Golden Eagle Refinery

Oil Spill Contingency Response Plan

OSPR # F2-07-1526
EPA # 09A0077
DOT Sequence # 1478

Tesoro Refining & Marketing Company

Tesoro Logistics LLC

STATEMENT OF CORPORATE COMMITMENT
OIL SPILL CONTINGENCY PLAN
TESORO GOLDEN EAGLE REFINERY &
AMORCO TERMINAL TANK FARM

The Oil Spill Contingency Plan has been prepared for operation of the Tesoro Golden Eagle Refinery Complex located in Martinez, California. The Golden Eagle Refinery complex consists of an onshore oil refinery and storage facility that refines San Joaquin Valley (SJV), Alaska North Slope (ANS) and offshore crudes and operates at a crude throughput of approximately 170,000 barrels per day. Operations at the refinery include receipt, storage, and shipment of petroleum products by pipeline and truck.

MANAGEMENT APPROVAL AND MANPOWER AUTHORIZATION

The necessary resources to implement this Response Plan are hereby committed. In the event of an oil spill for which Tesoro is responsible, best efforts will be initiated to expeditiously control and remove any harmful quantity of oil discharged. Tesoro will adopt and use the local Area Contingency Plan (ACP) in conjunction with this Response Plan. Copies of the Response Plan are kept on-site and ready for use by Tesoro personnel. These documents will be evaluated annually to be sure they are current and updated as necessary.

FEASIBILITY AND EXECUTABILITY

The Oil Spill Contingency Plan has been prepared for operation of the Tesoro Golden Eagle Refinery and Amorco Terminal Tank Farm located in Martinez, California.

The undersigned executive is authorized to fully implement the oil spill contingency plan and has reviewed the plan for accuracy, feasibility, and executability for the Tesoro Marketing & Refining Company LLC Golden Eagle Refinery and Tesoro Logistics Operations, LLC Amorco Terminal Tank Farm dated November 2012 and find that the plan is feasible and executable.

"I certify, to the best of my knowledge and belief, under penalty of perjury under the laws of the State of California, that the information contained in this contingency plan is true and correct and that the plan is both feasible and executable."

"I certify, to the best of my knowledge and belief, the consistency of this response plan with the National Contingency Plan (NCP) as specifically identified in 49 CFR 194.107(b)."

The undersigned have reviewed the Oil Spill Response Plan for the Tesoro Marketing and Refining Company LLC's Golden Eagle Refinery, in Martinez, California, find that the Plan is feasible and executable.

Stephen Ulfsen (signature) — 11/28/12

Vice President, Golden Eagle Refinery — Date

RESPONSE PLAN COVER SHEET
Golden Eagle Refinery

Owner/Operator of Facility: Tesoro Refining and Marketing Company
Facility Name: Golden Eagle Refinery
Facility Address (street address or route): 150 Solano Way, Martinez, CA 94553-1887
Facility Mailing Address: 150 Solano Way, Martinez, CA 94553-1887
Facility Phone No.: (925) 228-1220
Latitude [redacted]
Longitude
Dun & Bradstreet Number: 15-134-3530
Largest Aboveground Oil Storage Tank Capacity (gallons) [redacted]
Number of Aboveground Oil Storage Tanks: 67
Standard Industrial Classification (SIC) Code: 2900
Maximum Oil Storage Capacity (gallons) [redacted]
Worst Case oil Discharge Amount (gallons
Facility Distance to Navigable Water. Mark the appropriate line.

0 - ¼ mile ___X___ 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 ___X___ 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 ___X___ 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 could cause injury to fish and wildlife and sensitive environments?

YES ___X___ 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 ___X___ 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 ___X___ NO ______

CERTIFICATION – STATEMENT OF FEASIBILITY AND EXECUTABILITY

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.

I certify, to the best of my knowledge and belief, under penalty of perjury under the laws of the State of California, that the information contained in this contingency plan is true and correct and that the plan is both feasible and executable.

Signature: Stephen Hansen Date: 11/28/12

Name: Steven Hansen Title: VP, Golden Eagle Refinery

(Please type or print.)

