C.8
Process Flow Diagram



APPENDIX D HAZARD EVALUATION/RISK ANALYSIS

D.1 INTRODUCTION

An evaluation of the major components of the oil transfer and storage system at the refinery 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 evaluate the frequency and severity of such risks. The oil storage and transfer facilities were analyzed. Production facilities are discussed briefly throughout this prevention plan but are not the focus of the plan and are not analyzed formally in this risk analysis.

For the purposes of the risk analysis, the storage and transfer facilities are grouped into the following areas:

- Storage tanks and their containment
- Piping and associated equipment between tanks and piping to transfer facilities which is over-land
- Over-water piping to the wharf (from the head of the causeway to the causeway block valves)
- Wharf transfer facilities
- Tank truck and tank car transfer facilities

All of these facilities are operated in an integrated fashion by the same group, some of which contributed substantially to the risk analysis. Therefore, any risks that transcend any of 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. Because of the excellent containment at the refinery (tank dikes as well as stormwater drainage and containment), the more detailed risk analysis (**APPENDIX D.2.2**) was primarily limited to the facilities that are located over or very near the water. 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 with checklists that were developed and discussed in detail by the plan preparer and logistics operations and engineering staff. The checklists in Washington Department of Ecology's Facility Risk Analysis Guidelines were used as the starting point for the development of these checklists. The checklists were made site-specific by adding items that have resulted in past spills, items that are discussed in the prevention plan, and other items that the risk analysis team felt could present potential oil spill risk. The checklists were completed in a group discussion by a team comprised of the plan preparer and risk analysis leader, oil storage and transfer facility operating and training foremen, an equipment inspector, and the area mechanical engineer.

From the oil spill hazards identified by the checklist review, oil spill scenarios that could conceivably lead to oil reaching the bay were developed in a group discussion by the same team that completed the checklists. 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. The matrix used in this study is shown in **FIGURE D.1**.

FIGURE D.1 also shows the type and degree of analysis preformed on scenarios in each risk category.

D.2.3 Analysis of Past Spills

The oil spill records of the facility were reviewed in order to identify potential hazards that should be part of the hazard identification checklists. This exercise helped to make the checklists site-specific. Marine oil spills during the last 10 years and non-marine oil spills for the last five years were reviewed. The following comments summarized the review:

- There were no facility-caused spills of over one barrel ("small" spill according to the frequency-severity matrix) and nearly all were less than one gallon.
- There were no spills to land greater than 10 barrels ('minor" according to the frequency – severity matrix).
- No spills on land reached the waters of the state ("remote" to "improbable" on the frequency – severity matrix).
- There were 18 facility-caused marine spills in the last 10 years, two in the last two years. On an overall basis, this corresponds to probable", "small"; spills or a risk category of C, on the frequency – severity matrix.

Listed below are some of the spill hazards added to the checklist because of the spill history review:

- Draining/capping procedures during operations and maintenance activities on wharf
- Hydraulic lines on wharf
- Plugged drain boxes/sewer at storage tanks
- Tank roof drain leak
- Valve failure at tank truck loading rack
- Provision for alternative pressure relief during inspection/maintenance activities

D.2.4 Hazard Identification

As discussed earlier, hazard identification was done with a group discussion of the checklists prepared specifically for the risk analysis of this facility. The completed checklists also contain explanatory comments are shown in **FIGURE D.2**.

D.2.5 Risk Estimation

Risks from the hazards identified in completing the checklists were identified by developing spill scenarios that contained one or more of the identified hazards. Only scenarios that could conceivably lead to oil reaching the bay were developed. For example, scenarios involving small leaks from connections on a tank in secondary containment were not developed since the probability of such spills affecting the waters of the State are essentially zero. The excellent drainage at the facility and the large amount of containment at the effluent treatment plant and tank truck loading rack reduce the chances of spills from many other potential scenarios across the facility to near zero. Low probability spills with high potential severities were addressed though.

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.

For the scenarios that were developed, a collective, qualitative judgment of the frequency and severity of the scenario was established. Using **FIGURE D.1**, a risk category was then assigned based on this frequency and severity. For scenarios with risk categories C and D, the analysis stopped here. For scenarios with a risk category of B, a more detailed qualitative discussion of the scenario is provided. This includes a qualitative analysis of the frequency of each component of the scenario, a more detailed analysis of the potential severity of the scenario, and a discussion of the relevant preventative equipment and/or procedures. There were no scenarios with a risk category of A; therefore, no detailed quantitative analyses were required. The results of the risk estimation are shown in **FIGURE D.3**.

A more detailed discussion of the Category B risks is included below. All but one are very unlikely events that would create a major spill if they did occur. According to the "frequency-severity matrix", all events that could lead to major spills should receive a detailed analysis (qualitative for B, quantitative for A) no matter how improbable.

Marine Transfer Facility Scenario #5:

a) Several wharf pilings in one area fail
b) Additional stress causes failure of piping
c) Leak detected by operator or surveillance
d) Source blocked

This is an extremely unlikely scenario (probably much less than 1/1000 years). The most likely cause is a large boat or ship running into the causeway or the dock. Much of the causeway is in shallow enough water that this is not a plausible scenario. If the impact were large enough, several oil pipelines could rupture leading to the release of their contents up to the first block valve onshore.

The dock is equipped with navigation lights and the dock operator has radio equipment that can be used to communicate with a vessel taking a suspicious path near the dock or causeway. Measures are already being taken to provide "best achievable protection".

Marine Transfer Facility Scenario #10:

a) Large leak develops in overwater piping over containment due to failed connection
b) Leak not observed before sump is full or leak splashes out of containment
c) Leak detected by operator/vessel/security
d) Source blocked

This is the more severe case of Scenario #8 which was a small leak that only gets into the water if the sump alarm fails, the full sump is not noticed, and the sump overflows. The most likely failure of large enough size to spray or splash into the water is the failure of a full gasket on a flange in the manifold area. This failure frequency is in the "occasional" category. Smaller leaks would fall into the "probable" category but the chance of the oil reaching the water is less overall than for a large leak.

The failure is most likely to occur during a transfer when it would be noticed very quickly by the dock or vessel operator. There are splash shields mounted in the manifold area to minimize the amount of oil that may reach the water from such as spill. Therefore, during a transfer the spill is likely to be "small". If the failure occurs when the dock is not occupied, the spill may be "minor" if the sump alarm sounds as it should when filling quickly due to a leak. If the alarm fails, the spill may be larger, but the frequency with the added failure would drop to "remote".

The following preventative measures provide the "best achievable protection" from this type of spill:

- Inspection/pressure testing program likely to discover problem before full failure.
- Splash/spray shields are present at strategic locations to reduce chances of oil reaching water.
- High level alarm for wharf sump would provide warning of a large leak in many cases.
- New gaskets are used when old ones are removed.

Marine Transfer Facility Scenario #12:

a) Large fire on wharf during product loading
b) Operator evacuates and shuts off causeway block valves
c) Severe damage to wharf releasing contents of loading hoses, sump, lines from block valves, etc.

This is a very unlikely scenario (probably much less than 1/1000 years). It requires multiple failures: a spill and a source of ignition or a source of ignition at the sump, and a failure of the firefighting system to control the fire. The frequency of the first may be "occasional", and that of the second is "remote" to "improbable". The spill severity may be in the "major" range, but would be somewhat limited if the causeway block valves were closed and not damaged by the fire. This scenario would require near total devastation of the wharf to create a major spill.

The following preventative measures provide the "best achievable protection" from this type of spill:

- Automatic and manual fire systems of adequate capacity.
- Four separate firefighting systems on the wharf, if access to some areas is limited or systems damaged.
- Control of ignition sources (safety permit system).
- Spill minimization.

Overwater Piping #4:

See Marine Transfer Scenario #5 (same scenario, slightly different area).

Onshore Piping #2:

a) Total failure of piping near the head of the causeway perhaps due to earthquake
b) Local inward drainage overcome
c) Leak detected by surveillance or shoreline campers
d) Source blocked

Once again, this is a very unlikely scenario (probably much less than 1/1000 years). There is a very small amount of piping this scenario applies to (much less than even the overwater piping to the wharf). The most likely cause for such an unlikely failure is a major earthquake. Impact from an automobile was also considered but deemed extremely unlikely to cause enough damage for total failure. There is local inward drainage that would contain most "minor" spill and some "large" spills but probably would not contain a "major" spill. The area of concern is near a relatively high traffic area where a leak would most likely be noticed relatively quickly. Measures are already being taken to provide "best achievable protection".

Storage Tanks Scenario #4:

a) Leaking oil causes fire in tankyard
b) Tank catastrophically fails
c) Dike catastrophically fails
d) Oil goes to bay (certainly for tanks near shore and on top of hill; others somewhat contained)

This scenario requires about seven different events, two of which (tank and dike failures) are individually in the "improbable" category: substantial leak develops, ignition source present, fire starts, firefighting system unable to control fire, tank catastrophically fails, dike catastrophically fails, and tank is one near shore or on top of hill. The probability is so low that this scenario warrants no further discussion other than the preventative measures taken which provide "best achievable protection":

- Rigorous tank inspection program
- Dikes sized properly and erosion controlled
- Excellent refinery drainage system
- Ignition sources controlled (safety permit system)
- Adequate firefighting capability

Storage Tanks Scenario #5:

The discussion under Storage Tank Scenario #4 applies here as well, except that the cause of the failure is somewhat different, a structural defect/weakness as opposed to a fire. The tank inspection program is designed to detect such structural problems before they could lead to such a large failure. The first three preventative measures listed under the previous scenario provide "best achievable protection" for this scenario as well.

D.2.6 Risk Analysis Preparer

As mentioned in **APPENDIX D**, this risk analysis was done by a team comprised of the risk analysis leader, oil storage and transfer facility operating and training foreman, an equipment inspector, and the area mechanical engineer. WAC 173-303D-060(16)(a)(iii) states that the risk analysis shall "be prepared under the supervision of (and bear the seal of) a licensed professional engineer or another individual which the department has deemed to have an acceptable level of expertise." The risk analysis leader and plan preparer was Arnold R. Marsden, Jr. who is not a registered professional engineer but has been deemed to have an acceptable level of expertise by the department.

Figure D.1
Frequency-Severity Matrix and Action Guide

FREQUENCY OF OCCURRENCE	**SEVERITY**			
	Major (1) (1000 bbls)	**Large (2)** (100 bbls)	**Minor (3)** (10 bbls)	**Small (4)** (1 bbl)
Frequent (1) (1/yr)	A	A	A	C
Probable (2) (1/10 yrs)	A	A	B	C
Occasional (3) (1/50 yrs)	A	B	B	D
Remote (4) (1/100 yrs)	B	B	C	D
Improbable (5) (1/1000 yrs)	B	C	C	D

Risk Category	Level of Analysis
A	Detailed quantitative
B	Detailed quantitative
C	Qualitative
D	None

Figure D.2
Hazard Identification Checklist

Potential Hazard	Yes	No	Comments
Area: Marine Transfer Facility			
EQUIPMENT			
1. Are barricades and/or shields installed to protect equipment?	√		
2. Are remotely operated controls installed for emergency shutdown? Do they have multiple locations?	√ √		
3. Are all unloading lines equipped with check valves?		√	The marine loading arms for crude oil and bunker fuel and loading hose for crude are equipped with check valves. Nearly all unloading is done using these facilities. Other seldom-used unloading facilities are not so equipped.
4. Are transfer hoses in good repair and pressure tested on a regular basis?	√		
5. Is the over-pressure prevention system adequate?	√		
6. Are lines in the manifold area inspected and pressure tested regularly?	√		
7. Is the wharf structure itself (e.g. pilings) inspected regularly and maintained?	√		
OPERATING PROCEDURES			
8. Are transfer lines properly drained and capped before moving?	√		
9. Is there a routine spill/leak surveillance procedure during transfers?	√		
10. Is there adequate communication between the wharf operator and the vessel?	√		Both radio and emergency communications systems available.
11. Are sumps checked and emptied before transfers?	√		
12. Are spill risks from maintenance activities properly addressed?	√		Pre-job conference and inspection held. Safety permit program in place.
SPILL CONTAINTMENT			
13. Is there adequate spill containment under the manifold area and other areas of high oil handling activity?	√		
14. Are portable containment devices (e.g. pans) used during maintenance and other activities outside of the permanent containment area?	√		Both inside and outside of permanent spill containment area.
15. Is there a warning system for high level in the containment sump?	√		Alarms on wharf and in logistics control house. Audible and visual.

Potential Hazard	Yes	No	Comments
FIRE PROTECTION			
16. Is the fire extinguishing system adequate?	√		
17. Are block valves, check valves, pumps, filters, etc. made of steel?	√		
18. Are pipe supports fire proofed?		√	
19. Have ignition sources been controlled?	√		Ignition sources may be present when they can be used safely (e.g. welding under the safety permit system) protection against static discharge when hooking up ship exists.
20. Does all electrical equipment meet explosion proof requirements?	√		Temporary testing equipment may not be but is used within the safety permit system only when safe to do so.
21. Are adequate freeze protection procedures in place for the firewater system?	√		
22. Area: Overwater Piping			
EQUIPMENT			
23. Is the corrosion protection and inspection program adequate?	√		
24. Are external coating used and in good condition?	√		
25. Are pipelines protected from impact damage?	√		Except for large boat colliding with wharf or causeway.
26. Are surge and fatigue loadings acceptable?	√		
27. Is there an effective leak detection system?	√		Visual, flow indicators on some lines, VAREC-ship comparison.
28. Have lines been hydrostatically tested?	√		
29. Is it sufficient?		√	
30. Is there sufficient pressure relief equipment?	√		
31. Are PSVs inspected and maintained regularly?	√		
SPILL CONTAINTMENT			
32. Are the wharf and causeway structures maintained and inspected?	√		
33. Is there any containment between the piping and the water?		√	Except for containment under causeway block valves.
FIRE PROTECTION			
34. Are sources of ignition controlled?	√		Safety permit system.
35. Is the fire extinguishing system adequate?	√		
36. Area: Onshore Piping			
EQUIPMENT			
37. Is the corrosion protection and inspection program adequate?	√		
38. Are external coating used and in good condition?	√		
39. Are pipelines protected from impact damage?		√	
40. Are surge and fatigue loadings acceptable?	√		
41. Is there an effective leak detection system?	√		Visual, flow indicators on some lines, VAREC-ship comparison.
42. Are lines hydrostatically tested?		√	Testing ends at first valve within secondary containment (at shipping pumps and crude oil shore tanks).

Potential Hazard	Yes	No	Comments
43. Is there sufficient pressure relief equipment?	√		
44. Are PSVs inspected and maintained regularly?	√		
45. Is alternate relief provided during maintenance?	√		
46. Are pipelines not susceptible to soil movement?	√		Soil movement is possible but very unlikely to cause enough damage to pipeline to create a significant spill.
47. Is there an emergency shutdown system for the shipping pumps?		√	They can be shut down remotely from logistics control house.
SPILL CONTAINMENT			
48. Is there any containment to keep leaks/spills from reaching the water?	√		Except for large spill near the head of causeway.
49. Is there any spill collection (pump slab, drainage, etc.) at the pump station?	√		
FIRE PROTECTION			
50. Are sources of ignition controlled?	√		Safety permit system.
51. Is the fire extinguishing system adequate?	√		
FIRE PROTECTION			
52. Are pipe supports fire proofed?		√	
53. Are block valves, check valves, pumps, filters, etc. made of steel?	√		
54. Area: Storage Tanks			
EQUIPMENT			
55. Do tanks have high level alarms?	√		
56. Is there a shutdown system on high level?		√	
57. Is there sufficient time between high level alarm and overflow to take corrective action?	√		
58. Are there ground level or remote level gauges?	√		
59. Can tankyard drain valves and oily sewer drains be closed outside of firewall?	√		
60. Are tank drain boxes/lines kept free of debris?	√		
61. Is there a routine inspection program complying with industry standards?	√		
62. Is there a corrosion monitoring and control program for both internal and external corrosion?	√		
63. Are tank gauges routinely calibrated with manual measurement?	√		
64. Are the tanks hydrotested whenever significant modifications are made?	√		
OPERATING PROCEDURES			
65. Are tank levels monitored properly if automatic system/equipment fails?	√		
66. Are tankyard drains normally closed?	√		
67. Is there a system for tracking?	√		
68. Do sampling procedures minimize chances of spills?	√		
69. Is the tank roof drain checked for leaks?	√		

Potential Hazard	Yes	No	Comments
SPILL CONTAINMENT			
70. Is the tankyard impervious to oil spill penetration?	√		Compacted clay with very low permeability.
71. Is there a spill collection system inside tank yard?	√		
72. Are containment dikes sized to meet industry codes?	√		
73. Do pipelines not penetrate dikes?		√	Sealed with compacted clay or bentonite.
74. Are tank dies protected from erosion?	√		
75. Is tank storage volume modified when containment temporarily reduced due to maintenance, etc.?	√		
FIRE PROTECTION			
76. Is fire protection adequate?	√		
77. Does the system meet industry codes and API standards?	√		
78. Is there adequate fire water?	√		
79. Are tank valves made of steel?	√		
80. Are pipe supports fire proofed?		√	
81. Do oil lines inside firewalls have welded joints?	√		
82. Area: Truck Loading Rack			
EQUIPMENT			
83. Do trucks have overfill protection?		√	
84. Is there an emergency shutdown system?		√	
85. Are there pressure relief devices on system?	√		
86. Are block valves secure and safe from the public?	√		
87. Are public access areas fences and lighted?	√		
88. Is there an adequate surveillance system?	√		Remote cameras and drive-by security.
89. Does equipment provide capability for easy residual drainout of loading hoses?	√		
OPERATING PROCEDURES			
90. Are driver loading procedures monitored and/or evaluated?	√		By logistics operators.
SPILL CONTAINMENT			
91. Is there a spill collection system around the facility?	√		Extensive.
FIRE PROTECTION			
92. Is the fire protection system adequate?	√		
93. Are block valves made of steel?	√		
94. Does electrical equipment meet explosion-proof requirements?	√		
95. Area: General			
EQUIPMENT			
96. Does the facility have adequate lighting?	√		
OPERATING PROCEDURES			
97. Does the facility have an up-to-date operating procedures manual?	√		
98. Is there a system to ensure compliance with applicable codes?	√		
99. Is there a quality management system in place to ensure compliance with above procedures and programs?	√		

Potential Hazard	Yes	No	Comments
100. Is there a program for monitoring/controlling third party activities?	√		
101. Are changes to critical operating parameters controlled adequately?	√		
102. Is there a training program for employees on safe operation and maintenance of all oil movement systems?		√	
103. Do security personnel routinely patrol the facility?	√		
104. Does the facility have a near miss reporting system to promote awareness of spills, safety incidents, etc.?	√		
105. Is there good communication between oil storage and transfer personnel?	√		All in same operating group. Report to same foreman.
SPILL CONTAINMENT			
106. Is there water retention/diversion capability at the effluent in the event of an oil spill that reaches the sewer?	√		
107. Is all of the drainage from the refinery collected in a central location(s)?	√		
FIRE PROTECTION			
108. Are personnel regularly trained in fire prevention and firefighting?	√		
109. Are emergency response procedures developed and available?	√		
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Figure D.3
Oil Spill Scenarios

Scenario	Frequency	Severity	Risk Category	Comments
Area: Marine Transfer Facility				
1. Loading hose or MLA joint ruptures during transfer in area not over manifold sump. Emergency shutdown initiated by wharf operator or vessel operator	2	4	C	The failure mode here is a leak, not a complete breakage because of the construction of the hoses.
2. High level alarm on sump fails Sump level not checked before transfer/cleaning Sump overflows Operator detects spill Draining to sump stopped/sump emptied	4	4	D	Requires both equipment failure and operator error.
3. Loading hose not properly drained and capped Loading hose leaks as moved to/from vessel	2	4	C	Size of spill very limited.
4. Flange fails during transfer Leak is not over containment area Leak is detected by operator Source blocked	3	4	D	This would occur when two loading hoses are flanged together. This loading procedure is rarely used.
5. Several wharf pilings in one area fail Additional stress causes failure of piping Leak detected by operator Source blocked	5	1	B	The most likely cause of this is a ship running into the causeway. This is a very improbably scenario.
6. Hydraulic line not properly drained before maintenance activity No permanent or temporary containment present Line leaks to water during maintenance activity	2	4	C	Size of spill limited. Spill potential and precautions reviewed before maintenance jobs.
7. Pinhole leak develops in overwater piping due to corrosion No containment present Leak detected by operator/vessel/security Source blocked	2	4	C	

Scenario	Frequency	Severity	Risk Category	Comments
Area: Marine Transfer Facility (Continued)				
8. Small leak develops over containment due to leaky connection Leak not observed before sump full Sump alarm fails and overflows Leak detected by operator/vessel/security Source blocked/sump emptied	4	4	D	The most likely event here is a partial gasket failure.
9. Large leak develops in overwater piping due to failed connection No containment present Leak detected by operator/vessel/security Source blocked	4	3	C	The most likely event here is the failure of an entire gasket in piping under the wharf.
10. Large leak develops in overwater piping over containment due to failed connection Leak not observed before sump is full or leak splashes out of containment Leak detected by operator/ vessel/security; Source blocked	3	3	B	Most likely failure mode for a large leak is failure of an entire flange gasket.
11. PSV fails to relieve or alternative relief not provided during maintenance Leak develops at flange or elsewhere No containment or containment inadequate Leak detected by operator/ vessel/security; Source blocked	4	3	C	
12. Large fire on wharf during product loading Operator evacuates and shuts off causeway block valves Severe damage to wharf releasing contents of loading hoses, sump, etc.	5	1	B	
13. Bleeder on manifold left open when starting transfer Oil splashes out of containment into water Operator notices while starting transfer Source blocked	3	4	D	Operator would nearly always be in the immediate area and would notice the leak immediately.