RESPONSE PLAN COVER SHEET
Martinez Crude Oil Marine Terminal

Owner/Operator of Facility Tesoro Logistics LP/Tesoro Logistics LLC
Facility Name Amorco Terminal Tank Farm
Facility Address (street address or route) 1750 Marina Vista Avenue, Martinez, CA 94553
Facility Phone No. 925-228-1220
Latitude (b) (7)(F), (b) (3) [redacted]
Longitude
Dun & Bradstreet Number
Largest Aboveground Oil Storage Tank Capacity (gallons) (b) (7)(F), (b) (3) [redacted]
Number of Aboveground Oil Storage Tanks 6
Standard Industrial Classification (SIC) Code
Maximum Oil Storage Capacity (gallons) (b) (7)(F), (b) (3) [redacted]
Worst Case oil Discharge Amount (gallons)
Facility Distance to Navigable Water. Mark the appropriate line.
0 - ¼ mile X 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 ____ 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 ____
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 ____ 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 ____ 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 ____

CERTIFICATION – STATEMENT OF FEASIBILITY AND EXECUTABILITY
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.
I certify, to the best of my knowledge and belief, under penalty of perjury under the laws of the State of California, that the information contained in this contingency plan is true and correct and that the plan is both feasible and executable.

Signature ____ Date ____
Name Rick Weyen Title VP, Logistics
(Please type or print.)

CALIFORNIA CERTIFICATE OF FINANCIAL RESPONSIBILITY (CA COFR)

OWNER OR OPERATOR: Tesoro Refining and Marketing Company
meets the financial responsibility requirements specified in Government Code Section 8670.37.53 as it applies to the operation of

MAKE/MODEL: AMORCO DOCK, SACRAMENTO RIVER, APPX. 1/4 MILE WEST OF BENICIA BRIDGE

CERTIFICATE #: 2-1922-00-001 CONTROL #: FA435

ISSUE DATE: 05/01/2012 EXPIRATION DATE: 04/30/2014

The holder of this document named above is subject to the provisions of California Code of Regulations, Title 14, Sections 791-797, implementing the financial responsibility requirements set forth in the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act (Act). This certificate holder has provided the necessary evidence of financial responsibility mandated by these requirements.

For the purpose of determining liability pursuant to the Act, this Certificate of Financial Responsibility is conclusive evidence that the person or entity holding the certificate is the party responsible for the specific Mobile Transfer Unit (MTU).

No alterations of this certificate are permitted after issuance by the Administrator of OSPR. If there is a change in the name or ownership of the Marine Facility, the certificate holder must notify the Office of Spill Prevention and Response (OSPR) immediately. If the certificate expires, a new certificate will be required.

This certificate remains valid as long as the current method for demonstrating financial responsibility is maintained (eg. insurance). Any changes in this status must be reported to OSPR immediately.

It is the owner or operator's responsibility to ensure that this certificate number is also included in the owner or operator's marine oil spill contingency plan, which must be submitted to this office for approval before operating in a location where a spill could impact California marine waters.

If you have any questions, please contact Farina Khan at 916-327-9937.

Sincerely,

Farina A. Khan

Financial Analyst
Office of Spill Prevention and Response
cacofr-facilities@ospr.dfg.ca.gov

CALIFORNIA CERTIFICATE OF FINANCIAL RESPONSIBILITY (CA COFR)

OWNER OR OPERATOR:

TESORO REFINING AND MARKETING COMPANY

meets the financial responsibility requirements set forth in the Government Code Sections 8670.37.53 as it applies to the operation of

NAME:

AVON DOCK

LOCATION:

SACRAMENTO RIVER, APPX. 1 1/2 MILES EAST OF BENICIA BRIDGE

CERTIFICATE: 2-1922-00-002 **CONTROL #:** FA436

ISSUED DATE: May 01, 2012 **EXPIRATION DATE:** April 30, 2014

The holder of this document named above is subject to the provisions of California Code of Regulations, Title 14, Sections 791-797, implementing the financial responsibility requirements set forth in the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act (Act). This certificate holder has provided the necessary evidence of financial responsibility mandated by these requirements.

For the purpose of determining liability pursuant to the Act, this Certificate of Financial Responsibility is conclusive evidence that the person or entity holding the certificate is the party responsible for the specific Marine Facility.

No alterations of this certificate are permitted after issuance by the Administrator of OSPR. If there is a change in the name or ownership of the Marine Facility, the certificate holder must notify the Office of Spill Prevention and Response (OSPR) immediately. If the certificate expires, a new certificate will be required.

This certificate remains valid as long as the current method for demonstrating financial responsibility is maintained (eg. insurance). Any changes in this status must be reported to OSPR immediately.

It is the owner or operator's responsibility to ensure that this certificate number is also included in the owner or operator's marine oil spill contingency plan, which must be submitted to this office for approval, before operating in a location where a spill could impact California marine waters.

If you have any questions, please contact

Farina A. Khan

916-327-9937

Sincerely,

Farina A. Khan

Financial Analyst

Office of Spill Prevention and Response

cacofr-facilities@ospr.dfg.ca.gov

PREFACE

SECTION 3 NOTIFICATIONS/TELEPHONE NUMBERS

SECTION 4 RESPONSE TEAM ORGANIZATION

SECTION 5 INCIDENT PLANNING/DOCUMENTATION

SECTION 6 SENSITIVE AREAS/RESPONSE TACTICS

APPENDIX D HAZARD EVALUATION/RISK ANALYSIS

APPENDIX E RESPONSE TECHNIQUES AND GUIDELINES

APPENDIX G ACRONYMS AND DEFINITIONS

APPENDIX H CROSS REFERENCE/OPA 90 REQUIREMENTS

APPENDIX I DRUG AND ALCOHOL POLICY

THIS PAGE INTENTIONALLY LEFT BLANK.

SECTION 1 INTRODUCTION

FIGURE 1.1
RECORD OF CHANGES FORM

This plan will be reviewed and updated at least annually or whenever necessary to reflect changes in procedures, response strategies, phone numbers, or regulatory mandates. These changes will be noted in this form. Greg Clayton, Manager, Emergency Response, is responsible for ensuring the plan is reviewed and updated.

Revision Number	Date	Description of Change	Name
Original	November 2012	5-year submittal	Blade Benson / Hannah Adams
1	August 2013	Update to Qualified Individuals (QI)	Blade Benson / Tracy Cowan
2	October 2013	• Update to Qualified Individuals (QI) • Update to Incident Management Team • Name Change for CA Dept. of Fish & Wildlife Agency (previously Fish & Game)	Blade Benson / Tracy Cowan

FIGURE 1.2
DISTRIBUTION LIST

Plan Holder	Address	Copy Number
Health & Safety Master (Blade Benson)	150 Solano Way Martinez, CA 94553-1487	1
Health & Safety Library (Blade Benson)	150 Solano Way Martinez, CA 94553-1487	2
Emergency Operations Center (Blade Benson)	Solano Way Martinez, CA 94553-1487	3
Alternate EOC (Blade Benson)	150 Solano Way Martinez, CA 94553-1487	4
Shift Superintendent's Office	150 Solano Way Martinez, CA 94553-1487	5
Environmental Department	150 Solano Way Martinez, CA 94553-1487	6
Shipping Department	150 Solano Way Martinez, CA 94553-1487	7, 8, 9 (2 field guides)
Spill Response Team – H&S Dept. (Blade Benson)	150 Solano Way Martinez, CA 94553-1487	, 10
Director, Contingency Planning and Emergency Response (Eric Haugstad)	19100 Ridgewood Parkway San Antonio, TX 78259	11
VP, Environmental-Marketing & Logistics (Rob Donovan)	3450 S. 344th Way, Suite 201 Auburn, WA 98001	12e
U.S. Coast Guard - San Francisco	Bldg. 14, Coast Guard Is. Alameda, CA 94501-5100	13
U.S. Environmental Protection Agency, Region IX (**OPA FRP #09A0077**)	75 Hawthorne Street San Francisco, CA 94105	14
California State Lands Commission, Marine Facilities Division	200 Oceangate, Suite 900 Long Beach, CA 90802	15, 16
California Department of Fish & Wildlife, Office of Oil Spill Prevention and Response, Planning Branch (**Contingency Plan Number F2-07-1526**)	P. O. Box 944209 Sacramento, CA 94244-2090	17
California State Fire Marshal (CSFM) Pipeline Safety Program	3950 Paramount Blvd. Suite 210 Lakewood, CA 90712	18
Office of Pipeline Safety Pipeline and Hazardous Material Safety Administration U.S. Department of Transportation (**Sequence Number 1478**)	1200 New Jersey Avenue, South East E22-321 Washington, DC 20590	19e, 20e
Refinery Manager (Steven Hansen)	150 Solano Way Martinez, CA 94553-1487	21
Lead Contingency Planning Coordinator (Craig Hyder,)	10200 West March Point Road Anacortes, WA 98221	22