Scenario	Frequency	Severity	Risk Category	Comments
Area: Marine Transfer Facility (Continued)				
14. Oil leaks from transformer	4	4	D	This type of failure is usually a small leak as opposed to a total failure.
15. Hydraulic oil leak from a crane used during maintenance Containment is overwhelmed	2	4	C	See (6)
16. Gasoline tanks on spill boats are damaged and leak	4	4	D	Size of spill very limited.
17. Check valve on unloading line fails Tankage gravitates to vessel Vessel tankage overfilled and oil spilled to water	4	3	C	Unloading is usually done through a check valve. If not, block valves are closed while not discharging.
18. Loading hose disconnected while block valve still open Source block immediately	3	4	D	By definition, operator would immediately be aware of spill and would be near shutoff valve.
Area: Overwater Piping				
1. Pinhole leak develops due to corrosion/erosion Leak/sheen detected by operator/vessel/security Source blocked	2	4	C	
2. Line rupture due to defective piping Leak/sheen detected by operator/vessel/security Source blocked	5	2	D	Having been in service for 30 years, existing defects would have most likely been seen by now. A rigorous inspection program exists.
3. PSV fails to relieve or alternative relief not provided during maintenance Large leak develops at causeway block valve Leak/sheen detected by operator/vessel/security Source blocked	4	3	C	A small leak here would be contained.
4. Several pilings in one location on causeway fail Additional stress on piping causes failure of pipeline during transfer Leak detected by operator/vessel/security Source blocked	5	1	B	See Marine Transfer Scenario #5

Scenario	Frequency	Severity	Risk Category	Comments
Area: Onshore Piping				
1. Flange/valve packing failure near head of causeway perhaps due to PSV failing to relieve Size of leak overcomes local inward drainage Leak detected by surveillance or campers Source blocked	4	4	D	A small leak here would be contained.
2. Total failure of piping near head of causeway perhaps due to earthquake Local inward drainage overcome Leak detected by surveillance or campers Source blocked	5	1	B	Could also potentially be caused by an automobile accident.
3. Catastrophic failure of piping in interior of refinery perhaps due to automobile accident Most of oil flows to effluent retention ponds Small amount flows into bay Leak detected by surveillance relatively quickly Source blocked	5	3	C	Failure probability alone is improbable. Likelihood of reaching water even more improbable. Could also potentially be caused by earthquake.
4. Catastrophic failure of piping in interior of refinery perhaps due to automobile accident All oil flows to effluent retention ponds Leak detected by surveillance relatively quickly Source blocked NPDES O&G violation results	5	4	D	Could also potentially be caused by earthquake (See (3)).
Area: Storage Tanks				
Note: Scenarios 1-5 could be the result of one of the following sources. The frequency is chosen based on the most likely to occur.				
• Level gauge fails near end of filling • Operator fails to properly close sampling valve • Large leak in piping inside of containment due to corrosion, failed connection, failed PSV, etc. • Drain box or sewer plugs while draining water from tank; oil drains after water is gone • Catastrophic tank failure with dike staying intact				Drain box or sewer plugs is the most likely of the tank sources listed.

Scenario	Frequency	Severity	Risk Category	Comments
Area: Storage Tanks (Continued)				
1. Tankyard drain open Board Man/tank farmer do not detect leak immediately Oil goes to storm sewer Leak detected by surveillance or effluent operator Causes NPDES O&G violation	4	4	D	Flow rate not high enough for oil to go directly into bay.
2. Oil gets to drain box and oily water sewer is not blocked in to stop flow of oil Board Man/ tank farmer do not detect leak immediately Leak discovered by effluent operator testing Causes NPDES O&G violation	5	4	D	Effluent operator routinely tests quality of water throughout the treatment plant.
3. Oil level in dike builds Board Man/tank farmer do not detect leak Dike develops small/moderate leak into storm sewer (perhaps leaking around piping penetration) Leak discovered by surveillance/ effluent operator Causes NPDES O&G violation	5	4	D	See (1: This scenario could be an improbable, large scenario (Category C) for the four tanks near the shore. These tanks do not have piping penetration, and therefore much more unlikely to leak this way. Leak would be detected and mitigated before turning into major spill.
4. Leaking oil causes fire in tankyard Tank catastrophically fails Dike catastrophically fails Oil goes to bay (certainly for tanks onshore and on top of hill; others may be somewhat contained by refinery drainage).	5	1	B	Requires multiple failures.
5. Tank catastrophically fails due to structural weakness, corrosion, etc. Dike catastrophically fails Oil goes to bay (certainly for tanks onshore and on top of hill; others may be somewhat contained by refinery drainage).	5	1	B	Such weaknesses likely to be discovered before large enough to cause this type of incident.

Scenario	Frequency	Severity	Risk Category	Comments
Area: Truck Loading Rack				
1. Loading valve fails to open after driver leaves (or other piping failure) Leak goes undetected for extended time Product fills large containment area and goes to bay Security discovers leak Source blocked	5	3	C	Most leaks would not even overwhelm local drainage on concrete pad.
2. No pressure relief present Valve or flange fails Leak goes undetected for extended time Product fills large containment area and goes to bay Security discovers leak Source blocked	5	3	C	Same as above.
3. Fire starts at loading rack Piping fails causing leak Security discovers fire Source blocked	5	3	C	Less likely for oil to reach water than for (1) since fire would attract immediate attention.

D.3 HAZARD EVALUATION AND IDENTIFICATION (EPA)

The hazard identification, as defined by 40 CFR Part 112, requires a list of the petroleum and hazardous material storage tanks, surface impoundments, related information on technical specifications, loading and unloading operations, day to day operations, secondary containment volumes, and normal daily throughput for the facility that could potentially release oil to the environment.

D.3.1 Bulk Storage Tanks

The bulk storage tanks are listed in **FIGURE D.4**. The refinery has no partially buried storage tanks and no underground storage tank.

All storage tanks are designed in accordance with API Standards 650 and 12C and as specified by Company engineering guides and specifications. Normal construction material is steel with material selection provided by aforementioned guidelines.

D.3.2 Surface Impoundments

A hazard identification is not necessary for the surface impoundments at the Refinery because the facility does not utilize the impoundments for oil or hazardous substances storage. Three (3) impoundments are shown on the facility diagram (**FIGURE 1.5**); two (2) are emergency stormwater basins and the third is a salt water cooling basin.

D.3.3 Tank Car and Tank Truck Racks

The Company operates railroad tank car and tank truck loading/unloading racks at the facility. Diesel, ethanol, unleaded fuel, and propane are loaded at the fuels tank truck loading rack. Asphalt is loaded at tank car loading rack. The possibility for a spill at the racks is primarily due to the potential for overfilling's or ruptures of a truck compartment or tank car. Both facilities are equipped with quick drainage systems with sufficient containment to prevent a release of oil from the property. Drains and outlets on both tank cars and trucks are checked before departure.

All trucks are loaded on concrete aprons provided with drain entries into an eight inch sewer with outfall into a large (approximately 1,000,000 gallon) catchment basin. This catchment basin also received rainwater from the surrounding area and rainwater and any spillage that may occur at the tanks car rack. The liquid in the catchment basin is pumped back to the refinery wastewater treatment system. Water can be drained to the adjoining bay through a normally-closed valve in the event of an emergency caused by very heavy rainfall.

D.3.4 Daily Operations and Throughput

The Refinery conducts a number of daily operations that may present a risk of releasing oil. These activities include: venting, piping repair, valve maintenance, and transferring tank contents. The daily throughput of materials at the facility is 115,000 barrels per day. This includes the import and export of materials. A positive change in throughput would result in a greater number of transfer operations, therefore increasing the day's risk for a release. A negative change in throughput would not affect the potential.

D.3.5 Secondary Containment

All bulk storage tank and loading rack secondary containment units have a minimum of 110% capacity for the tank, truck, or car. The containment areas have drains which lead to the wastewater treatment system via the oily water sewer and stormwater sewer for treatment. The racks are bermed to contain over 110% capacity of the car or truck being loaded. Process sewer drains and emergency sumps are located in each area.

The Refinery has appropriate containment equipment and/or diversionary structures to prevent discharged oil from reaching a navigable water course, consisting of such items as dikes, berms, retaining walls, curbing, drainage systems, weirs, oil on monitor alarms, in-plant treating systems, spill diversion ponds, etc. Secondary containment capacities are provided in **FIGURE C.3**.

D.3.6 Materials Handled

Data sheets are contained in the Material Safety Data Sheets (MSDS) book summarizing the best available information about chemicals and materials used at the refinery. The data sheets include the properties, characteristics, and a description of each substance.

In addition, precautionary measures are included to be observed in handling and storing. Suggested first aid procedures are presented as a guide in case of exposure.

It should be recognized that all chemicals and petroleum and its products may possess some hazardous properties. Caution and personal hygiene should be exercised when handling or using them. Prolonged or unnecessary personal contact with any materials should be avoided and safe-handling instructions observed.

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Figure D.4
Above Ground Bulk Storage Tank Information

Tank Number	Year Built	Product Service	Nominal Capacity (MBBL)	Unit	Last Int.	Next Int.	Last Ext.	Next Ext.	DIA	HGT Or LNGTH	Roof Type	Internal Coating	SPEC GRAV	INSUL Y/N	WIND GRDR Y/N	SUCT.	MXR	HTR	FOAM	Secondary Containment
1	1955	Crude	150	Off Plot	12/97	12/17	12/97	12/02	150'	48'	DDFR	FRP	0.96	N	Y				D	Dike
2	1955	CC Feed*	150	Off Plot	10-90	10/10	04/98	04/03	150'	48'	DDFR	PHENICON HS	0.96	Y	Y	F			D	Dike
3	1955	Crude	150	Off Plot	06/90	06/10	04/95	04/00	150'	48'	DDFR	PHENOLIC	0.96	N	Y				N	Dike
4	1955	Crude	150	Off Plot	09/86	08/06	03/97	03/02	150'	48'	DDFR	FRP	0.96	Y	Y				N	Dike
5	1955	Crude	150	Off Plot	08/98	11/18	07/97	07/02	150'	48'	DDFR	INTERLINE 910	0.96	Y	Y				N	Dike
6	1955	CC Feed*	150	Off Plot	03/94	03/14	03/99	03/04	150'	48'	APFR	PHENOLIC	0.96	N	Y	F			N	Dike
7	1955	CC Feed*	150	Off Plot	01/93	01/13	01/98	01/03	150'	48'	DDFR	DDUVOE236	0.96	N	Y	F			N	Dike
8	1955	Heavy Gas Oil	80	Off Plot	06/98	06/18	06/98	06/03	120'	40'	CONE	PHENICON HS	1.07	N	N	F			C	Dike
9	1955	Heavy Gas Oil	80	Off Plot	04/99	04/19	12/98	12/03	120'	40'	CONE	PHENICON HS	1.07	N	N	F			N	Dike
10	1955	Heavy Gas Oil	55	Off Plot	08/95	08/15	08/95	08/00	100'	40'	C/IFR		0.87	N	N				N	Dike
11	1955	Naphtha	80	Off Plot	05/97	05/17	05/97	05/02	120'	40'	CONE	FRP	0.87	N	N				C	Dike
12	1955	Heavy Gas Oil	80	Off Plot	10/84	11/00	05/95	05/00	120'	40'	C/IFR	EPOXY	0.87	N	N				N	Dike
13	1955	Reformat	80	Off Plot	01/98	01/18	05/97	05/02	120'	40'	DDFR	PHENOLIC EPOXY	0.87	N	Y	F	1		N	Dike
14	1955	Gasoline Comp.	80	Off Plot	11/93	11/13	10/98	10/03	120'	40'	DDFR	PHENOLIC EPOXY	0.87	N	Y	F			D	Dike
15	1955	Gasoline Comp.	55	Off Plot	08/98	06/18	06/98	06/03	100'	40'	DDFR	PHENOLIC EPOXY	0.72	N	Y				N	Dike
16	1955	Gasoline Comp.	55	Off Plot	12/94	12/14	05/99	05/04	100'	40'	DDFR	PHENOLIC EPOXY	0.72	N	Y				D	Dike
17	1955	Gasoline Comp.	55	Off Plot	08/98	08/18	08/98	08/03	100'	40'	DDFR	PHENICON HS	0.72	N	Y				N	Dike
18	1955	Gasoline Comp.	55	Off Plot	07/91	07/11	07/96	07/01	100'	40'	DDFR	PHENOLIC EPOXY	0.72	N	Y				N	Dike
19	1955	Recovered Oil	30	Off Plot	07/91	07/11	07/96	07/01	73'	40'	DDFR	PHENOLIC EPOXY	0.85	N	Y	F			N	Dike
20	1955	Alkylate	30	Off Plot	04/98	04/18	04/98	04/03	73'	40'	PD-5	PHENOLIC EPOXY	0.69	N	Y				D	Dike
21	1955	Alkylate	30	Off Plot	04/86	05/04	03/97	03/02	73'	40'	DDFR		0.69	N	Y				N	Dike
22	1955	Alkylate	30	Off Plot	04/84	04/04	07/96	07/01	73'	40'	DDFR	TARSET	0.69	N	Y				N	Dike
23	1955	Jet Kerosene	30	Off Plot	06/87	06/01	05/97	05/02	73'	40'	CONE		0.85	N	N				N	Dike
24	1955	Naphtha	80	Off Plot	03/97	03/17	05/97	05/02	120'	40'	PD-5	PHENOLIC EPOXY	0.87	N	Y	F			D	Dike
25	1955	Diesel	30	Off Plot	06/87	06/01	11/97	11/02	73'	40'	CONE	EPOXY	0.85	N	N				N	Dike
26	1955	Diesel	80	Off Plot	05/90	04/10	05/95	05/00	120'	40'	CONE	PHENOLIC EPOXY	0.87	N	N				N	Dike
27	1955	Gasoline	30	Off Plot	09/92	09/12	09/97	09/02	73'	40'	DDFR	PHENOLIC EPOXY	0.73	N	Y				N	Dike
28	1955	Gasoline	30	Off Plot	07/92	07/12	07/97	06/02	73'	40'	DDFR	PHENOLIC EPOXY	0.73	N	Y				N	Dike
29	1955	Gasoline	80	Off Plot	11/98	11/18	11/98	11/03	120'	40'	DDFR	PHENICON HS	0.87	N	Y				N	Dike
30	1955	Gasoline	30	Off Plot	08/94	08/14	08/94	08/99	73'	40'	DDFR	PHENOLIC	0.73	N	Y				D	Dike
31	1955	Gasoline	30	Off Plot	02/91	06/04	02/96	02/01	73'	40'	DDFR	PHENOLIC	0.73	N	Y				N	Dike
32	1955	Gasoline	80	Off Plot	01/94	01/14	11/97	11/02	120'	40'	DDFR	EPOXY	0.73	N	Y				D	Dike
33	1955	Fuel Oil	30	Off Plot	07/90	06/04	05/95	05/00	73'	40'	CONE		1	Y	N				N	Dike
34	1955	Fuel Oil	80	Off Plot	05/88	05/18	05/98	05/03	120'	40'	CONE	NO COATING TOO HOT	1.02	Y	N		4	15	N	Dike
35	1955	Fuel Oil	80	Off Plot	08/93	07/13	09/98	09/03	120'	40'	CONE	PHENOLIC EPOXY	1	N	N				N	Dike
36	1955	Fuel Oil	80	Off Plot	01/97	01/17	11/96	11/01	120'	40'	CONE	PHENOLIC EPOXY	1	N	N				N	Dike
60	1958	Crude	150	Off Plot	02/92	02/12	02/97	02/02	150'	48'	PD-5	PHENOLIC	0.96	N	Y				N	Dike
88	1958	Alkylate	10	Off Plot	03/91	03/01	08/95	08/00	42'	40'	DDFR	PHENOLIC	0.69	N	Y				N	Dike
89	1958	Naphtha	10	Off Plot	04/98	04/18	04/98	04/03	42'	40'	DDFR	PHENOLIC EPOXY	0.69	N	Y				N	Dike
90	1958	Naphtha	10	Off Plot	11/91	10/04	11/96	11/01	42'	40'	DDFR	PHENOLIC	0.69	N	Y				N	Dike
91	1958	Gasoline	30	Off Plot	05/97	05/17	08/94	08/99	73'	40'	PD-5	PHENOLIC EPOXY	0.87	N	Y				N	Dike
92	1958	Gasoline	150	Off Plot	05/90	04/00	09/95	09/00	150'	48'	PD-5	EPOXY	0.73	N	Y				N	Dike
95	1957	Naphtha	10	Off Plot	03/84	02/04	05/95	04/00	52'	41'	SPHERE			N	N				N	Dike
113	1962	Light Gas Oil	30	Off Plot	01/98	01/18	05/97	05/02	73'	40'	PD-5	PHENOLIC EPOXY	0.85	N	Y	F			N	Dike
114	1962	Light Gas Oil	125	Off Plot	12/85	11/00	08/96	08/01	150'	40'	C/IFR	EPOXY	0.82	N	N				N	Dike
134	1964	Gasoline	100	Off Plot	04/94	03/14	03/99	03/04	120'	48'	PD-5	PHENOLIC EPOXY	0.73	N	Y				D	Dike
135	1963	Crude	177	Off Plot	08/92	08/12	08/97	08/02	160'	48'	PD-5	EPOXY	0.96	Y	Y				N	Dike
136	1964	Crude	177	Off Plot	02/97	01/17	05/98	05/03	160'	48'	PD-5	EPOXY	0.96	Y	Y				N	Dike
142	1967	Jet Kerosene	150	Off Plot	12/83	11/03	09/94	08/99	150'	48'	CONE	EPOXY	0.73	N	N	F			N	Dike
148	1971	Jet Kerosene	150	Off Plot	09/86	05/04	03/97	03/02	150'	48'	WAP		0.82	N	Y	F			N	Dike
165	1978	Crude	600	Off Plot	01/78	06/99	03/97	03/02	280'	64'	DDFR	FRP	0.96	Y	Y				N	Dike

(M) = 1,000 as 35 MBBLS = 35,000 BBLS

Figure D.4
Above Ground Bulk Storage Tank Information

Tank Number	Year Built	Product Service	Nominal Capacity (MBBL)	Unit	Last Int.	Next Int.	Last Ext.	Next Ext.	DIA	HGT Or LNGTH	Roof Type	Internal Coating	SPEC GRAV	INSUL Y/N	WIND GRDR Y/N	SUCT.	MXR	HTR	FOAM	Secondary Containment
166	1979	Crude	600	Off Plot	02/91	02/11	03/97	03/02	280’	64’	DDFR	FRP	0.96	N	Y				N	Dike
171	1981	Diesel	130	Off Plot	11/92	11/12	05/97	05/02	140’	48’	CONE	PHENOLIC EPOXY	0.87	N	N				N	Dike
202	1994	Gasoline	187	Off Plot	01/97	01/14	01/99	01/04	166’	53’	DDFR	PHENOLIC EPOXY	0.73	N	Y				P	Dike
203	1994	Gasoline	193	Off Plot	02/94	02/14	03/97	03/02	166’	53’	DDFR	PHENOLIC EPOXY	0.73	N	Y				P	Dike
230		Lt. SR Gasoline	30	Off Plot																Dike
231	1994	Heavy Reformate	101	Off Plot	08/94	08/14	08/94	08/99	120’	55’	APFR	PHENOLIC		N	T				P	Dike
43**		Fuel Oil	3	Off Plot																Dike
87**		Fuel Oil	0.5	Off Plot																Dike
406	2015	Diesel	12	Off Plot					48’	39’	FR									Dike
407	2015	Gasoline	20	Off Plot					64’	39’	FR									Dike
408	2015	Ethanol	12	Off Plot					48’	39’	FR									Dike

D.4 FACILITY REPORTABLE OIL SPILL HISTORY

As per 40 CFR 112.20, the following information is identified to the most reasonable extent and recorded:

- Date of discharge;
- List of discharge causes;
- Materials discharged;
- Amount discharged in gallons;
- Amount of discharge that reached navigable waters, if applicable;
- Effectiveness and capacity of secondary containment;
- Clean-up actions taken;
- Total storage capacity of the tank(s) or impoundment(s) from which the material discharged;
- Enforcement actions;
- Effectiveness of monitoring equipment; and
- Description of how each oil spill was detected.

The Refinery and Wharf have experienced minor spills, but approximately 60 to 70 percent were caused by vessels out of Company control. In some instances, the vessels involved were prohibited from future use of the Wharf. A majority of the remaining spills were minor, generally caused by hose failure, pinhole leaks, and/or gasket failure. Information on each of these spills, as required by WAC 173-18D-060(15) is provided **FIGURE D.5**.

Figure D.5
Facility Spill History

DATE	VESSEL/WHARF	CAUSE	AMOUNT	CLEANUP ACTIONS
11/11/99	Marine Loading Arm	Seal failure	< 1 ounce	Boomed around area and cleaned up with sorbents
03/10/00	Dock Flange Leak	Gasket failure	1 quart	Boomed around area and cleaned up with sorbents
11/06/01	Tesoro Boat Outboard	Loose oil plug	< 1 cup	Boomed sheen and cleaned up with sorbents
03/10/03	Crude Column PSV Relief	System over pressured	Large Sheen	Light sheen dissipated via natural dispersion and evaporation
08/25/08	Wharf RUL Line	Flange leak	.5 gallons	Evaporated gasoline
12/17/08	Wharf Crude Line	Pin hole leak	< 2 gallons	Boomed under causeway and skimmed oil
07/23/09	Wharf IFO Line	Flange leak	5 cup	Boomed around area and removed with sorbent
12/02/11	Marine Loading Arm	Human Factors/Design	<2 Cups	Boomed around area and removed with sorbents
6/14/2013	Wharf IFO Line	High Point Vent Bullplug leak	<2 cups	Boomed around area and removed with sorbent
9/29/2013	Wharf Crude Line	Pin hole leak	< 1 gallon	Boomed around area and removed with sorbent
2/12/2014	Wharf Smart Pig Launch	Valve with no containment	½ cup	Boomed around area and removed with sorbent

D.5 VULNERABILITY ANALYSIS

A vulnerability analysis was performed to address the potential effects of an oil spill within the planning distance and trajectory analysis of this facility. The following features were considered:

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

All vulnerabilities impacted, as determined from trajectory analysis, are identified and listed in **SECTION 6.5**. The trajectory analysis is presented in **SECTION D.9.5**. Additional information of resources that could be at risk from an oil spill from the facility is described in the Northwest Regional Area Contingency Plan (ACP).

D.6 ANALYSIS OF THE POTENTIAL FOR A SPILL

The potential sources of significant oil spills at the Refinery are the tank farm, pipelines, and the tank truck and railcar loading racks. A general layout of the facility is shown in **FIGURES 1.5, 1.6** and **1.7**. Each of these sources has control features in their design, maintenance, and operation to prevent potential spills. The probability of a spill occurring at this facility is minimal for the following reasons:

- Tanks are constructed in accordance with applicable engineering standards.
- Facility equipment is inspected frequently for evidence of corrosion and leaks.
- Personnel are trained in procedures to prevent pollution.

Immediate response measures to be carried out to control a spill once it has occurred are also outlined in **SECTION 3**.

D.6.1 Tank Farm

During normal operations, tanks are filled with product delivered by pipeline or additive delivered by tank truck. There is a potential for:

- The pipelines to rupture or the associated valves, flanges, meters, etc., to fail, which could result in a loss of feed stocks, intermediates or products.
- Overfilling a tank during delivery.
- Catastrophic tank failure.
- Small leaks to develop in pipelines or in the tank sides and bottoms due to corrosion.
- Failure of a roof drain hose on an external floating roof tank may create a spill during roof draining.

D.6.2 Tank Car/Truck Loading Racks

There is a possibility for a spill to occur at the product loading rack as a result of overfilling a tank compartment on a vehicle, although the probability is low due to the presence of shut off valves in the immediate vicinity. Potential spills may also be caused by an equipment failure or operator error resulting in a hose rupture, tank rupture by collision, faulty correction, or premature truck exit. Equipment, training, and inspections are utilized to minimize the potential for a spill due to these causes.

Other operations that may cause a spill include transfer of product and pump back transfer of product from tank truck or railcar to storage tanks. However, the probability of a spill associated with these is less than the specific areas noted above. Overall, based on the qualitative analysis of the potential for a spill, the probability for an uncontrolled release to occur at the Refinery is low.

D.6.3 Discharge Detection Systems

Early discharge detection will allow personnel to institute procedures that will minimize the amount of oil that can be discharged.

Discharge Detection by Personnel

Company personnel are on duty 24 hours per day, 7 days per week. Daily inspection is performed by all workers. Any discharges initiate the mitigation procedures listed in **FIGURE 2.4**. Pipeline discharges would be discovered during visual inspections or when a pressure loss is noted in pipeline gauges and in the differential pressure between the pump and the endpoint gauges.

- Automated Discharge Detection

The Company has hydrocarbon detection systems to detect any oil on water at the refinery. In addition, each storage tank is equipped with a variety of wall gauges and alarms including:

- VAREC computer system
- Hi level alarms
- Hi-Hi level alarms
- Lo level alarms
- Lo-lo level alarms
- Visual level gauges at tanks

Fail-safe operating features incorporated in petroleum bulk storage facilities include a centralized, continuously-manned VAREC computer system and full-time radio communications between tank farm operators and the control room from which storage and transfer operations are directed. Active tank gauges are logged every four hours and all tanks on the system are gauged every 24 hours. The remote level sensing device and then tank side gauges are checked monthly versus manual tape gauges. If the VAREC system is not operable, active tanks must be gauged with a tape.

The VAREC system gives audible alarms for high, high-high, low, and low-low levels, as well as flow rates into or out of an active tank. Alarms require acknowledgment by the Board Man. If a tank has been inactive (constant level) and suddenly has a change in level, an alarm will sound requiring Board Man acknowledgment.

The VAREC system will not automatically shut down pumps or open or close valves in order to prevent a tank from overflowing. Pumps can be turned on or off remotely by the Board Man in the control house. If corrective action outside of the control room is needed to respond to an alarm, the Board Man in the control room can radio the tank farm operator to take that action while continuing to monitor the other active tanks.

Tanks with local uses in the refinery (e.g. slop oil/water tank in the wastewater treatment plant) are gauged using the side gauge or tape when in use.

On finished gasoline blending tanks, a predetermined amount of components can be added commensurate with tank capacity, after which blending pumps are automatically shut down.

FIGURE D.4 lists the oil storage tanks with their capacities and distance, volume, and time remaining between high level alarm and overflow. The time between high level alarm and overflow is based on maximum pumping rates for crude oil and gasoline tanks and a high production rate for the tanks containing intermediates and products received directly from the process units. For the tanks in the tank farm, this time varies from about 15 minutes for the relatively small finished gasoline tanks which can be blended to at a high rate to over 20 hours for some of the heavy gas oil tanks.

D.6.4 Horizontal Range

The horizontal range of a potential oil spill is influenced by wind direction and tidal stage; however, it is expected to spread quickly. The majority of the Refinery is surrounded by land, and part is adjacent to navigable water and marshes. The marshes may contain some of the oil, and limit the spread. If containment boom at the facility fails, a spill could potentially reach Fidalgo Bay, the Strait of Juan de Fuca, and may eventually reach the Pacific Ocean.

D.6.5 Vulnerability to Natural Disasters

This facility is vulnerable to a spill that may occur as the result of a natural disaster. The most likely spill scenario is an earthquake in which tank or equipment integrity may be compromised and fail. Other possible scenarios include flooding, blizzards or lighting strikes. There are no other natural disasters that may increase the likelihood of a spill at this facility.

D.7 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:

Non-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.

Persistent oils

Planning distance is 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.

An area map depicting the planning distance is presented in **FIGURE 1.1**.

D.8 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.8.1 Small (<50 BBLS) and Medium (>50 but <857 BBLS) Discharge Scenarios

The purpose of this section is to identify the source and sizes of small and medium discharges as identified by OPA 90 and WDOE regulations. Small to medium discharges may occur on land or at the marine terminal, in which case they may directly enter the bay.

Potential spill scenarios may include tank overflow, valve failure, tank failure, pipe failure, hose failure, or pump seal failure.

The Company would respond to these types of incidents in the same manner as a worst case discharge, but at a level appropriate to the incident size. Differences in response are described in the worst case discharge scenario narrative. MSRC would be called upon for additional personnel and equipment as needed.

The following table lists various facility operations and corresponding components which might be the sources of a small, medium, and worst case discharge:

Facility Operations and Components	Small Discharge (Up to 2100 gallons)	Medium Discharge (2100-36,000 gallons)	Large Discharge (>36,000 gallons)
Oil transfer operations	Hose failure	Hose failure	Not applicable
Facility maintenance operations	Leak from periodic maintenance, line not completely drained when opened.	Seal failure Overfill	Not applicable
Facility piping	Flange, gasket, threaded connection	Seal failure Overfill	Not applicable
Pumps and sumps	Seal failure Overfill	Seal failure Overfill	Not applicable
Oil storage tanks	Overfill	Overfill	Catastrophic failure of largest tank
Vehicle refueling operations	Hose failure	Hose failure	Not applicable
Age and condition of facility and components	Valve failure Seal failure Connection failures	Valve failure Seal failure Connection failures	Not applicable

In general, land spills may be caused by loading or unloading operations, pipeline or valve leaks or maintenance activities. These spills will be trapped within the facility secondary containment and physically recovered with no impact to navigable waters or sensitive areas. In some cases, diversion and containment berming using earth may be necessary, and some contaminated soil may be generated. Initial land response activities would typically be conducted by facility personnel.

Spills at the wharf facility, or those which may escape the secondary containment and enter the bay, will be subject to movement by winds and currents, following the same general trajectory as described for the worst case discharge (**APPENDIX D.8.2**), although small and medium discharges would not be expected to travel as far.

The Company's primary spill response organizations, MSRC, would be activated in the event of any spill to water, with arrival time within 1 to 2 hours of notification. Containment booming and recovery would be initiated, weather permitting.

Consideration would also be given to the exclusion booming of sensitive areas or features threatened by the spill. Some of the spilled material would be expected to evaporate or disperse in the water column.

D.8.2 Worst Case Discharge (WCD) Scenario Discussion

The following subsection discusses possible movement, fate, response actions and impacts associated with small, medium and worst case spill scenarios. The worst case scenario is assumed to be an instantaneous release of approximately 600,000 barrels of crude oil from Tank 165 or 166.

Although the Facility has adequate secondary containment, the release of some of the spill to navigable waters could occur as a result of secondary containment failure or drainage from loading hose. In either event, it is probable that only a portion of the release would reach the bay.

Upon discovery of a spill, the following procedures would be followed:

1. The Spill Observer would notify the Logistics Supervisor in accordance with **FIGURE 3.1**.
2. The HP-1 Operation's Foreman would notify the following:
    - Logistics Board Man
    - Utility Board Man
    - MSRC
    - Government Agencies (small spills)
    - Wharfmaster
    - Main Gate Security
    - Relief Foreman, if needed.

    The Logistics Supervisor would assume role as Initial Incident Commander (until relieved by Incident Commander) and activate Initial Response Crew in accordance with **SECTIONS 2 and 3**.

1. The Utility Board Man would notify the Environmental Duty Person, Senior Management Team Duty Person, and other appropriate personnel as described in **FIGURES 2.1 and 3.1**.

2. The Environmental Duty Person would make appropriate government agencies.

3. The Senior Management Team Duty Person would notify the Vice President, Refining (Incident Commander/Qualified Individual).

4. If this were a small spill, the Logistics Supervisor may handle all aspects of the response. Among those actions would be to:

    - Conduct safety assessment in accordance with **FIGURE 2.1** and evacuate personnel as needed in accordance with **SECTION 2.3**.
    - Direct facility responders to shut down ignition sources.
    - Direct facility personnel to deploy containment boom in accordance with **SECTION 2.4**.
    - Complete spill report form (**FIGURE 3.2**) in accordance with **SECTION 3.1** and notify Incident Commander/Qualified Individual.
    - Notify regulatory agencies in accordance with **FIGURE 3.4**.

If this were a small or medium spill, the Vice President, Refining may elect for the Logistics Supervisor to remain Incident Commander or to activate selected portions of the Spill Management Team.

5. However, for a large spill, the Vice President, Refining would assume the role of Incident Commander/Qualified Individual and would have the entire Spill Management Team activated in accordance with activation procedures described in **SECTION 4.2**.

6. The Incident Commander would then initiate spill assessment procedures including surveillance operations, trajectory calculations, and spill volume estimating in accordance with **SECTION 2**.

7. The Incident Commander would then utilize checklists in **SECTION 4.6** as a reminder of issues to address. The primary focus would be to establish incident priorities and objectives and to brief staff accordingly. A listing of MSRC equipment and personnel is provided in **FIGURE B.2**.

8. The Spill Management Team would develop the following plans, as appropriate (some of these plans may not be required during a small or medium spill):

    - Site safety and health
    - Incident action
    - Disposal
    - Site security
    - Decontamination

- Wildlife rehabilitation
- Alternative response strategies
- Recovered oil and water management
- Recovered oil quantification

Selected plan templates are included in **SECTION 5**.

9. The response would continue until an appropriate level of cleanup is obtained. (Refer to **SECTION 8**, for guidance on demobilization and post-spill analysis for an incident).

D.8.3 Probable Spill Movement and Fate

In the worst case discharge scenario, a significant portion of Fidalgo Bay and/or Padilla Bay could potentially be impacted by oil. The small and medium spill scenarios would likely follow the same general trajectory as the worst case discharge, but would not be expected to travel as far or expose resources to the same level of impact. Refer to **SECTION D.9** for additional information.

D.8.4 Description of Factors Affecting Response Efforts

There are many factors that may affect the ability to respond to an incident. These factors are described in the following table:

Factors	Considerations affecting response efforts
Size of spill	• Location of spill (e.g., sensitive area vs. no sensitive area)Spread and spill movement
Proximity to down gradient water intakes	• Type of water system (e.g., river, lake, etc.)Presence of any water intakes or wellhead protection areasPathway to water (how fast can spill reach water and pathway be blocked to intercept)
Proximity to fish & wildlife and sensitive environments	• Near sensitive area (e.g., endangered species nesting area, estuary, wildlife management area)Location of spill
Likelihood that discharge will travel offsite	• Volume and location of spillSecondary containment devices
Location of material spilled	• Does the product float or sink when in contact with water?Is the product volatile?Is the product suitable in water?Does vapor tend to gather in low-lying areas?
Material discharged	• Is material volatile? Is material persistent in environment?
Weather or aquatic conditions	• Temperature (air, water)Wind (direction and speed)Weather related health/safety factors (e.g., hypothermia, heat stroke, ignition of product)
Available remediation equipment	• AvailabilityLocation of equipment • Type of equipment required
Factors	**Considerations affecting response efforts**
Probability of a chain reaction or failures	• Processes affectedPotential to compound incident (e.g., oil spill progressing to fire or explosion)
Direction of spill pathway	• Tidal cycleSensitivities impacted downstream (e.g., public, environmental, water intakes)Natural containment areasWind direction and speed

D.8.5 Worst Case Scenario Equipment Planning

This subsection addresses the equipment needed to respond to a worst case discharge. Average most probable discharges (50 barrels) and maximum most probable discharges (1,200 barrels) are not addressed as resources are available to handle a worst case; therefore, there is sufficient equipment to handle a discharge of a lesser amount.

The following calculations (**FIGURES D.6** and **D.7**) provide planning volumes for the Company to determine equipment requirements. Parameters below were used to calculate worst case discharge for USCG jurisdiction

SERVICE	MAX. TIME TO DISCOVERY AND SHUTDOWN (HRS)	FLOW RATE (BPH)	PIPING CAPACITY (BBLS)	WCD (BBLS)
Crude	0.25	15000	1295	5045
Crude	0.25	2000	1468	1968
Bunker	0.25	15000	1295	5045
Bunker	0.25	7500	1526	3401
Diesel	0.25	5000	923	2182
Jet A	0.25	5000	936	2186
Prem. Gas	0.25	5000	928	2178
Reg. Gas	0.25	5000	930	2180
H.B. Gas	0.25	5000	930	2180
Bunker	0.25	1000	1046	1296

Figure D.6
USCG Worksheet For Determining Planning Volume For Response Resources

Part I Background Information (16" Crude, Line #1)

Step (A) Calculate Worst Case Discharge in Barrels

5,045

Step (B) Oil Group ....

2

Step (C) Geographic Area (chose one) .... _X_ Nearshore/Inland or Great Lakes _____ River and Canals

Step (D) Percentages of Oil

% Lost to Natural Dissipation (D1)	% Recovered Floating Oil (D2)	% Oil Onshore (D3)
50	50	30

Step (E1) On-Water Recovery Step (D2) x Step (A)

2,522

Step (E2) On-Shore Recovery Step (D3) x Step (A)

1,513

Step (F) Emulsification Factor (Table 3) ....

1.8

Step (G) On-Water Recovery Resources Mobilization Factor (Table 4) ....

Tier 1 (G1)	Tier 2 (G2)	Tier 3 (G3)
0.15	0.25	0.40

* Facilities storing multiple groups of oil should prepare a separate worksheet for each group.

FIGURE D.6, CONTINUED

USCG WORKSHEET FOR DETERMINING PLANNING VOLUME FOR RESPONSE RESOURCES

Part II On-Water Recovery Capacity (barrels/day)

Tier 1 Steps (E1) x (F) x (G1)	Tier 2 Steps (E1) x (F) x (G2)	Tier 3 Steps (E1) x (F) x (G3)
681	1135	1816

Part III Shoreline Cleanup Volume (barrels/day) ....

2,723
Step (E2) x Step (F)

Part IV Response Capacity by Geographic Area (Table 5 - 1998 Standards)
(amount needed to be contracted for in barrels/days)

Tier 1 (J1)	Tier 2 (J2)	Tier 3 (J3)
10,000	20,000	40,000

Part V Amount Needed to be Identified, but not Contracted for in Advance (barrels/day)

Tier 1 Part II Tier I - Step (J1)	Tier 2 Part II Tier 2 - Step (J2)	Tier 3 Part II Tier 3 - Step (J3)
-9,319	-18,865	-38,184

FIGURE D.6, CONTINUED

USCG WORKSHEET FOR DETERMINING PLANNING VOLUME FOR RESPONSE RESOURCES

Part I Background Information (16" Crude Line #2)

Step (A) Calculate Worst Case Discharge in Barrels

1,968

Step (B) Oil Group ....

2

Step (C) Geographic Area (chose one) .... X Nearshore/Inland or Great Lakes _____ River and Canals

Step (D) Percentages of Oil

% Lost to Natural Dissipation (D1) % Recovered Floating Oil (D2) % Oil Onshore (D3)

Step (E1) On-Water Recovery Step (D2) x Step (A)

50	50	30

984

Step (E2) On-Shore Recovery Step (D3) x Step (A)

590

Step (F) Emulsification Factor (Table 3) ....

1.8

Step (G) On-Water Recovery Resources Mobilization Factor (Table 4) ....

Tier 1 (G1) Tier 2 (G2) Tier 3 (G3)

* Facilities storing multiple groups of oil should prepare a separate worksheet for each group.

0.15	0.25	0.40

FIGURE D.6, CONTINUED

USCG WORKSHEET FOR DETERMINING PLANNING VOLUME FOR RESPONSE RESOURCES

Part II On-Water Recovery Capacity (barrels/day)

Tier 1 Steps (E1) x (F) x (G1)	Tier 2 Steps (E1) x (F) x (G2)	Tier 3 Steps (E1) x (F) x (G3)
149	443	708

Part III Shoreline Cleanup Volume (barrels/day) ....

1,062

Step (E2) x Step (F)

Part IV Response Capacity by Geographic Area (Table 5 - 1998 Standards)
(amount needed to be contracted for in barrels/days)

Tier 1 (J1)	Tier 2 (J2)	Tier 3 (J3)
10,000	20,000	40,000

Part V Amount Needed to be Identified, but not Contracted for in Advance (barrels/day)

Tier 1 Part II Tier I - Step (J1)	Tier 2 Part II Tier 2 - Step (J2)	Tier 3 Part II Tier 3 - Step (J3)
-9,851	-19,557	-39,292

FIGURE D.6, CONTINUED

USCG WORKSHEET FOR DETERMINING PLANNING VOLUME FOR RESPONSE RESOURCES

Part I Background Information (16” Bunker Fuel Oil, Line #3)

Step (A) Calculate Worst Case Discharge in Barrels

5,045

Step (B) Oil Group ....