Hard Copies = **18** Electronic Copies = **3**

1.1 PURPOSE/SCOPE OF PLAN

The purpose of this Oil Spill Contingency Plan (Plan) is to provide guidelines to quickly, safely, and effectively respond to a spill that originates from the Golden Eagle Refinery. This Facility is owned and operated by Tesoro Refining & Marketing Company LLC (TRMC) / Tesoro Logistics Operations, LLC (TLO). In this plan, Tesoro will be referred to as “Company” and Golden Eagle Refinery as “Facility” is many instances. 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.

Response to a spill may require coordination of Company departments, outside agencies, and response contractors. This Plan contains guidelines to facilitate these efforts. Responders should continually evaluate actions recommended in this Plan and make adjustments based on experience and training to most effectively mitigate the spill.

This Plan is not meant to replace common sense or actions not specifically described herein. 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.

1.2 PLAN CONTENTS

This Plan is intended to satisfy the requirements of the Oil Pollution Act of 1990 (OPA 90), the Lempert, Keene, Seastrand Oil Spill Prevention and Response Act of 1990 (OSPRA) and has been prepared in accordance with the San Francisco Bay/Delta Area Contingency Plan (ACP), the California State Oil Spill Contingency Plan and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). Specifically, this Plan is intended to satisfy the oil spill contingency plan requirements of:

- United States Coast Guard (USCG) Requirements for a OPA 90 Plan (33 CFR Part 154), Marine Oil Transfer Facilities, Final Rule

- Environmental Protection Agency’s (EPA) Requirements for an OPA 90 Plan (40 CFR Part 112.20), Non-Transportation Related Onshore Facilities, Final Rule July 1, 1994

- United States Department of Transportation (DOT), Pipeline and Hazardous Materials Safety Administration (PHMSA), Onshore Oil Pipelines (49 CFR 194.101), Final Rule

- California State Fire Marshal's (CSFM) Office, Pipeline Safety Division, Oil Refinery and Chemical Plant Safety Program, California Government Code (Section 51010-51019.1).

- California Department of Fish and Wildlife (DFG), Office of Spill Prevention and Response (OSPR) Requirements for OSPRA, CCR Title 14, Division 1, Subdivision 4, Chapter 3, Subchapter 3, Section 817.02, Marine Facilities, Final Rule June 1, 1998.

Response to an oil spill may require the immediate coordination of company departments and outside agencies, and possible mobilization of various contractors. Coordination of these efforts will be facilitated by the response procedures set forth in this Plan.

This Plan also contains detailed information on equipment, manpower, and resources available in the region, and oil spill response considerations, which will provide support to response and planning efforts.

1.3 TESORO POLICY AND MANAGEMENT

Tesoro's goal for operations is zero spillage of oil. However, should a spill occur, response actions described in this Plan will be implemented. Tesoro will comply with applicable federal, state, and local laws and regulations concerning oil spill response operations.