4

Step (C) Geographic Area (chose one) .... X Nearshore/Inland or Great Lakes _____ River and Canals

Step (D) Percentages of Oil

% Lost to Natural Dissipation (D1)	% Recovered Floating Oil (D2)	% Oil Onshore (D3)
10	50	70

Step (E1) On-Water Recovery Step (D2) x Step (A)

2,522

Step (E2) On-Shore Recovery Step (D3) x Step (A)

3,531

Step (F) Emulsification Factor (Table 3) ....

1.4

Step (G) On-Water Recovery Resources Mobilization Factor (Table 4) ....

Tier 1 (G1)	Tier 2 (G2)	Tier 3 (G3)
0.15	0.25	0.40

* Facilities storing multiple groups of oil should prepare a separate worksheet for each group.

FIGURE D.6, CONTINUED

USCG WORKSHEET FOR DETERMINING PLANNING VOLUME FOR RESPONSE RESOURCES

Part II On-Water Recovery Capacity (barrels/day)

Tier 1 Steps (E1) x (F) x (G1)	Tier 2 Steps (E1) x (F) x (G2)	Tier 3 Steps (E1) x (F) x (G3)
530	883	1,412

Part III Shoreline Cleanup Volume (barrels/day) ....

4,943

Step (E2) x Step (F)

Part IV Response Capacity by Geographic Area (Table 5 - 1998 Standards)
(amount needed to be contracted for in barrels/days)

Tier 1	Tier 2	Tier 3
(J1)	(J2)	(J3)

Part V Amount Needed to be Identified, but not Contracted for in Advance (barrels/day)

10,000	20,000	40,000
Tier 1 Part II Tier I - Step (J1)	Tier 2 Part II Tier 2 - Step (J2)	Tier 3 Part II Tier 3 - Step (J3)

-9,470	-19,117	-38,588

FIGURE D.6, CONTINUED
USCG WORKSHEET FOR DETERMINING PLANNING VOLUME FOR RESPONSE RESOURCES

Part I Background Information (16” Bunker Fuel Oil, Line #4)

Step (A) Calculate Worst Case Discharge in Barrels

3,401

Step (B) Oil Group ....

4

Step (C) Geographic Area (chose one) .... X Nearshore/Inland or Great Lakes _____ River and Canals

Step (D) Percentages of Oil

% Lost to Natural Dissipation (D1)	% Recovered Floating Oil (D2)	% Oil Onshore (D3)
10	50	70

Step (E1) On-Water Recovery Step (D2) x Step (A)

1,700

Step (E2) On-Shore Recovery Step (D3) x Step (A)

2,381

Step (F) Emulsification Factor (Table 3) ....

1.4

Step (G) On-Water Recovery Resources Mobilization Factor (Table 4) ....

Tier 1 (G1)	Tier 2 (G2)	Tier 3 (G3)
0.15	0.25	0.40

* Facilities storing multiple groups of oil should prepare a separate worksheet for each group.

FIGURE D.6, CONTINUED
USCG WORKSHEET FOR DETERMINING PLANNING VOLUME FOR RESPONSE RESOURCES

Part II On-Water Recovery Capacity (barrels/day)

Tier 1 Steps (E1) x (F) x (G1)	Tier 2 Steps (E1) x (F) x (G2)	Tier 3 Steps (E1) x (F) x (G3)
357	595	952

Part III Shoreline Cleanup Volume (barrels/day) ....

3,333

Step (E2) x Step (F)

Part IV Response Capacity by Geographic Area (Table 5 - 1998 Standards)
(amount needed to be contracted for in barrels/days)

Tier 1 (J1)	Tier 2 (J2)	Tier 3 (J3)
10,000	20,000	40,000

Part V Amount Needed to be Identified, but not Contracted for in Advance (barrels/day)

Tier 1 Part II Tier I - Step (J1)	Tier 2 Part II Tier 2 - Step (J2)	Tier 3 Part II Tier 3 - Step (J3)
-9,643	-19,405	-39,048

FIGURE D.6, CONTINUED
USCG WORKSHEET FOR DETERMINING PLANNING VOLUME FOR RESPONSE RESOURCES

Part I Background Information (12" Diesel, Line #5)

Step (A) Calculate Worst Case Discharge in Barrels

2,182

Step (B) Oil Group ....

2

Step (C) Geographic Area (chose one) .... X Nearshore/Inland or Great Lakes _____ River and Canals

Step (D) Percentages of Oil

% Lost to Natural Dissipation (D1)	% Recovered Floating Oil (D2)	% Oil Onshore (D3)
50	50	30

Step (E1) On-Water Recovery Step (D2) x Step (A)

1,091

Step (E2) On-Shore Recovery Step (D3) x Step (A)

655

Step (F) Emulsification Factor (Table 3) ....

1.8

Step (G) On-Water Recovery Resources Mobilization Factor (Table 4) ....

Tier 1 (G1)	Tier 2 (G2)	Tier 3 (G3)
0.15	0.25	0.40

* Facilities storing multiple groups of oil should prepare a separate worksheet for each group.

FIGURE D.6, CONTINUED
USCG WORKSHEET FOR DETERMINING PLANNING VOLUME FOR RESPONSE RESOURCES

Part II On-Water Recovery Capacity (barrels/day)

Tier 1 Steps (E1) x (F) x (G1)	Tier 2 Steps (E1) x (F) x (G2)	Tier 3 Steps (E1) x (F) x (G3)

Part III Shoreline Cleanup Volume (barrels/day) ....

295	491	786	1,179

Step (E2) x Step (F)

Part IV Response Capacity by Geographic Area (Table 5 - 1998 Standards)
(amount needed to be contracted for in barrels/days)

Tier 1 (J1)	Tier 2 (J2)	Tier 3 (J3)

Part V Amount Needed to be Identified, but not Contracted for in Advance (barrels/day)

10,000	20,000	40,000
Tier 1 Part II Tier I - Step (J1)	Tier 2 Part II Tier 2 - Step (J2)	Tier 3 Part II Tier 3 - Step (J3)

-9,705	-19,509	-39,214

FIGURE D.6, CONTINUED
USCG WORKSHEET FOR DETERMINING PLANNING VOLUME FOR RESPONSE RESOURCES

Part I Background Information (12” Jet A, Line #6)

Step (A) Calculate Worst Case Discharge in Barrels

2,186

Step (B) Oil Group ....

2

Step (C) Geographic Area (chose one) .... X Nearshore/Inland or Great Lakes _____ River and Canals

Step (D) Percentages of Oil

% Lost to Natural Dissipation (D1)	% Recovered Floating Oil (D2)	% Oil Onshore (D3)
50	50	30

Step (E1) On-Water Recovery Step (D2) x Step (A)

1,093

Step (E2) On-Shore Recovery Step (D3) x Step (A)

656

Step (F) Emulsification Factor (Table 3) ....

1.8

Step (G) On-Water Recovery Resources Mobilization Factor (Table 4) ....

Tier 1 (G1)	Tier 2 (G2)	Tier 3 (G3)
0.15	0.25	0.40

* Facilities storing multiple groups of oil should prepare a separate worksheet for each group.

FIGURE D.6, CONTINUED
USCG WORKSHEET FOR DETERMINING PLANNING VOLUME FOR RESPONSE RESOURCES

Part II On-Water Recovery Capacity (barrels/day)

Tier 1	Tier 2	Tier 3
Steps (E1) x (F) x (G1)	Steps (E1) x (F) x (G2)	Steps (E1) x (F) x (G3)

Part III Shoreline Cleanup Volume (barrels/day) ....

295	492	787	1,181

Step (E2) x Step (F)

Part IV Response Capacity by Geographic Area (Table 5 - 1998 Standards)
(amount needed to be contracted for in barrels/days)

Tier 1	Tier 2	Tier 3
(J1)	(J2)	(J3)

Part V Amount Needed to be Identified, but not Contracted for in Advance (barrels/day)

Tier 1	Tier 2	Tier 3
10,000	20,000	40,000
Part II Tier I - Step (J1)	Part II Tier 2 - Step (J2)	Part II Tier 3 - Step (J3)

-9,705	-19,508	-39,213

FIGURE D.6, CONTINUED
USCG WORKSHEET FOR DETERMINING PLANNING VOLUME FOR RESPONSE RESOURCES

Part I Background Information (12" Premium Gasoline, Line #7 Non-Resistant)

Step (A) Calculate Worst Case Discharge in Barrels

2,178

Step (B) Oil Group ....

1

Step (C) Geographic Area (chose one) .... __X__ Nearshore/Inland or Great Lakes _____ River and Canals

Step (D) Percentages of Oil

% Lost to Natural Dissipation (D1)	% Recovered Floating Oil (D2)	% Oil Onshore (D3)
80	20	10

Step (E1) On-Water Recovery Step (D2) x Step (A)

436

Step (E2) On-Shore Recovery Step (D3) x Step (A)

218

Step (F) Emulsification Factor (Table 3) ....

1.0

Step (G) On-Water Recovery Resources Mobilization Factor (Table 4) ....

Tier 1 (G1)	Tier 2 (G2)	Tier 3 (G3)
0.15	0.25	0.40

* Facilities storing multiple groups of oil should prepare a separate worksheet for each group.

FIGURE D.6, CONTINUED
USCG WORKSHEET FOR DETERMINING PLANNING VOLUME FOR RESPONSE RESOURCES

Part II On-Water Recovery Capacity (barrels/day)

Tier 1 Steps (E1) x (F) x (G1)	Tier 2 Steps (E1) x (F) x (G2)	Tier 3 Steps (E1) x (F) x (G3)

Part III Shoreline Cleanup Volume (barrels/day) ....

65	109	174	218

Step (E2) x Step (F)

Part IV Response Capacity by Geographic Area (Table 5 - 1998 Standards)
(amount needed to be contracted for in barrels/days)

Tier 1 (J1)	Tier 2 (J2)	Tier 3 (J3)
10,000	20,000	40,000

Part V Amount Needed to be Identified, but not Contracted for in Advance (barrels/day)

Tier 1 Part II Tier I - Step (J1)	Tier 2 Part II Tier 2 - Step (J2)	Tier 3 Part II Tier 3 - Step (J3)
-9,935	-19,891	-39,826

FIGURE D.6, CONTINUED
USCG WORKSHEET FOR DETERMINING PLANNING VOLUME FOR RESPONSE RESOURCES

Part I Background Information (12" Regular Gasoline, Line #8 Non-Resistant)

Step (A) Calculate Worst Case Discharge in Barrels

2,180

Step (B) Oil Group ....

1

Step (C) Geographic Area (chose one) .... X Nearshore/Inland or Great Lakes _____ River and Canals

Step (D) Percentages of Oil

% Lost to Natural Dissipation (D1)	% Recovered Floating Oil (D2)	% Oil Onshore (D3)
80	20	10

Step (E1) On-Water Recovery Step (D2) x Step (A)

436

Step (E2) On-Shore Recovery Step (D3) x Step (A)

218

Step (F) Emulsification Factor (Table 3) ....

1.0

Step (G) On-Water Recovery Resources Mobilization Factor (Table 4) ....

Tier 1 (G1)	Tier 2 (G2)	Tier 3 (G3)
0.15	0.25	0.40

* Facilities storing multiple groups of oil should prepare a separate worksheet for each group.

FIGURE D.6, CONTINUED
USCG WORKSHEET FOR DETERMINING PLANNING VOLUME FOR RESPONSE RESOURCES

Part II On-Water Recovery Capacity (barrels/day)

Tier 1	Tier 2	Tier 3
Steps (E1) x (F) x (G1)	Steps (E1) x (F) x (G2)	Steps (E1) x (F) x (G3)

Part III Shoreline Cleanup Volume (barrels/day) ....

65	109	174	218

Step (E2) x Step (F)

Part IV Response Capacity by Geographic Area (Table 5 - 1998 Standards)
(amount needed to be contracted for in barrels/days)

Tier 1	Tier 2	Tier 3
(J1)	(J2)	(J3)

Part V Amount Needed to be Identified, but not Contracted for in Advance (barrels/day)

10,000	20,000	40,000
Tier 1	Tier 2	Tier 3
Part II Tier I - Step (J1)	Part II Tier 2 - Step (J2)	Part II Tier 3 - Step (J3)

-9,935	-19,891	-39,826

FIGURE D.6, CONTINUED
USCG WORKSHEET FOR DETERMINING PLANNING VOLUME FOR RESPONSE RESOURCES

Part I Background Information (10" H.B. Gas, Line #9)

Step (A) Calculate Worst Case Discharge in Barrels

2,180

Step (B) Oil Group ....

1

Step (C) Geographic Area (chose one) .... X Nearshore/Inland or Great Lakes _____ River and Canals

Step (D) Percentages of Oil

% Lost to Natural Dissipation (D1)	% Recovered Floating Oil (D2)	% Oil Onshore (D3)
80	20	10

Step (E1) On-Water Recovery Step (D2) x Step (A)

436

Step (E2) On-Shore Recovery Step (D3) x Step (A)

218

Step (F) Emulsification Factor (Table 3) ....

1.0

Step (G) On-Water Recovery Resources Mobilization Factor (Table 4) ....

Tier 1 (G1)	Tier 2 (G2)	Tier 3 (G3)
0.15	0.25	0.40

* Facilities storing multiple groups of oil should prepare a separate worksheet for each group.

FIGURE D.6, CONTINUED
USCG WORKSHEET FOR DETERMINING PLANNING VOLUME FOR RESPONSE RESOURCES

Part II On-Water Recovery Capacity (barrels/day)

Tier 1 Steps (E1) x (F) x (G1)	Tier 2 Steps (E1) x (F) x (G2)	Tier 3 Steps (E1) x (F) x (G3)

Part III Shoreline Cleanup Volume (barrels/day) ....

65	109	174	218

Step (E2) x Step (F)

Part IV Response Capacity by Geographic Area (Table 5 - 1998 Standards)
(amount needed to be contracted for in barrels/days)

Tier 1 (J1)	Tier 2 (J2)	Tier 3 (J3)

Part V Amount Needed to be Identified, but not Contracted for in Advance (barrels/day)

10,000	20,000	40,000
Tier 1 Part II Tier I - Step (J1)	Tier 2 Part II Tier 2 - Step (J2)	Tier 3 Part II Tier 3 - Step (J3)

-9,935	-19,891	-39,826

FIGURE D.6, CONTINUED
USCG WORKSHEET FOR DETERMINING PLANNING VOLUME FOR RESPONSE RESOURCES

Part I Background Information (6” Bunker Fuel Oil, Line #10)

Step (A) Calculate Worst Case Discharge in Barrels

1,296

Step (B) Oil Group ....

4

Step (C) Geographic Area (chose one) .... X Nearshore/Inland or _____ River and Great Lakes Canals

Step (D) Percentages of Oil

% Lost to Natural Dissipation (D1)	% Recovered Floating Oil (D2)	% Oil Onshore (D3)
10	50	70

Step (E1) On-Water Recovery Step (D2) x Step (A)

648

Step (E2) On-Shore Recovery Step (D3) x Step (A)

907

Step (F) Emulsification Factor (Table 3) ....

1.4

Step (G) On-Water Recovery Resources Mobilization Factor (Table 4) ....

Tier 1 (G1)	Tier 2 (G2)	Tier 3 (G3)
0.15	0.25	0.40

* Facilities storing multiple groups of oil should prepare a separate worksheet for each group.

FIGURE D.6, CONTINUED
USCG WORKSHEET FOR DETERMINING PLANNING VOLUME FOR RESPONSE RESOURCES

Part II On-Water Recovery Capacity (barrels/day)

Tier 1	Tier 2	Tier 3
Steps (E1) x (F) x (G1)	Steps (E1) x (F) x (G2)	Steps (E1) x (F) x (G3)

Part III Shoreline Cleanup Volume (barrels/day) ....

136	227	363	1,270

Step (E2) x Step (F)

Part IV Response Capacity by Geographic Area (Table 5 - 1998 Standards)
(amount needed to be contracted for in barrels/days)

Tier 1	Tier 2	Tier 3
(J1)	(J2)	(J3)

Part V Amount Needed to be Identified, but not Contracted for in Advance (barrels/day)

10,000	20,000	40,000
Tier 1	Tier 2	Tier 3
Part II Tier I - Step (J1)	Part II Tier 2 - Step (J2)	Part II Tier 3 - Step (J3)

-9,864	-19,773	-39,637

Figure D.7
EPA Worksheet For Determining Planning Volume For Response Resources

Part I Background Information

Step (A) Calculate Worst Case Discharge in Barrels

600,000

Step (B) Oil Group ....

2

Step (C) Geographic Area (chose one) .... X Nearshore/Inland or Great Lakes _____ River and Canals

Step (D) Percentages of Oil

% Lost to Natural Dissipation (D1)	% Recovered Floating Oil (D2)	% Offshore (D3)
50	50	30

Step (E1) On-Water Recovery Step (D2) x Step (A)

300,000

Step (E2) On-Shore Recovery Step (D3) x Step (A)

180,000

Step (F) Emulsification Factor (Table 3) ....

1.8

Step (G) On-Water Recovery Resources Mobilization Factor (Table 4) ....

Tier 1 (G1)	Tier 2 (G2)	Tier 3 (G3)
0.15	0.25	0.40

* Facilities storing multiple groups of oil should prepare a separate worksheet for each group.

FIGURE D.7, CONTINUED

EPA WORKSHEET FOR DETERMINING PLANNING VOLUME FOR RESPONSE RESOURCES

Part II On-Water Recovery Capacity (barrels/day)

Tier 1 Steps (E1) x (F) x (G1)	Tier 2 Steps (E1) x (F) x (G2)	Tier 3 Steps (E1) x (F) x (G3)
81,000	135,000	216,000

Part III Shoreline Cleanup Volume (barrels/day) ....

324,000

Step (E2) x Step (F)

Part IV Response Capacity by Geographic Area (Table 5 - 1998 Standards)
(amount needed to be contracted for in barrels/days)

Tier 1 (J1)	Tier 2 (J2)	Tier 3 (J3)
10,000	20,000	40,000

Part V Amount Needed to be Identified, but not Contracted for in Advance (barrels/day)

Tier 1 Part II Tier I - Step (J1)	Tier 2 Part II Tier 2 - Step (J2)	Tier 3 Part II Tier 3 - Step (J3)

NOTES:

1. Tesoro has a Primary Response Contractor (PRC) with response resource capable of meeting shoreline cleanup standards. These resources can be referenced on the WRRL and/or in PRC applications for MSRC. Also available are resources through MSRC contracts with Global, Cowlitz Clean Sweep, and NWFF Environmental.
2. MSRC's OSRO classification meeting the requirements for WAC 173-182-520 and 33 C.F.R. 154 Appendix C. OSRO classification can be found at https://cgrri.uscg.mil/UserReports/WebClassificationReport.aspx

79,000	128,500	197,600

Figure D.8
Worksheet For Calculating Worst Case Discharge

A. USCG PORTION OF FACILITY (TRANSPORTATION-RELATED) – MARINE TERMINAL

The worst case discharge as defined by 33 CFR 154, is the discharge from all piping carrying oil between the marine transfer manifold and the non-transportation-related portion of the facility. The worst case discharge is based on a catastrophic failure of the 16-inch lines while unloading Alaskan North Slope Crude oil (Group II Oil). For this facility, this volume is calculated as noted below. Oil spill response equipment available to respond to this spill is included in **SECTION 7** and **FIGURE B.2**.

- Worst case discharge = [(maximum time to discover + maximum time to shutdown flow) x maximum flow rate] + piping capacity = **5,045 barrels**
- Average most probable discharge
- The average most probable discharge (AMPD) is defined by 33 CFR 154 as the lesser of 50 barrels or 1% of the worst case discharge. One percent of the worst case discharge is approximately 51 barrels, therefore, the average most probable discharge is 50 barrels.
- Maximum most probable discharge

The maximum most probable discharge (MMPD) is defined by 33 CFR 154 as the discharge of the lesser of 1,200 barrels or 10% of the volume of the worst case discharge. Ten percent of the worst case discharge is approximately 504 barrels, therefore, the maximum most probable discharge is 1,200 barrels.

FIGURE D.8, CONTINUED

WORKSHEET FOR CALCULATING WORST CASE DISCHARGE

B. EPA PORTION OF FACILITY (NON-TRANSPORTATION-RELATED)

All tanks at the Refinery are provided with adequate secondary containment and none are permanently manifold together. Therefore, the worst case discharge for the EPA portion of the facility, as defined in 40 CFR 112 Part A, for a multiple tank facility, as the volume of the largest tank at the facility. The safe-fill capacity of the largest above ground storage tank (Tank 165 or 166) is 600,000 barrels or 27,720,000 gallons.