In accordance with the requirements of 816.04(b)(5), Tesoro will carry out the directions of the OSPR Administrator in connection with the response, containment and cleanup of a potential oil spill with the following exceptions:

- If the directions of the Administrator are in direct conflict with directions from the Coast Guard; and/or

- If Tesoro reasonably, and in good faith, believes that the directions or orders given by the Administrator will substantially endanger the public safety or the environment.

If a directive of the Administrator is refused, Tesoro will state the reason for the refusal at the time it is made, and will follow up the verbal explanation with a written notice to the Administrator explaining in full the reason(s) for refusing the directive. The written notice will be submitted to the Administrator within 48 hours of the refusal.

1.4 PLAN REVIEW AND UPDATE PROCEDURES

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

- Inventories of company spill response equipment.
- Names and/or telephone numbers of the Oil Spill Response Organizations listed in **SECTION 2**.
- Names and/or telephone numbers of the company's Spill Management Team personnel, including Qualified Individuals.
- 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 of information relating to circumstances likely to affect full implementation of the Plan.

Plan revisions or amendments will be numbered sequentially and entered on the Record of Changes Form (**FIGURE 1.1**). The change numbers, date, and description of change (including plan section(s) affected by the review or amendment) and the name and signature of the person completing the review and amendment will also be entered on the form. These amendments will be implemented as soon as possible, but not later than the duration listed in **SECTION 1.5.1**. These changes are then to be distributed to all plan holders on Distribution List (refer to **FIGURE 1.2**).

1.4.1 Periodic Reviews and Evaluations

A review and evaluation will be periodically performed to comply with the 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 COTP approval, to incorporate any changes in the listings of economically important or environmentally sensitive areas identified in the ACP in effect six months prior to the Plan review.

- Five year review for the portions of the Plan addressing USCG marine transportation related (MTR) facility requirements, or after significant change.
- Review and resubmit the plan to the DOT Research and Special Programs Administration every five years from the last plan submission date. (If there are no changes, a letter may be submitted to DOT stating that the latest response plan on file with DOT is still current and serves as the resubmittal plan for PHMSA to review.
- Post spill review for significant spill events, or two year review for the portions of the Plan addressing the State of California OSPR requirements. A review of the Plan effectiveness and the need for Plan amendments will be submitted to the OSPR Administrator within 90 days of a significant spill event. The Plan will be resubmitted at least every two years.

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

1.5 DESCRIPTION OF AREA

The Tesoro Golden Eagle Refinery is located in Eastern Contra Costa County, one and a half miles north of Concord, California, along the northern border. It occupies an area of approximately 2,100 acres. The Refinery is approximately three and one-quarter miles long and three-quarters of a mile wide. The Refinery is bordered by Pacheco Slough to the west, Suisun Bay to the north, and the Hastings Slough, Bureau of Land Management (BLM) property to the east. The south side is bounded by the Kinder Morgan Concord Terminal, North Concord Industrial Park, and Mallard reservoir. West of Pacheco Slough is the Acme Fill Municipal landfill.

The Amorco Wharf is located approximately two miles west of the Refinery near Benicia Bridge on the southern shore of the Carquinez Strait. This site occupies approximately 100 acres. This Tract is bordered by Shell to the west, Carquinez Strait to the north, Highway 680 to the east, and the Southern Pacific Railroad to the south. Additional information on the facility is located in **APPENDIX C**.