EPA defines a "small spill" as less than 50 barrels and a "medium spill" as greater than 50 barrels and less than 36,000 gallons (857 barrels) or ten percent of the largest tank.

While this volume has been calculated for planning purposes, it is doubtful that even a catastrophic release would result in the loss of the entire WCD planning volume to water or adjacent land areas.

D.9 OFF-SITE CONSEQUENCES/RESOURCES AT RISK

D.9.1 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.9.2 Site Conditions

The Refinery and Wharf are situated on Fidalgo Island near Anacortes, Washington.

- The Refinery is located adjacent to Fidalgo Bay, a tidally influenced bay connected to Guemes Channel and Padilla Bay.
- The Wharf is located approximately 3,100 feet north of the Refinery.

The area surrounding the facility is primarily undeveloped. The shorelines of Fidalgo Bay consist primarily of sandy gravel beaches. **FIGURE 1.4** is a location map showing the facility. Plot plans of the facility are shown in **FIGURES 1.5, 1.6** and **1.7**. Response maps which cover the area may be found in the Northwest ACP.

D.9.3 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 Anacortes area include:

- Typically mild temperatures and prevailing winds from the south – southeast.
- Wind speeds average 5 – 7 knots.
- Seasonal rains occur during the fall and winter months (October – March); with the summer months being very dry.

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. **FIGURE D.9** provides various published climatic information for the Anacortes, Washington area. This information is helpful when conducting long range planning activities in the unlikely event of a major spill.

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.

The tidally influenced bay experiences two high tides and two low tides daily. The range of tidal fluctuation can reach an extreme of approximately thirteen feet, but are variable and typically less. Tidal currents are weak and variable in Fidalgo Bay, except during times of extreme tidal fluctuations. Tidal currents in Guemes Channel can exceed two knots during extreme conditions.

D.9.4 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:

- NOAA Tidal Current Tables for Guemes Channel and Padilla Bay.
- Past experience with oil spills in Fidalgo bay.
- The prevailing 5 – 7 knot wind.

D.9.5 Trajectory Analysis

Oil slicks move as a result of wind and water currents. For the Refinery tidal currents and winds are both contributing factors.

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 lack of available information on tidal currents in Fidalgo Bay 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 identified for the response area by referencing the NWACP Geographical Response Plan (**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.

D.9.6 Circulation

The longshore current is defined as the current in the surf zone that flows parallel to the shore in the direction of wave travel resulting from the shoreward motion of water particles due to wave breaking. This current is the major force that moves sand along the beach. Longshore currents flow along the beach in the same general direction that the waves are moving. The current speed is determined by the angle between the breaker crests and the shoreline, as well as wave height.

Water moved onshore by waves does not accumulate indefinitely and a nearshore circulation develops. Nearshore water moves parallel with the beach as a longshore current and returns offshore as a rip current. Rip currents are accompanied by foam lines and discoloration of the water by wave-suspended sediment. They may extend up from 200 to 300 meters seaward on exposed beaches along the Strait of Juan de Fuca but are more commonly much shorter (i.e., less than 50 meters) on the beaches in Puget Sound (Downing 1983).

In major basins and passes of Puget Sound, the swiftest surface currents flow in the channels centers; whereas tidal currents move slowly near shore because of bottom friction. Tidal currents are weak at the heads of most bays; thus these are areas of rapid deposition of mud and organic debris. In contrast, the strong, faster currents and large eddies formed at points of land and narrow passes result in coarse bottom sediments, sand and gravel. The current velocity in Guemes Channel exceeds five knots at times. It is reported that the flood (i.e., east current) is accompanied by and eddy between the east end of Guemes Island and Capsante with the west counter-current extending about 182 meters from shore along the north side of

Fidalgo Island. A graphic summary of the tidal currents in the vicinity of March Point is provided in **FIGURES D.9** and **D.10**.

D.9.7 Bathymetry

Fidalgo and Padilla Bays are both relatively shallow. Depths at March Point range from approximately three meters near shore to approximately 13.7 meters alongside the shell pier. There is a shoal to the south of the pier. Deep passage to the area is via the Guemes Channel, with depths ranging from 13 meters to 33 meters and via the channel east of Guemes Islands, with depths ranging from 11 meters to 79 meters.

Figure D.9
Surface Currents During Ebb Tide

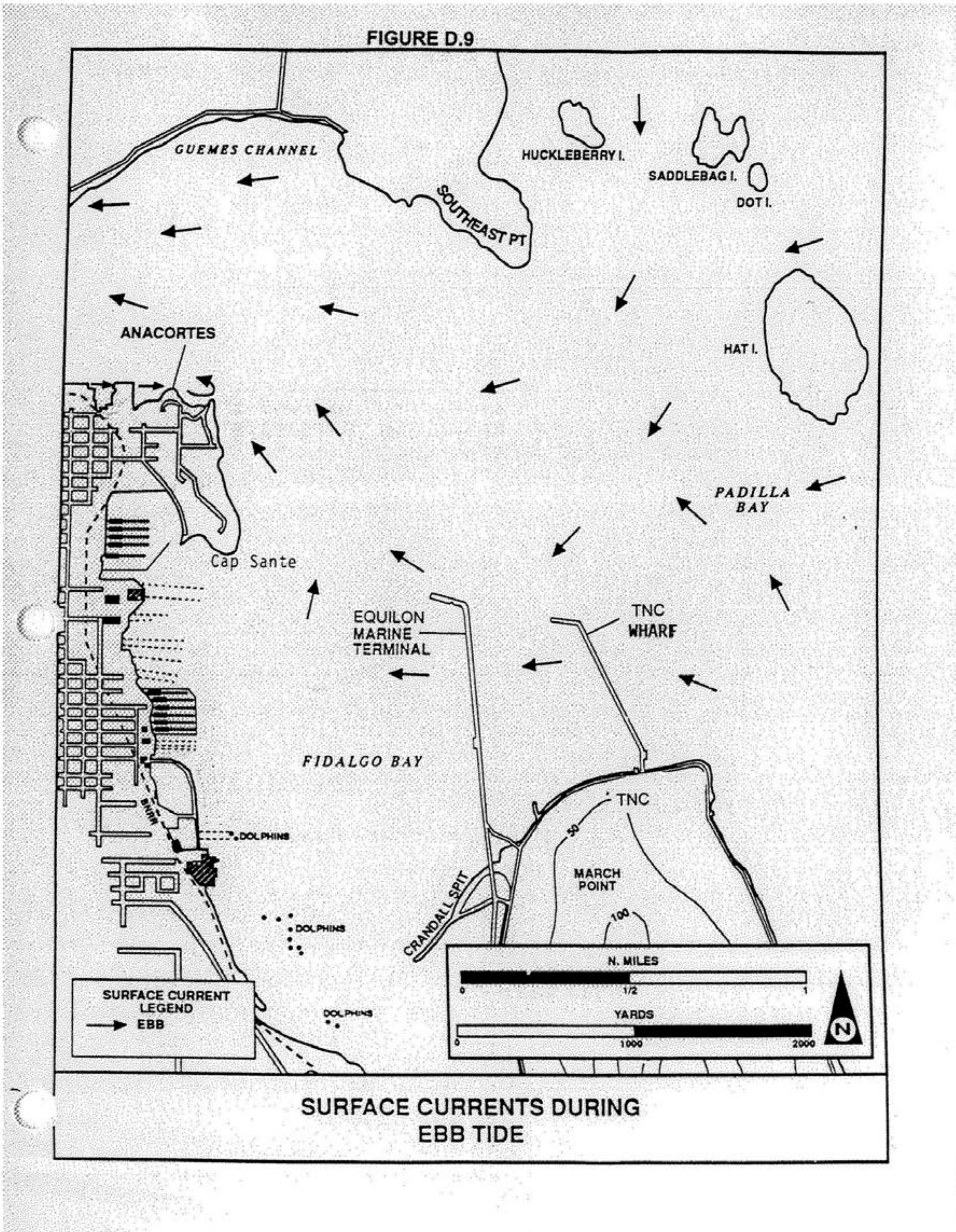
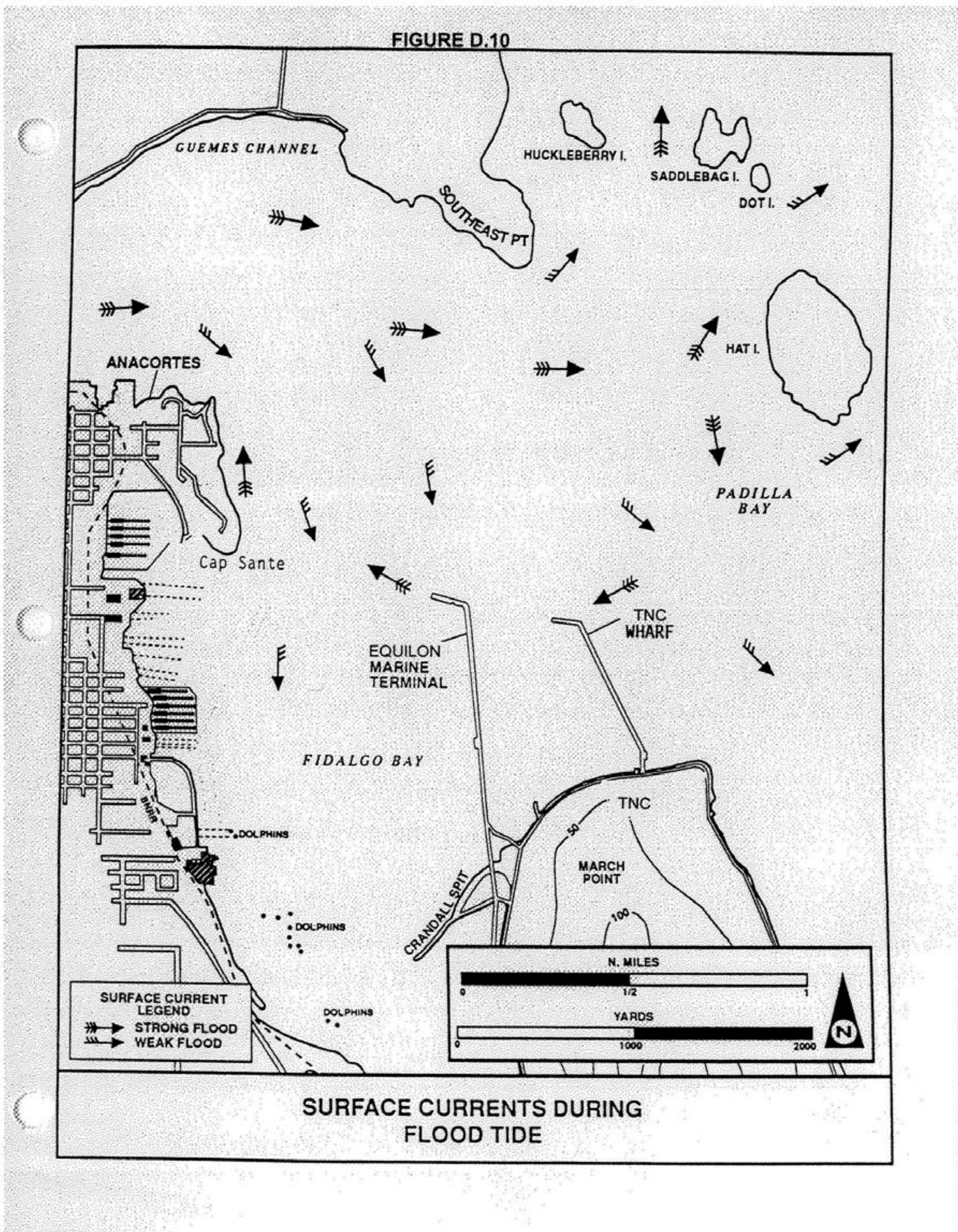


Figure D.10
Surface Currents During Flood Tide



D.9.8 Tidal Current Charts

Tidal current charts are on file at the Refinery. A summary of tidal data is provided in **FIGURE D.11**.

D.9.9 Geographic Boundaries/Spill Trajectory

The Company does not believe that a large spill at the facility will ever go unnoticed or unattended. However, to meet Washington State Regulations, it is assumed there was a free flowing spill from such an unattended release.

To determine the geographical area covered for this trajectory, the following worst case weather conditions are assumed:

- No containment.
- 600,000 bbls spilled.
- North Slope Crude.
- 55º F water.
- 5-7 knot winds.
- Wind direction of North and Southeast were modeled.
- Annual tidal extremes utilized (total travel of ebb 11.35’ & flood 11.87’)

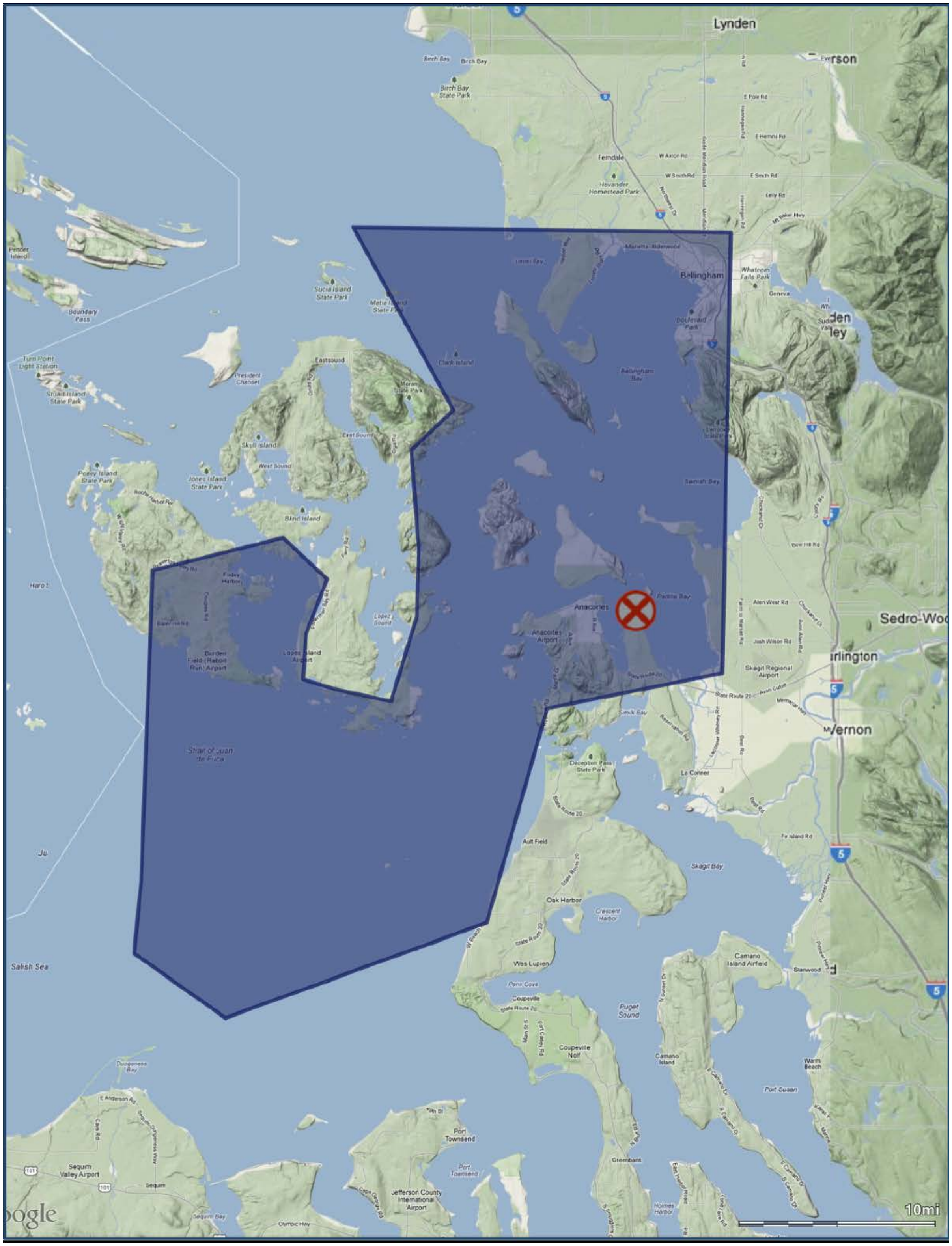
Trajectory depicted in **FIGURE D.12**.

Wind speeds were selected that were average for the period, and yet were not so high that the oil immediately beached without further spreading. With the wind speeds used for this model, approximately 25% of the slick would emulsify or evaporate over a 24 hour period.

Figure D.11
Tidal Data For Anacortes-Skagit Bay Area

Place		Height to Datum of Soundings (MLLW)			
Name	**(Lat/Long)**	**Mean Higher High Water (Feet)**	**Mean High Water (Feet)**	**Mean Low Water (Feet)**	**Extreme Low Water (Feet)**
Yokeko Point	(48^{0}25'N/122^{0}37'W)	10.5	9.5	2.6	-4.5
Reservation Bay	(48^{0}25'N/122^{0}40'W)	7.6	7.0	2.5	-4.5
Anacortes	(48^{0}31'N/122^{0}37'W)	8.2	7.4	2.6	-4.5
Entr., Padilla Bay	(48^{0}28'N/122^{0}31'W)	8.4	7.7	2.6	-4.5

Figure D.12
48 Hour Spill Trajectory

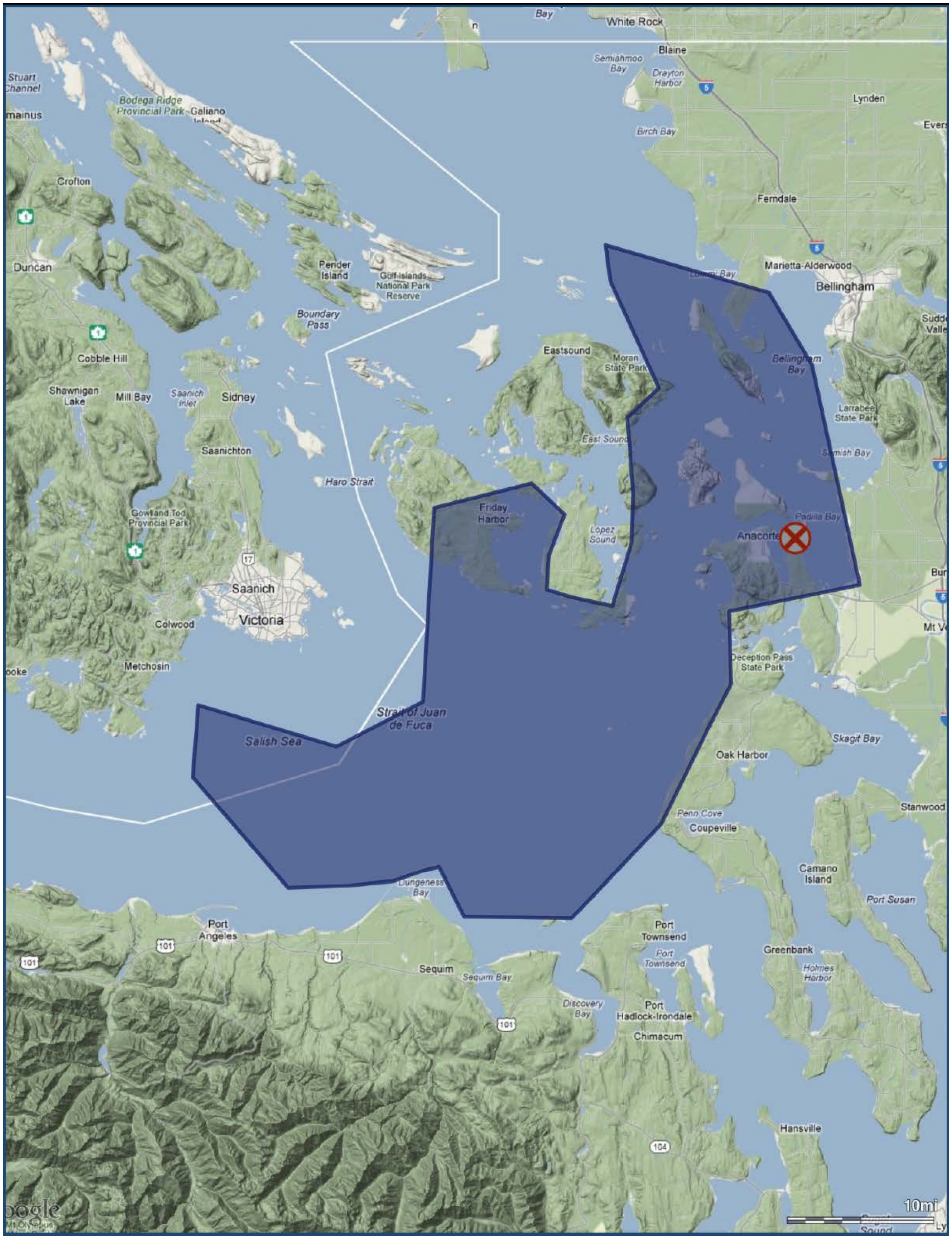


The geographic area of potential impact from an incident originating in Anacortes, Washington within 48 hours of release is the northern waters of the State of Washington in Skagit County, Whatcom County, Island County and San Juan County consisting of the following:

- Padilla Bay Sanctuary
- Fidalgo Bay (commercial crabbing, fishing, pleasure and commercial boating, Fidalgo Battered, Cap Sanae Marina, Anacortes Marina)
- Guemes Channel (ferry service to island, residential community, state park, Dakota Creek Shipyard, Port of Anacortes, marinas)
- Bellingham Channel (Pleasure and commercial boating and fishing)
- Samish Bay (commercial cultivated oyster beds, residential community)
- Bellingham Bay (Industrial and Marinas, pleasure and commercial boating and fishing)
- Rosario Strait (commercial shipping lanes, commercial and sports fishing)
- Southern Strait of Georgia (commercial shipping lanes, commercial and sports fishing)
- Lummi Bay (residential community, tribal reservation)
- Lummi Island (residential community, tribal reservation)
- San Juan Channel
- Southern Haro Strait
- Eastern Strait of Juan de Fuca (commercial shipping lanes, commercial and sports fishing)
- San Juan Islands (ferry service to island, residential community, state park, commercial and sports fishing)
- Smith Island
- Whidbey Island (ferry service to island, residential community, state park, commercial and sports fishing)
- Dungeness Bay
- Admiralty Inlet

It is not anticipated that an incident originating in Anacortes, WA would impact British Columbia, Canada within 48 hours.

Figure D.13
72 Hour Spill Trajectory



For average weather conditions, a slick will move 6.3 nautical miles per flood cycle at 094o (SE). During the ebb cycle a slick will move 13.65 nautical miles at 6 254o (W/SW). During a worst case weather, the effects of high winds will override current conditions. Prevailing wind directions will create largely different trajectories, however, during gale force wind; impacts of a spill would be to any opposite shoreline.

The Company has chosen the geographic boundaries of this plan to include Fidalgo Bay, Padilla Bay, Bellingham Channel, Guemes Channel, and Rosario Strait because those areas may be affected by the leading edge of a worst case discharge from the facility, given worst case weather conditions. In addition, the EPA requires that for “Oil Transport on Tidal-Influence Areas,” the planning distance method for non-persistent oils if five (5) miles and for persistent oils, fifteen (15) miles.

EPA (Tidal Influence) 15 Mile Downstream Potential Impact Areas:

- Spill Trajectory (South/South East) through Swinomish Channel
    1. Padilla Bay Sanctuary
    2. Swinomish Tribal Casino and Bingo Hall (SR520 and Swinomish Channel)
    3. Dunlap Towing (LaConner log yard)
    4. Port of Skagit County (LaConner Marina)
    5. City of Laconner (pop. 720)
    6. Skagit River Mouth (tribal and sportsman fishing)
    7. Shelter Bay Community and Marina (pop. 1500)
    8. Skagit Bay (Aqua-Culture fish farming Kiket Island, and pleasure boating)
    9. Similk Bay (commercial cultivated oyster beds)
    10. Coronet Bay Marina (commercial and pleasure boating)
    11. Deception Pass State Park
- Spill Trajectory (North/North East) Padilla Bay / Samish Bay / Bellingham Bay
    1. Padilla Bay Sanctuary
    2. South and East Guemes Island (residential community, state park, ferry service)
    3. Hat Island (uninhabited, recreational boating)
    4. Saddle Bag Island (uninhabited, recreational boating)
    5. Vendovi Island
    6. Sinclair Island
    7. Jack Island
    8. Samish Island and Samish Bay (commercial cultivated oyster beds, residential community)
    9. Chuckanut Bay
    10. Larabee State Park
    11. Bellingham Bay (Industrial and Marinas, pleasure and commercial boating and fishing)
    12. City of Bellingham (pop. 59,000)
    13. Eliza Island (residential community)

14. Lummi Island (residential community, tribal reservation)
15. Portage Island

- Spill Trajectory North/North West to West/South West, Guemes Channel, Bellingham Bay, Rosario Strait
    1. Guemes Channel (ferry service to island, residential community, state park, Dakota Creek Shipyard, Port of Anacortes, marinas)
    2. Fidalgo Bay (commercial crabbing, fishing, pleasure and commercial boating, Fidalgo Battered, Cap Sanae Marina, Anacortes Marina)
    3. West Guemes Channel (Washington State Ferries, Chignon Point Biological Research Center (i.e. water intake, Sunset Beach State Park)
    4. City of Anacortes (pop. 125,000) (light commercial, residential)
    5. Skyline Marina (pleasure boating)
    6. Burrows and Allen Island
    7. Burrows Bay (commercial and sport fishing)
    8. Rosario Strait (commercial shipping lanes, commercial and sports fishing)
    9. East Lopez Island (residential community, sports fishing and boating)
    10. Decatur island (residential community, sports fishing and boating)
    11. James Island (residential community, sports fishing and boating)
    12. Blakely Island (residential community, sports fishing and boating)
    13. East Orcas Island (residential community, sports fishing and boating, vacation resort)
    14. Cypress Island (residential community, sports fishing and boating, Aqua-Culture-fish farming)
    15. Guemes Channel to Thatcher Pass (Washington State Ferry Traffic Route)

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APPENDIX E RESPONSE TECHNIQUES AND GUIDELINES

E.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 E.1**. Specific shoreline protection and cleanup measures, for areas possibly impacted by a potential spill from the Facility, are discussed in this subsection. **FIGURE E.2** provides information on shoreline protection methods. **FIGURE E.3** lists various response options available for different shoreline environments. Additional information may be obtained from the Northwest Area Contingency Plan.

E.2 SHORELINE AND TERRESTRIAL CLEANUP

E.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, and
- 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.

Several shoreline and terrestrial cleanup techniques have been developed that include both intrusive and non-intrusive methods. A summary of these techniques is included in **FIGURE E.4, E.5** and **E.6**.

Implementation diagrams for most techniques are provided in **FIGURE E.5**.

Figure E.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 30° 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.

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.

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.

TYPES	ESI #	DESCRIPTION	PREDICTED OIL IMPACT	RECOMMENDED CLEANUP ACTIVITY
Rip Rap	6B	• Rip rap structures are composed of cobble to boulder-size rocks. • Rip rap structures are placed for shoreline protection and inlet stabilization. • Biota on the rip rap may be plentiful and varied.	• On rip rap 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 rip rap and replace it.
Exposed Tidal Flats	7	• They are composed 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.

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.

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.

Figure E.2
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
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 E.3
Response Options For Oil or Substances With Physical and Chemical Properties Similar to Oil

ENVIRONMENT	PROTECTION					CLEANING/MIXING				REMOVAL/DISPOSAL				ONSHORE DISPERSION				
	DITCHES / DIKES	DISPERSANTS ON WATER	SINKING AGENTS	HERDING / GELLING AGENTS	BOOMS / SKIMMERS	BRACH CLEANING MACHINES	BURING	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		
14.TIDAL INLETS		o		o	+				+									
15.LAGOONS BAYS			#	o	+				+		o							

KEY: + PREFERRED o OPTIONAL x NOT ADVISABLE # AVOID

Figure E.4
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
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

Technique	Description	Primary Logistical Requirements[1]	Use Limitations[2]	Potential Environmental Effects
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-ft perforated header hose per system 1-2 200-ft containment booms per system 1 oil recovery device per system Personnel 6-8 workers per system	• 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-ft hoses and nozzles per system 1-2 200-ft 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
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.	Equipment 1-5 1,200- to 4,000-psi units with hose and spray wand 1-2 100-ft containment booms per unit 1 oil recovery device per unit Personnel 2-4 workers per unit	• 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

Technique	Description	Primary Logistical Requirements[1]	Use Limitations[2]	Potential Environmental Effects
In-situ				
8. Passive Collection	Sorbent/snare booms or other sorbent materials are anchored at the waterline adjacent to heavily oiled areas to contain and recover oil as it leaches from the sediments.	Equipment 1,000-2,000 ft sorbent/snare boom 200-400 stakes or anchor systems Personnel 4-10 workers	• 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.	Equipment 1 tractor fitted with tines, dicer, ripper blades, etc. or 1-4 rototillers or 1 set of hand tools Personnel 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.	Equipment 1-2 fertilizer applicators 1 tilling device if required Personnel 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
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 E.5

Summary Of Shoreline Clean-Up 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 DOE, 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.

E.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:

- 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:

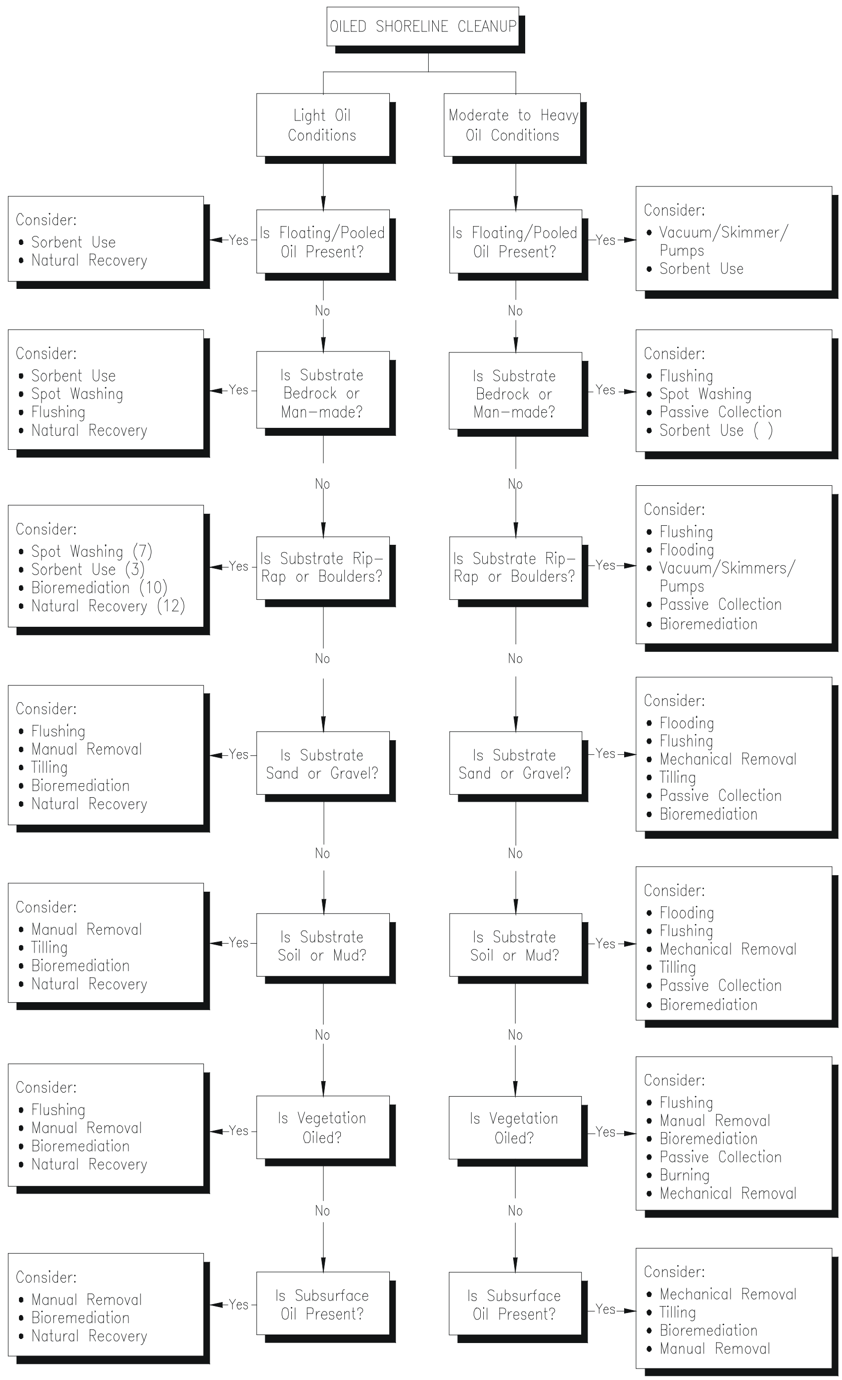
- Substrate type - Finer grained sediments typically require different techniques than coarse grained sediments and sediment type can affect trafficability (i.e., ability to traverse the area without losing traction) for heavy equipment.
- Oil conditions - Heavier oil conditions and larger areas may 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 E.6 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 E.6
Shoreline Cleanup Technique Selection Guide



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APPENDIX F INSPECTION/PREVENTION AND MAINTENANCE

F.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 moving throughout the refinery accomplishing their other tasks, 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. Spills due to tank roof drain hose failures are minimized by preventative measures, such as always manning drainage operations and never opening roof drain valves while a sump pump is operating. Additionally, all tank blocks drain to the Refinery process sewer system.

The Company conducts self-inspections on all tanks, secondary containment units, and response equipment at the Refinery. This section describes procedures and checklists that are followed.

F.2 Inspection, Testing and Maintenance – Storage Tanks

Petroleum storage tanks and transfer equipment, such as pumps and valves, are inspected and tested according to the applicable regulatory requirements and industry standards. Equipment exteriors are inspected on a regular basis. The interior of tanks and pumps are typically inspected during scheduled maintenance activities, when test results indicate a potential problem, or if a leak or malfunction occurs. Integrity testing of tanks and some pipelines is also conducted on a periodic basis and consists of either pressure or non-destructive (ultra-sonic gauging) testing. An operations tank inspection checklist is provided in **FIGURE F.1**.

Storage tanks are hydro tested before a new tank is brought into service or before a tank that has undergone significant repair or modification is brought back into service. Examples of a significant repair are replacement of the floor or addition of new flanged connections. The tank is filled with water and observed for any leakage, especially in the area of the repair(s) or modification(s).

Oil and petroleum product storage tanks are inspected and tested in compliance with the standards provided in API 653, as well as procedures established by the Company. These procedures include both casual and formal inspections. In general, the tank exteriors and surrounding areas are visually inspected whenever oil is transferred in or out of the tank or water is drawn off the bottom. Operations personnel also perform informal inspections (observations) of the tank exteriors during their normal daily activities within the tank farm. The containment dikes are also visually inspected on a quarterly basis for erosion, stability, and adequate protective surface coatings or materials. During the above inspections, any observed conditions that may be considered unsafe or potentially in need of repair will be expeditiously reported to the appropriate supervisor or qualified inspector and recorded in the operating records.

External Inspections

Formal external inspections of storage tanks are conducted by qualified inspectors at intervals not exceeding one-fourth of their remaining life or five years, whichever is less. Tank may be in service during this inspection.

External, in-service ultrasonic gauging (integrity testing) is conducted by qualified inspectors at various intervals based on their corrosion rate and in accordance with API 653, but not exceeding 15 years. Specifically, new tanks are ultrasonically tested five (5) years after being put in service to establish a baseline corrosion rate. If only minimal corrosion is noted, subsequent ultrasonic tests will be scheduled on a maximum of 15-year interval until the corrosion rate increases, at which time the interval will be shortened accordingly. If the rate is unknown or inconsistent, ultrasonic testing intervals will be conducted at a maximum interval of five (5) years. An inspection schedule is maintained by the Inspection and Testing Department and updated after each inspection with the updates based on the associated findings.

All nozzles and some representative sections of the shell and the roof are B-scanned (ultrasonic thickness measurement) during external inspections.

Internal Inspections

Internal inspection and ultrasonic testing are conducted by qualified personnel at intervals based upon corrosion rates and experience with similar service histories, in accordance with API 653 but not exceeding 20 years. Operators do a walk-around Inspection of the tanks once a month. Preventative maintenance on storage tanks includes maintaining the exterior paint in good condition to minimize external corrosion of shell and roof. The floor of the tanks are B-scanned during internal inspection.

Tank Roofs

Inspection of internal and external floating roofs for apparent condition of pontoons, seals, shoes, anti-rotation devices, sumps, drains, electrical grounds, shell wear and grooving, internal stairways, etc. are performed by qualified individuals and at intervals based on the product stored, past inspections, tank age and condition, and other individual variables.

The intervals are also based on past experience that will assure proper maintenance and safe operations.

Whenever the internal or external inspections or testing indicate a change from the tank's original condition, an evaluation of its suitability for continued service is made by competent personnel and documented in accordance with API 653. This evaluation is also conducted when making decisions concerning repairs, alterations, dismantling, relocating, or reconstructing any existing tank. For example, in the event that the ultrasonic testing suggests that an area of a tank has reached the minimum shell thickness, an evaluation will be made as to whether that section of the tank will be repaired, replaced or for widespread damage, if the entire tank will be replaced or decommissioned. The evaluation will be based primarily on ensuring that the tank can be maintained within the original design specifications and on various economic factors.

F.2.1 Inspection, Testing and Maintenance – Pipelines

Inspection and testing of pipelines at the Facility vary considerably depending on the location and service of the pipeline. The inspection and testing program focuses on those areas where the consequences of a spill would be greatest, but are designed to comply with, at a minimum, U.S. Coast Guard (USCG), Washington Department of Ecology (Ecology), and API requirements and guidelines.

Because of the immediate proximity to the water, the oil pipelines that carry feedstocks and products to and from the wharf over water are given the most attention. These lines run along the 0.6 mile causeway that connects the wharf to the rest of the refinery.

These lines are inspected annually by the U.S. Coast Guard. They are pressure tested annually. They are tested with product at a pressure of 1.5 times the operating pressure (tested at 225 psi) for duration of approximately two hours. During this time, a qualified inspector observes the entire line including flanges and valves to detect ant leakage. Prior to testing, all flanges and valves are wrapped in plastic which is fastened with duct tape. Pipelines running over and are not routinely pressure tested. These lines are B-scanned annually at numerous locations to detection possible internal corrosion. The lines are observed by operators and inspectors as they move down the causeway to the wharf.

Pipelines within the refinery fence line, including those from the tanks to the wharf causeway, those between the production units, etc. are within the refinery drainage system. They are subject to casual inspection every day due to general traffic through the refinery by operators, inspectors, etc. Periodically, more thorough external inspections are conducted and wall thickness is measured in selected spots to detect internal corrosion. Measurements are made at the same locations over time to detect longer-term trends and plan repair and/or replacement.

Valves and flanges are integral parts of any pipeline and are inspected during observation of the surrounding pipes. Pipelines are kept painted (or coated) to help prevent external corrosion. Nearly all pipelines carrying oil are above ground. Whenever any underground piping is exposed, it is examined and repaired if necessary.

- Pipelines are pressure testing annually per USCG requirements at 1.5 times the maximum allowable working pressure (MAWP) and duration of 20 minutes.
- Pipelines are ultrasonically tested every three (3) years for above ground sections and every five (5) years (ultrasonic or radiographic at three 10-ft long locations) for underground sections.
- Relief valves are pressure-tested periodically at maximum pipeline working pressure.
- Loading arms are hydrostatically pressure-tested on an annual basis per USCG requirements at 1.5 times the MAWP for a duration of 20 minutes.
- Loading arms are inspected and tested semi-annually for proper mechanical operation by the refinery machine shop.

Cargo hoses are owned by the individual barge operators and the Company requires that the operators test these hoses annually per USCG requirements.

Pipelines between the Blending Plant and the storage tanks are generally not tested on a routine basis. If significant repairs are done to any of these lines or if a section line is replaced, the line will be pressure-tested prior to being placed in service. Similarly, all new pipeline installation will be pressure-tested prior to being placed in service.

In the event that the ultrasonic or radiographic testing indicates a portion of the pipeline is at, or near, the minimum thickness, a decision will be made on whether to repair or replace the section of line. The decision will be based on the extent of the corrosion damage and economics of each option.

F.3 Inspection, Testing and Maintenance – Transfer Operations

Crude oil is received and oil products are distributed in three ways:

- Marine loading at the wharf,
- Two pipelines, and
- Tank truck loading.

Inspections fall into three categories:

- Wharf hoses and marine loading arms,
- Wharf structure, and
- Miscellaneous pumps, piping, valves, sumps, etc.

Marine Loading at the Wharf

The three (3) marine loading arms (MLAs) are pressure tested annually with water instead of product in the same manner as the rest of the over-water piping.

The wharf oil suction and discharge hoses are subjected to the following inspection and testing:

1. All newly acquired hoses are hydro-tested and vacuum tested before first use.

2. All hoses are hydro-tested and vacuum tested annually.

3. All hoses and flanges are visually inspected for internal damage prior to each transfer by the wharf operator.

4. All hoses are X-rayed annually on both ends and near the middle.

Elongation during pressure testing is also checked and compared to replacement criteria. As an extra precaution, hoses are replaced after 12 years of service even if no defects are found during inspection.

The integrity of the causeway and wharf structures is maintained by regular inspection of the pilings and braces. A 10-year inspection schedule is used as a guideline. Pile caps are treated on the same schedule to minimize decay of the caps. A program of wrapping wood pilings with PVC exists to minimize damage by marine borers.

All sumps, piping, etc. on the wharf are covered with grating to facilitate inspection of that equipment by both operators and inspectors.

Automatic shutdown system for the wharf is tested periodically to assure that is operating properly.

Transfer Pipelines

Crude oil is received through Trans Mountain Pipeline and oil products are distributed through Olympic Pipeline. The piping on refinery property that connects storage tanks to these pipelines are inspected and maintained as described here in **APPENDIX F**.

Tank Truck Loading

The loading area is inspected daily for leakage or spills by an operator. An operator evaluates the loading practices of a truck driver on a monthly basis to assure that they comply with safety and spill prevention procedures. Signs at the rack instruct drivers to report any spills, leaks, or equipment failures to the appropriate refinery personnel. A remote video camera transmits a picture of the loading rack to the Main Gate Guard.

F.4 Response Equipment Inspection

Using the Emergency Response Equipment List provided in **FIGURE 7.2** and **FIGURE B.2** of this Plan, response equipment owned by the Company 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 by Operations every six (6) months or immediately after a spill. The Logistics Supervisor will order the supplies and record inspection notes and test results. Equipment records will be kept on file at the Refinery for five (5) years. All inspection Records are available upon request. Consult the Logistics Supervisor for more information.

F.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.

F.6 Inspection and Preventative Maintenance Records

Records are kept and maintained by the Logistics and Inspections Department. The Logistics and Inspection Department maintains an electronic database called SIRS, which contains information on tanks, piping, and vessels and pressure relief valve inspection schedules.

A listing of the records most relevant to oil spill prevention is listed below:

Tanks	• SIRS and electronic equipment schedule • Annual call-up letter • SIRS data • Equipment drawings • SIRS recommendations • Equipment folder
Piping	• SIRS equipment schedule • Equipment drawings • SIRS recommendations
Wharf Hoses	• Electronic equipment schedule • Annual call-up letter • Electronic database

Figure F.1
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 F.2
Monthly Tank Yard Inspections

TEAM 1

REFER TO TANK FARM PROCEDURE #14

MONTH:_________________________

CHECK	TANK NUMBER							
	135	60	4	8	12	16	20	24
ROOF								
GAUGING PLATFORM								
TANK SIDES/BASE								
PIPING								
VALVES								
MOVs								
PSVs								
SAMPLE STATION								
MIXERS								
W.D. BOX								
WALKWAYS/STAIRS								
FIRE WALLS								
OWS VALVE								
ROOF DRAIN								
FIRE WALL DRAIN								
TK YARD DRAINAGE								
STORM DRAINAGE								
H2S PPM								
INSPECTED BY								

REMARKS:____

TEAM 1

REFER TO TANK FARM PROCEDURE #14

MONTH:________________________

CHECK	TANK NUMBER							
	135	60	4	8	12	16	20	24
ROOF								
GAUGING PLATFORM								
TANK SIDES/BASE								
PIPING								
VALVES								
MOVs								
PSVs								
SAMPLE STATION								
MIXERS								
W.D. BOX								
WALKWAYS/STAIRS								
FIRE WALLS								
OWS VALVE								
ROOF DRAIN								
FIRE WALL DRAIN								
TK YARD DRAINAGE								
STORM DRAINAGE								
H2S PPM								
INSPECTED BY								

REMARKS:____

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____

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Figure F.3
Anacortes, WA Facility Inspection Cross Reference

Marine Loading Dock	Cross-Reference Manual/File
Dock structure inspection/evaluation	Inspection Procedure: I-13.02
Above and underwater structural inspections	Inspection Procedure: I-13.02
Structural repair and maintenance program	Inspection Procedure: I-13.02
Structural analysis under normal and seismic loadings	Drawing Control files
Remedial measures implemented as the results of dock inspections, incidents or seismic analysis	Inspection Procedure: I-13.02

Oil Handling Equipment	Cross Reference Manual/File
Loading arm inspection protocols, schedules and records	Maint. Files
Loading arm emergency shutdown/release system inspection and maintenance	I&E/Maint. Files
Oil transfer hose inspection, maintenance and replacement	Inspection Procedure: I-13.01
Incidents in last 5 years	Safety Department files
Remedial measures implemented as the results of inspections	Maint. Files

Ancillary Equipment (pumps, gate valves, relief valves, etc.)	Cross Reference Manual/File
Pumps inspection protocol	MA Shop equipment files
Valve inspection protocol	MOP-12 Relief Valves/MOP46 Process Valves
Incidents in last 5 years	Safety Dept. files/Environmental files
Repair and replacement criteria	MA Shop equipment files

Dock Stormwater Water System	Cross Reference Manual/File
Secondary containment areas inspection and maintenance protocols	Maintenance/Operations files
Slop lines and slop tank inspection protocol	Inspection Procedure:I-10.06 (piping) & I-14.01 (tanks)
Slop lines leak detection and slop overfill protection	Safety Department Files
Incidents in last 5 years	

Fire Fighting System	Cross Reference Manual/File
Combustible and flammable gas detector	ERP4
Procedures or systems to minimize static electricity hazards	Grounding Straps/Training Dept. Files
Fire detection system	ERP4/Drawings on EDOC
Fire fighting system employed at dock and tank farm	Sec. 16 Wharf Manual, Sec. 06 TF Manual/ERP4
System and Maintenance protocols	Applicable NFPA Standards

Slope Stability	Cross Reference Manual/File
Assess any potential slop stability problems under normal and seismic loadings that may affect safety oil Transfer operations at your facility	N/A
Remedial measures implemented as a result of assessment/analysis or incidents	

Flooding	Cross Reference Manual/File
Assess any potential flooding problems that may affect safe oil transfer operations at your facility. Remedial measures implemented as a result of assessment/analysis. Other factors or natural hazards that may affect the safe transfer, storage and process of oil at your facility, such as specific equipment and installation issues, weather patterns, surface water conditions	ERP18

Above ground Storage Tanks	Cross Reference Manual/File
Total number of AST's involved in oil transfer operations	48
For each regulated AST:	
List deficiencies identified	Inspection Procedure I-14.01
List repair or renovation work completed	Inspection Procedure I-14.01
Bottom and shell corrosion rates established	Inspection Procedure I-14.01
Inspection table established	Inspection Procedure I-14.01
List AST incidents for the last 5 years	Safety Dept. files/Environ Dept. Files
List remedial measures implemented	Inspection files
Tank overfill protection systems employed	Instrument Engineer/I&E files
Tank bottom corrosion protection system employed	Inspection Procedure: I-08.04 & I-14.01
Seismic loadings on tank assessed/evaluated	Drawing Control files
Tank leak detection system employed	Inspection Procedure: I-14.01
Remedial measures implemented the results of seismic analysis, inspections	Inspection files

Transfer Pipelines	Cross Reference Manual/File
List transfer pipeline deficiencies identified per API 570, if any	Inspection Procedure: I-10.06
Identify pipeline inspection technologies employed	Inspection Procedure: I-10.07
TML's for monitoring pipeline external/internal corrosion rates	Inspection Procedure: I-10.08
External and internal corrosion rates established	Inspection Procedure: I-10.09
Inspection schedules and operating pressure established	Inspection Procedure: I-10.10
Inspection/Maintenance schedule (external coating, cathodic protection systems)	Inspection Procedure I-10.11
Equipment repair/replacement criteria	Inspection Procedure: I-10.12
Piping support inspections, maintenance and repair	Eng./Insp./Maint. Files
Capability and limitations of the pipeline leak detection system employed	Instrument Engineer/I&E Files
List transfer pipeline incidents for last 5 years	Environmental Files
Seismic loading on pipelines incidents for last 5 years	N/A
Remedial measures implemented as the results of seismic evaluation, inspection or incidents	Maintenance files

Secondary Containment System	Cross Reference Manual/File
Type and capacity of the secondary containment system	Drawing Control files
Permeability of the containment floor	Drawing Control/Environ. Files
Depth to ground water	Drawing Control/Environ Files
Inspection and maintenance program	Maintenance/Operations Dike Spray Program files
Evaluate slope stability/structure integrity of the containment dike/wall seismic loadings	N/A
Incidents in the last 5 years	Safety Dept. files
Remedial measures implemented as the results of seismic evaluation, inspection or incidents	N/A

APPENDIX G ACRONYMS AND DEFINITIONS

G.1 ACRONYMS

AC .... Area Committee
ACI .... Alaska Cook Inlet Crude Oil
ACOE .... U.S. Army Corps of Engineers
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
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)
CHEMTREC .... Chemical Transportation Emergency Center
CHRIS .... Chemical Hazards Response Information System
CIN .... Community Information Line
CMA .... Chemical Manufacturers Association
CO .... Commanding Officer (USCG)
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
CRO .... Central Regional Office
CWA .... Clean Water Act of 1977 (Federal)
CWS .... Community Warning System
DCO .... Discharge Clean-Up Organization
DLI .... Department of Labor & Industries
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 Inter-functional Response Team
EOC	Emergency Operations Center
EPA	U. S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
EQ	Environmental Quality
ERAP	Emergency Response Action Plan
ERC	Emergency Response Coordinator
ERO	Eastern Regional Office
ERT	Emergency Response Team
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
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
LCP....Local Oil and Hazardous Substances Contingency Plan
LEL....Lower Explosive Limit
LEPC....Local Emergency Planning Commission
LEPD....Local Emergency Planning District
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
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
NIIMS....National Interagency 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)
NVIC....Navigation and Vessel Inspection Circular
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 (USDL)
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
PSRC .... Puget Sound Refining Company
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
SCAT .... Shoreline Cleanup Assessment Team
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
SUPSALV .... U. S. Navy Supervisor of Salvage
TARC .... Tiered Area Response Consortium
TAT .... Tactical Assist Team (EPA)
TEAP .... Transportation Emergency Action Plan

TIMP .... Tesoro Incident Management Plan
TNC .... Tesoro Northwest Company
TWCC .... Tesoro West Coast Company
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)
USHHS .... U. S. Department of Health & Human Services
USMC .... U.S. Marine Corps
USN .... U. S. Navy
USPHS .... U.S. Public Health Service
VRP .... Vessel Response Plan
VTS .... Vessel Traffic System
WAC .... Washington Administrative Code
WCD .... Worst Case Discharge
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

G.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 (2100 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).

Clean-Up - For the purposes of this document, clean-up refers to the removal and/or treatment of oil, hazardous substances, and/or the waste or contaminated materials generated by the incident. Clean-up includes restoration of the site and its natural resources.

Clean-Up Contractor - Persons contracted to undertake a response action to contain and clean up a spill.

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 utilized during response operations to maintain communication between employees, contractors, Federal/State/Local agencies. (Radio/telephone equipment and links).

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 - Any spilling, leaking, pumping, pouring, emitting, emptying, or dumping.

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.

Estuary - Unique environment at the mouth of coastal rivers where fresh water and sea water meet, providing important habitat for marine life, birds, and other wildlife.

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.

Great Lakes - Lakes Superior, Michigan, Huron, Erie, and Ontario, their connecting and tributary waters, the Saint Lawrence River as far as Saint Regis, and adjacent port areas.

Handle - To transfer, transport, pump, treat, process, store, dispose of, drill for, or produce.

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 designed as such by the Administrator of EPA pursuant to the **Comprehensive Environmental Response, Compensation, and Liability Act**; regulated pursuant to Section 311 of the **Federal Water Pollution Control Act**.

Hazardous Waste - Any solid waste identified or listed as a hazardous waste by the Administrator of the EPA pursuant to the federal **Solid Waste Disposal Act**, as amended by the **Resources Conservation and Recovery Act** (RCRA), 42 U.S.C., Section 6901, et seq as amended. The EPA Administrator has identified the characteristics of hazardous wastes and listed certain wastes as hazardous in Title 40 of the **Code of Federal Regulations**, Part 261, Subparts C and D respectively.

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.

Immediate Response Steps - The immediate steps that are to be taken by the spill observer after detection of a spill.

Incident - Any event that results in the spill or release of oil or hazardous materials. Action by emergency service personnel may be required to prevent or minimize loss of life or damage to property an/or natural resources.

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).

Initial Notification - The process of notifying necessary company personnel and Federal/State/Local agencies that a spill has occurred, including all pertinent available information surrounding the incident.

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 Agency - The government agency that assumes the lead for directing response.

Lead Federal Agency - The agency which coordinates the federal response to incidents on navigable waters. The lead Federal agencies are:

- U. S. Coast Guard (USCG): Oil and chemically hazardous materials incidents on navigable waters.
- 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.

Marinas - Small harbors with docks, services, etc. for pleasure craft.

Marine Facility - Any facility used for tank vessel wharf age or anchorage, including any equipment used for the purpose of handling or transferring oil in bulk to or from a tank vessel.

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.

Natural Resource - Land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources belonging to, managed by, held in trust by, appertaining to or otherwise controlled by the State, Federal government, private parties, or a municipality.

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 340°C (645°F); and
- At least 95% of which volume, distill at a temperature of 370°C (700°F).

Non-Petroleum Oil - Oil of any kind that is not petroleum-based. It includes, but is not limited to, animal and vegetable oils.

Ocean - The offshore area and nearshore area as defined in the Appendix.

Offshore Area - The area beyond 12 nautical miles measured from the boundary lines defined in 46 CFR Part 7 extending seaward to 50 nautical miles, except in the Gulf of Mexico. In the Gulf of Mexico it is the area beyond 12 nautical miles of the line of demarcation (COLREG lines) defined in '80-740 - 80.850 of Title 33 of the CFR extending seaward to 50 nautical miles.

Oil or Oils - Naturally occurring liquid hydrocarbons at atmospheric temperature and pressure coming from the earth, including condensate and natural gasoline, and any fractionation thereof, including, but not limited to, crude oil, petroleum gasoline, fuel oil diesel oil, oil sludge, oil refuse, and oil mixed with wastes other than dredged spoil. Oil does not include any substance listed in Table 302.4 of 40 CFR Part 302 adopted August 14, 1989, under Section 101(14) of the Federal Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by P.L. 99-499.

Oil Spill Removal Organization - An entity that provides oil spill response resources, and includes any for profit or not-for-profit contractor, cooperative, or in-house response resources that have been established in a geographic area to provided required response resources.

Oil Spill Response Contractors - Persons/Companies contracted to undertake a response action to contain and/or clean up a spill.

Oily Waste - Oil contaminated waste resulting from an oil spill or oil spill response operations.

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.

Person - Any political subdivision, government agency, municipality, industry, public or private corporation, co-partnership, association, firm, individual, or any other entity whatsoever.

Persistent Oil - 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.

Plan - Oil spill response, clean-up, and disposal contingency plan.

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.

Recreational Areas - Publicly accessible locations where social/sporting events take place.

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.

Regulated Vessel - A vessel with a capacity to carry 10,000 U.S. gallons or more of oil as fuel or cargo.

Repair - Any work necessary to maintain or restore a tank or related equipment to a condition suitable for safe operation.

Response Activities - The containment and removal of oil from the water and shorelines, the temporary storage and disposal of recovered oil, or the taking of other actions as necessary to minimize or mitigate damage to the environment.

Response Contractors - Persons/companies contracted to undertake a response action to contain and/or clean up a spill.

Response Guidelines - Guidelines for initial response that are based on the types of product involved in the spill, these guidelines are utilized to determine clean-up methods and equipment.

Response Resources - The personnel, equipment, supplies, and other capability necessary to perform the response activities identified in a response plan.

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.

Restoration - The actions involved in returning a site to its former condition.

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.

Ship - Any boat, ship, vessel, barge, or other floating craft of any kind.

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.

Spill Observer - The first company individual who discovers an oil spill. This individual must function as the responsible person-in-charge until relieved by an authorized supervisor.

Spill Response - All actions taken in responding to spills of oil and hazardous materials, i.e., receiving and making notifications; information gathering and technical advisory phone calls; preparation for and travel to and from spill sites; direction of clean-up activities; damage assessments; report writing, enforcement investigations and actions; cost recovery; and program development.

Spill Response Personnel - Federal, State, Local agency, and industry personnel responsible for participating in or otherwise involved in spill response. All spill response personnel will be preapproved on a list maintained in each region.

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.

Volunteers - An individual who donates their services or time without receiving monetary compensation.

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.

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APPENDIX H CROSS REFERENCE

H.1 EPA OPA 90 CROSS-REFERENCE

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
1.0	**Response Plan Cover Sheet (EPA Sec. 2.0)**	Preface
	a. General Information (Sec. 2.1)	Preface
	b. Applicability of Substantial Harm Criteria (Sec. 2.2)	Preface
	c. Certification (Sec. 2.3)	Preface
2.0	**Emergency Response Action Plan (ERAP) (Sec. 1.1)**	
	a. Qualified Individual (QI) Information (Sec. 1.2)	Section 4
	b. Emergency Notification List (Sec. 1.3.1)	Section 3
	c. Spill Response Notification Form (Sec. 1.3.1)	Section 3
	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)	Section 2
	h. Immediate Actions (Sec. 1.7.1)	Section 2
	i. Facility Diagrams (Sec. 1.9)	Section 1
**The sections above should be extracted from the more detailed corresponding sections of the plan.*		
3.0	**Facility Information (Sec. 1.2)**	Section 1
	a. Facility name (Sec. 1.2.1)	Section 1
	b. Street address	Section 1
	c. City, State, Zip	Section 1
	d. County	Section 1
	e. Phone number	Section 1
	f. Latitude/Longitude (Sec. 1.2.2)	Section 1
	g. Wellhead protection area (Sec. 1.2.3)	Section 1
	h. Owner/operator (both names included, if different) (Sec. 1.2.4)	Section 1
	i. QI Information (Sec. 1.2.5) *(Name, position, street address, phone numbers)*	Section 1
	j. Description of specific response training experience	Section 1
	k. Oil storage start-up date (Sec. 1.2.6)	Section 1
	l. Facility operations description (Sec. 1.2.7)	Section 1
	m. Standard Industrial Classification code	Section 1
	n. Dates and types of substantial expansion (Sec. 1.2.8)	Section 1
4.0	**Emergency Response Information (Sec. 1.3)**	
	a. Notification (Sec. 1.3.1)	Section 3

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. Emergency Notification Phone list	Section 3
	b. National Response Center phone number	Section 3
	2. QI (day and evening) phone numbers	Section3
	3. Company response team (day and evening) phone numbers	Section 3
	4. Federal On-Scene Coordinator (OSC) and/or Regional response center (day and evening) phone numbers	Section 3
	5. Local response team phone numbers (Fire Department/Cooperatives)	Section 3
	6. Fire marshal (day and evening) phone numbers	Section 3
	7. SERC (day and evening) phone numbers	Section 3
	8. State police phone number	Section 3
	9. LEPC phone number	Section 3
	10. Wastewater treatment facility (s) name and phone number (recommended)	Section 3
	11. Local water supply system (day and evening) phone numbers	Section 3
	12. Weather report phone number	Section 3
	13. Local TV/radio phone number(s) for evacuation notification	Section 3
	14. Hospital phone number	Section 3
	b. Spill Response Notification Form	Section 3
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

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
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
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
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	Section 4
2.	Phone numbers	Section 4
3.	Response time	Section 4

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
	4.	Responsibility	Section 4
	5.	Type and date of response training	Section 4
	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	Section 4
		1.1 Response Time 1.2 Phone/pager	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)**		Section 2
	a.	Facility Evacuation Plan (Sec. 1.3.5.1)	Section 2
	1.	Location of stored materials	Section 2
	2.	Hazard imposed by spilled materials	Section 2
	3.	Spill flow direction	Section 2
	4.	Prevailing wind directions and speed	Section 2
	5.	Water currents, tides, or wave conditions (if applicable)	Section 2
	6.	Arrival route of emergency response personnel and response equipment	Section 2
	7.	Evacuation routes	Section 2
	8.	Alternative routes of evacuation	Section 2
	9.	Transportation of injured personnel to nearest emergency medical facility	Section 2
	10.	Location of alarm/notification systems	Section 2
	11.	Centralized check-in area for roll call	Section 2
	12.	Mitigation command center location	Section 2
	13.	Location of shelter at facility	Section 2
	b.	Community Evacuation Plans referenced (Sec. 1.3.5.3)	Section 2
9.0	**Description of Qualified Individuals Duties (Sec. 1.3.5)**		Section 4
	a.	Activate internal alarms and hazard communication systems	Section 4
	b.	Notify response personnel	Section 4
	c.	Identify character, exact source, amount, and extent of the release	Section 4

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
	d.	Notify and provide information to appropriate Federal, State and Local authorities	Section 4
	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
	f.	Assess possible hazards to human health and the environment	Section 4
	g.	Assess and implement prompt removal actions	Section 4
	h.	Coordinate rescue and response actions	Section 4
	i.	Access company funding to initiate cleanup activities	Section 4
	j.	Direct cleanup activities	Section 4
10.0	**Hazard Evaluation (Sec. 1.4)**		Appendix D
	a.	Hazard Identification (Sec. 1.4.1)	Appendix D
	1.	Tank and Surface Impoundment Forms	Appendix D
	1.1	Tanks	Appendix D
	a.	Tanks Number(s)	Appendix D
	b.	Substance(s) Stored	Appendix D
	c.	Quantity(s) Stored	Appendix D
	d.	Tank Type(s)/Year(s)	Appendix D
	e.	Maximum Capacity(s)	Appendix D
	f.	Failure(s)/Cause(s)	Appendix D
	1.2	Surface Impoundments (SI)	Appendix D
	a.	SI Number(s)	Appendix D
	b.	Substance(s) Stored	Appendix D
	c.	Quantity(s) Stored	Appendix D
	d.	Surface Area(s)/Year(s)	Appendix D
	e.	Maximum Capacity(s)	Appendix D
	f.	Failure(s)/Cause(s)	Appendix D
	2.	Labeled schematic drawing	Section 1
	3.	Description of transfers (loading and unloading) and volume of material	Appendix C
	4.	Description of daily operations	Section 1, Appendix D
	5.	Secondary containment volume	Appendix C
	6.	Normal daily throughput of the facility	Section 1, Appendix D
11.0	**Vulnerability Analysis (Sec. 1.4.2)** (see Appendix A - Calculation of the Planning Distance)		Appendix D
	a.	Analysis of potential effects of an oil spill on vulnerable areas	Appendix D
	1.	Water Intake	Appendix D
	2.	Schools	Appendix D
	3.	Medical facilities	Appendix D
	4.	Residential areas	Appendix D

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. Businesses	Appendix D
	6. Wetlands or other sensitive environments	Appendix D
	7. Fish and wildlife	Appendix D
	8. Lake and streams	Appendix D
	9. Endangered flora and fauna	Appendix D
	10. Recreational areas	Appendix D
	11. Transportation routes (air, land, and water)	Appendix D
	12. Utilities	Appendix D
	13. Other applicable areas	Appendix D
12.0	**Analysis of the Potential for an Oil Spill (Sec. 1.4.3)**	Appendix D
	1. Description of likelihood of release occurring	Appendix D
	a. Oil spill history for the life of the facility	Appendix D
	b. Horizontal range of potential spill	Appendix D
	c. Vulnerability to natural disaster	Appendix D
	d. Tank age	Appendix D
	e. Other factors (e.g., unstable soils, earthquake zones, Karst topography, etc.)	Appendix D
13.0	**Facility Reportable Oil Spill History Description (Sec. 1.4.4)**	Appendix D
	a. Date of discharge(s)	Appendix D
	b. List of discharge causes	Appendix D
	c. Material(s) discharged	Appendix D
	d. Amount of discharges in gallons	Appendix D
	e. Amount that reached navigable waters (if applicable)	Appendix D
	f. Effectiveness and capacity of secondary containment	Appendix D
	g. Clean-up actions taken	Appendix D
	h. Steps taken to reduce possibility of reoccurrence	Appendix D
	i. Total oil storage capacity of tank(s) or impoundment(s) from which material discharged	Appendix D
	j. Enforcement actions	Appendix D
	k. Effectiveness of monitoring equipment	Appendix D
	l. Spill detection	Appendix D
14.0	**Discharge Scenario (Sec. 1.5)**	Appendix D
	Small Discharges (Sec. 1.5.1)	Appendix D
	a. Description of small discharge scenario addressing facility operations and components (Sec. 1.5.1.1)	Appendix D
	1. Loading and unloading operations	Appendix D
	2. Facility maintenance operations	Appendix D
	3. Facility piping	Appendix D
	4. Pumping stations and sumps	Appendix D
	5. Oil storage tanks	Appendix D
	6. Vehicle refueling operations	Appendix D
	7. Age and condition of facility and components	Appendix D

	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
	b. Description of factors affecting response efforts (Sec. 1.5.1.2)	Appendix D
	1. Size of spill	Appendix D
	2. Proximity to downgradient water	Appendix D
	3. Proximity to fish and wildlife and sensitive environments	Appendix D
	4. Likelihood that discharge will travel offsite	Appendix D
	5. Location of material spilled (i.e., on concrete pad or soil)	Appendix D
	6. Material discharged	Appendix D
	7. Weather or aquatic conditions	Appendix D
	8. Available remediation equipment	Appendix D
	9. Probability of a chain reaction or failures	Appendix D
	10. Direction of spill pathway	Appendix D
	Medium Discharge (Sec. 1.5.1)	Appendix D
	c. Description of medium discharge scenario addressing facility operations and components (Sec. 1.5.1.1)	Appendix D
	1. Loading and unloading operations	Appendix D
	2. Facility maintenance operations	Appendix D
	3. Facility piping	Appendix D
	4. Pumping stations and sumps	Appendix D
	5. Oil storage tanks	Appendix D
	6. Vehicle refueling operations	Appendix D
	7. Age and condition of facility and components	Appendix D
	d. Description of factors affecting response efforts (Sec. 1.5.1.2)	Appendix D
	1. Size of spill	Appendix D
	2. Proximity to down gradient water	Appendix D
	3. Proximity to fish and wildlife and sensitive environments	Appendix D
	4. Likelihood that discharge will travel offsite	Appendix D
	5. Likelihood of material spilled (i.e., on concrete pad or soil)	Appendix D
	6. Material discharge	Appendix D
	7. Weather or aquatic conditions	Appendix D
	8. Available remediation equipment	Appendix D
	9. Probability of a chain reaction or failures	Appendix D
	10. Direction of spill pathway	Appendix D
15.0	**Worst Case Discharge (Sec. 1.5.2) (See Appendix A)**	Appendix D
	a. Correct Worst Case Discharge calculation for specific type of facility	Appendix D
	b. Description of worst case discharge scenario	Appendix D
	1. Loading and unloading operations	Appendix D
	2. Facility maintenance operations	Appendix D
	3. Facility piping	Appendix D

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
	4. Pumping stations and sumps	Appendix D
	5. Oil storage tanks	Appendix D
	6. Vehicle refueling operations	Appendix D
	7. Age and condition of facility and components	Appendix D
	c. Description of factors affecting response efforts (Sec. 1.5.1.2)	Appendix D
	1. Size of spill	Appendix D
	2. Proximity to down gradient water	Appendix D
	3. Proximity to fish and wildlife and sensitive environments	Appendix D
	4. Likelihood that discharge will travel offsite	Appendix D
	5. Location of material spilled (i.e., on concrete pad or soil)	Appendix D
	6. Material discharged	Appendix D
	7. Weather or aquatic conditions	Appendix D
	8. Available remediation equipment	Appendix D
	9. Probability of a chain reaction or failures	Appendix D
	10. Direction of spill pathway	Appendix D
16.0	**Discharge Detection Systems (Sec. 1.6)**	Appendix C, Appendix D
	Discharge Detection by Personnel (Sec. 1.6.1)	Appendix C, Appendix D
	a. Description of procedures and personnel for spill detection	Appendix C, Appendix D
	b. Description of facility inspections	Appendix C, Appendix D
	c. Description of initial response actions	Appendix C, Appendix D
	d. Emergency Response Information (referenced)	Appendix C, Appendix D
17.0	**Automated Discharge Detection (Sec. 1.5.2)**	Appendix C, Appendix D
	a. Description of automatic spill detection equipment, including overfill alarms and secondary containment sensors	Appendix C, Appendix D
	b. Description of alarm verification procedures and subsequent actions	Appendix C, Appendix D
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
	b. Description of response actions	Appendix D
	1. Emergency plans for spill response	Appendix D
	2. Additional response training	Appendix D
	3. Additional contracted help	Appendix D
	4. Access to additional response equipment/experts	Appendix D
	5. Ability to implement plan. Including response training and practice drills.	Appendix D
19.0	**Disposal Plan (Sec. 1.7.2)**	Section 7
	a. Description of procedures for recovering, reusing, decontaminating or disposing of materials	Section 7

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. Materials addressed in Disposal Plan (Recovered product, contaminated soil, contaminated equipment and materials, personnel protective equipment, decontamination solutions, absorbents, spent chemicals)	Section 7
	c. Plan prepared in accordance with any Federal, State, and/or Local regulations	Section 7
	d. Plan addresses permits required to transport or disposal of recovered materials	Section 7
20.0	**Containment and Drainage Planning (Sec. 1.7.3)**	Appendix C
	a. Description of containing/controlling a spill through drainage.	Appendix C
	1. Containment volume	Appendix C
	2. Drainage route from oil storage and transfer areas	Appendix C
	3. Construction materials in drainage troughs	Appendix C
	4. Type and number of valves and separators in drainage system	Appendix C
	5. Sump pump capacities	Appendix C
	6. Containment capacities of weirs and booms and their location	Appendix C
	7. Other clean up materials	Appendix C
21.0	**Self-Inspection, Training, and Meeting Logs (Sec. 1.8)**	
	Facility Self-Inspection (Sec. 1.8.1)	Appendix F
	a. Records of tank inspections contained or cross-referenced in plan or maintained electronically	Appendix F
	b. Records of secondary containment inspections contained or cross-referenced in plan or maintained electronically	Appendix F
	c. Equipment Inspection Checklist	Appendix F
	d. Response Equipment Checklist (Sec. 1.8.1.2)	Appendix F
	1. Inventory (item and quantity)	Appendix F
	2. Storage location	Appendix F
	3. Accessibility (time to access and respond)	Appendix F
	4. Operational status/condition	Appendix F
	5. Actual use/testing (last test date and frequency of testing)	Appendix F
	6. Shelf life (present age, expected replacement date)	Appendix F
	e. Response Equipment Inspection Log	Appendix F
	1. Inspection records maintained for 5 years	Appendix F
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

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. 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
	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	Appendix C
	a. Entire facility to scale	Appendix C
	b. Above and below-ground storage tanks	Appendix C
	c. Contents and capacities of bulk oil storage tanks and drum oil storage areas	Appendix C
	d. Process buildings	Appendix C
	e. Transfer areas	Appendix C
	f. Location and capacity of secondary containment systems	Appendix C
	g. Location of hazardous materials	Appendix C
	h. Location of communications and emergency response equipment	Appendix C
	i. Location of electrical equipment that might contain oil	Appendix C
25.0	**Site Drainage Plan Diagram**	
	a. Major sanitary and storm sewers, manholes, and drains	Appendix C
	b. Weirs and shut-off valves	Appendix C
	c. Surface water receiving streams	Appendix C
	d. Firefighting water sources	Appendix C
	e. Other utilities	Appendix C
	g. Response equipment transportation routes	Appendix C
	h. Direction of spill flow from discharge points	Appendix C
26.0	**Site Evacuation Plan Diagram**	
	a. Evacuation routes	Section 2

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
	b. Location of regrouping areas	Section 2
27.0	**Site Security (Sec. 1.10)**	Section 7
	a. Description of facility security (Emergency cut-off locations, enclosures, guards and their duties, lighting, valve and pump locks, pipeline connection caps)	Section 7
28.0	**Acronyms and References**	Appendix G

H.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.	Section 1
2. Facility Directions (Including but not limited to maps, landmarks and river mile that could aid a responder and reviewer).	Section 1
3. Name, address and procedures for contacting the facility's owner or operator on a 24 hour basis.	Section 1
4. Table of contents.	Preface
5. Period when submitted plan does not have to conform to the subpart, a cross index, if appropriate.	Appendix E
6. Record of change(s) to record information on plan updates.	Section 1
b) ***Emergency Response Action Plan***	
1. Notification procedures ☐ Prioritized list of facility response personnel. ☐ Federal, State, or local agencies, as required. ☐ Spill response notification forms to Federal, State, local agencies. Form must state that initial notification must not be delayed by collection of data. ☐ Notification of the National Response Center.	Section 3
2. Facility's spill mitigation procedures ☐ Describe volume and oil groups that would be involved in the following: ☐ Average, maximum and worse discharge from the MTR facility. ☐ Where applicable, the worst case discharge from the non-transportation-related facility. ☐ Prioritized list of procedures and facility personnel (identified by job title). Procedures must address actions to be taken in the event of a discharge, potential discharge, or emergency involving the following equipment and scenarios: ☐ Transfer equipment ☐ Tank overfill or failure ☐ Piping rupture, leak both under pressure and not under pressure ☐ Explosion or fire ☐ Equipment failure ☐ Listing of equipment and the responsibilities of facility personnel to mitigate an average most probable discharge	Section 2, Appendix D
3. Facility's response activities	Section 2
(i) Responsibilities of facility personnel to initiate a response and supervise response resources pending arrival of qualified individuals.	Section 2

USCG OPA 90 REQUIREMENTS (33 CFR 154.1035)	LOCATION IN PLAN
(ii) Responsibilities and authority of the qualified individual and (iii) Alternate as required in ' 154.1026.	Section 2, Section 4
(iii) Apply the following organizational structure to manage response actions: ☐ Command and control ☐ Public information ☐ Safety ☐ Liaison with government agencies ☐ Spill operations ☐ Planning ☐ Logistics support ☐ Finance	Section 4
(iv) Identify oil spill removal organizations and the spill management teams to be capable of providing the following response resources: ☐ Equipment and supplies to meet § 154.1045, 154.1047, as appropriate ☐ Trained personnel for response to be on hand for the first 7 days of the response (iv) ☐ Job descriptions for each spill management team member within the organizational structure in a response action.	Section 7, Appendix B
(v) For mobile facilities in more than one COTP zone, oil spill removal organizations and the spill management teams must be identified from paragraph (3)(iv) and included in each COTP zone.	N/A
(vi) 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.	Section 6
(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 ☐ Describe all response actions anticipated to protect sensitive elements ☐ Contain map or chart that depicts each response action anticipated.	Section 6
(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) ☐ 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.	Appendix D

USCG OPA 90 REQUIREMENTS (33 CFR 154.1035)	LOCATION IN PLAN
☐ Non-persistent oils discharged into non-tidal waters, the distance from the facility reached in 24 hours at maximum current. (Not applicable) ☐ 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.	
c) ***Training and Exercises***	Appendix A
1. Training procedures of the facility owner or operator must meet requirements of § 154.1050.	Appendix A
2. Drill procedures of the facility owner or operator must meet requirements of § 154.1055.	Appendix A
d) ***Plan Review and Update Procedures*** Plan review and update procedures of the facility owner or operator must meet requirements of §154.1065 and any post-discharge review of the plan to evaluate and validate its effectiveness.	Section 1
e) ***Appendices***	
1. Facility-specific information – principal characteristics	Appendix C
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.	Appendix C
ii) Identify sizes, types and number of vessels the facility can transfer oil to or from simultaneously.	Appendix C
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.	Section 1
iv) The oil(s) and hazardous material handled, stored or transported in bulk must be documented and include the following: ☐ Generic/chemical name ☐ Description of appearance and odor ☐ Hazards involved with handling or discharge ☐ Firefighting procedures and extinguishing agents for oil/hazardous materials	Appendix D.6

USCG OPA 90 REQUIREMENTS (33 CFR 154.1035)	LOCATION IN PLAN
2. List of contacts must include primary and alternate personnel, personnel from paragraph (b) (3) (iv), and Federal, state and local officials.	Sections 3 and 4
3. Equipment list and records must include the following: ☐ List of equipment and facility personnel required to respond to an average most probable discharge, as defined by §154.1020 ☐ List of equipment belonging to an oil spill removal organization as described in '154.1028; unless the organization has been classified by the Coast Guard to equal or exceed the response capability needed by the facility ☐ When it is necessary for the appendix to contain a listing of response equipment, it shall include the following: skimmers; booms; dispersant application; in-situ burning; bioremediation equipment and supplies, and other equipment used to apply other chemical agents on the NCP Product Schedule; communications, firefighting, and beach cleaning equipment; boats and motors; and heavy equipment ☐ This list must also include specifications for each piece of equipment as follows: 1) type, make, model, and year of manufacture, 2) for oil recovery devices, the effective daily recovery rate, 3) for containment boom, the overall boom height and type of end connectors, 4) spill scenario in which the equipment will be used, 5) total daily capacity for storage and disposal of recovered daily oil, 6) for communication equipment, the type and amount of equipment intended for use during response activities, 7) location of equipment, and 8) date of last inspection.	Section 7, Appendix B
4. Communications plan must describe the primary and alternate method of communication during discharges, including communications at the facility and at remote locations.	Section 7
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	Section 7
6. List of acronyms and definitions must include all definitions that are critical to understanding the response plan.	Appendix G

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H.3 WASHINGTON DEPARTMENT OF ECOLOGY

WAC 173-182	Brief Description	Reference
140	**Plan maintenance**	**Section 1**
142	**Significant changes to approved plans require notification**	**Section 1**
145	**Plan implementation procedures**	**Section 1 / Appendix A**
150	**Post-spill Review and Documentation Procedures**	**Section 8**
220	**Binding Agreement**	**Section 1**
230	**Contingency Plan General Content**	
(2)	Reference to NWACP	Section 1
(3)(a)	Federal and State Requirements	Section 1
(b)	Worst Case Spill Volume	Section 1 & 7/Appendix D
(c)	Log Sheet	Section 1
(d)	Cross-reference	Preface
(e)(i)	PRC contract	Appendix B
(iii)	Mutual Aid Agreements	Appendix B
(iv)	PRC on SMT	N/A
(f)	Tracking oil recovered and oily waste	Section 5
(4)	Additional Content	
(a)	Name, location, type, and address	Preface / Section 1 / Appendix C
(b)	Starting date of operation	Preface
(c)	Operations	Appendix C
(i)	List of Oil Handling Operations	Appendix C
(ii)	Inventory and list the tank capacity	Appendix C
(iii)	Description of products handled	Appendix C
(iv)	48-hour trajectory	Appendix D
(7)	Description of claims process	Section 1
240	**Field Document**	**Sections 2 & 3**
(1)	List of Locations of Field Document	Section 1
(2) (a)	Procedures to detect, assess and document spills	Section 2
(b)	Notifications	Section 3
(c)	Checklist	Section 2
250	**Initial Response Actions**	
(1)	Documenting Initial Actions	Section 2 & 3
(2)	Initial Assessment Equipment	Section 2
(3)	Safety Assessment Procedures	Section 2 & 7
(4)	Spill Assessment Procedures	Section 2
260	**Notification and Call-Out Procedures**	**Section 3**
270	**Maintenance Records for Response Equipment**	**Section 7 & Appendix F**
280	**Spill Management Team**	**Section 4**
(1) (a)	Organizational Chart	Section 4
(b)	List of Primary and Alternate Staff	Section 4
(c)	Job Descriptions	Section 4
(d)	Planning Process	Section 4
(2)	Training	Section 4 & Appendix A
(4)	Transitions	Section 4
315	**Planning Standards for Nondedicated Workboats**	**Appendix B**

WAC 173-182	Brief Description	Reference
320	**Planning Standards for Aerial Surveillance**	**Section 2 & 3**
324	**Group 5 Oils**	**Appendix B**
325	**Planning Standards for Dispersants**	**Section 5 & 7, Appendix B**
330	**Planning Standards for In Situ Burning**	**Section 5 & 7, Appendix B**
335	**Planning Standards for Storage**	**Section 5 & 7**
345	**Determining Effectiveness of Recovery Systems**	**Section 7**
348	Determining effective daily recovery capacity	**Appendix B**
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**
375	**Padilla Bay planning standard**	**Section 7**
510	**Requirements for response and protection strategies**	[redacted]
(1)	Methods to Track and Contain Spilled Oil	Section 2 & 7
(2)	Environmental Protection Strategies	Section 6
(3)	GRPs	Section 6
(4)	List of Command Posts	Section 4
520	**Planning Standards for Shoreline Cleanup**	**Section 6, Appendix E**
530	**Planning Standards for Ground Water Spills**	**Section 3 & 6**
540	**Planning Standards for Wildlife Rescue and Rehabilitation**	**Section 3 & 6**
700	**Drill participation, scheduling and evaluation**	**Appendix A**
710	**Type and frequency of drills**	**Appendix A**