FIGURE 1.3
FACILITY INFORMATION SUMMARY

Owner/Operator:	Tesoro Refining & Marketing Company LLC/Tesoro Refining & Marketing Company 150 Solano Way Martinez, CA 94553-1487 Contra Costa County Phone: (925) 228-1220 (24-Hour)	Tesoro Logistics LP/ Tesoro Logistics Operations LLC
Corporate Parent Company	Tesoro Corporation 19100 Ridgewood Parkway San Antonio, TX 78255	
Facility Name / SIC & NAICS Codes:	Tesoro Refinery / SIC Code 2900 / NAICS Code 324110	Amorco Terminal Tank Farm
Name and Address of person to whom correspondence should be sent:	Greg Clayton Manager Emergency Response and Preparedness Golden Eagle Refinery Health & Safety Department 150 Solano Way Martinez, CA 94553-1487 Phone: (925) 370-3686 Email: Gregory.g.clayton@tsocorp.com	
Agent for Service of Process:	Steve Hansen Vice President Golden Eagle Refinery 150 Solano Way Martinez, CA 94553-1487	
Description of Facility:	Refinery complex consisting of an onshore oil refinery and storage facility that refines San Joaquin Valley (SJV), and Alaska North Slope (ANS) and offshore crudes. The Terminal consists of a single-berth dock, and related pipelines that receive crude oil from third-party vessels for delivery to the Refinery and a third-party terminal	The Terminal tank farm is an onshore storage facility that receives primarily San Joaquin Valley (SJV), Alaska North Slope (ANS) and other offshore crude oils from tanker vessels unloaded at the TRMC's Amorco Terminal Wharf facility.
Description of Marine Terminals:	Tesoro operates a marine terminal facility as part of the MTR portion of the complex, the Avon Wharf. The Avon Wharf primarily loads petroleum products, including diesel, gasoline blends, and fuel oil or gas oil materials. Maximum size vessels which can be accommodated at the Marine Terminal are provided in **APPENDIX C**. The Avon Wharf's USCG dock address is US MRZ 8. The Amorco Wharf and/or the Pacific Atlantic Terminals LLC (2801 Waterfront Road, Martinex, CA 94553) are used as receiving facilities for offshore crude oil from tank ships. Maximum size vessels which can be accommodated at the Marine Terminal are provided in **APPENDIX C**. The Amoroco Wharf's USCG dock address is US MRZ 5.	[redacted]

FIGURE 1.3
FACILITY INFORMATION SUMMARY

Pipeline Description:	Four pipelines run between the Refinery and Amorco Terminal. Of these, two crude lines and a recovered oil and water line are in service. The pipelines originate in the storage tank area near the Amorco Terminal and extend east, primarily above ground, for approximately two and one-half miles through off-site properties to the storage area at the Tesoro Refinery. These same pipelines are used to connect to the Pacific Atlantic Terminals LLC facility that is located between Amorco and Avon. **Statement of environmental harm:** The two crude lines pose "substantial harm" to the environment (because the pipelines are not longer than 10 miles). The pipelines associated with the Terminal include three crude oil pipelines, one products pipeline and one water pipeline that connect the Terminal to the Refinery and an adjacent third-party terminal.	[redacted]
Description of Operations:	Oil refining and petroleum product manufacturing.	Oil storage
Product Disposition:	Transfer of refined petroleum products to various companies via pipeline and marine.	Transfer of refined petroleum products to various companies via pipeline and marine.
Description of Tanks:	Refinery contains tank farm. Refer to **FIGURE D.5**.	[redacted]
Hours of Operating/Manning:	24-hours per day, 7 days per week	
Facility Throughput:	Refinery: 170,000 bbls/day Offshore Crude [redacted] day of Alaskan North Slope (ANS), Oriente, or other offshore crude oils. Equilon/Chevron/Tosco Crude Oil Pipelines: SJV Heavy and Light, and Elk Hills. Truck Loading Rack: Capacity of [redacted] gasoline and diesel. Avon Wharf [redacted] bbls/day gasoline and diesel; [redacted] bbls/day fuel oil, gas oil, cutter stock, and CBO.	145,000 barrels per day Amorco Wharf: Maximum permitted capacity is 70,080,000 bbl/year of crude.
Products Handled:	Crude oils (SJV, ANS, offshore) and refined products, including gasoline, diesel fuel, fuel oil and gas oil.	
Mailing Address:	Golden Eagle Refinery 150 Solano Way Martinez, CA 94553-1487	
Location:	Latitude: [redacted] Longitude [redacted] Contra Costa County, California.	Latitude: [redacted] Longitud [redacted]
Site Topography	The majority of GER is flat and close to sea level. Tract 4, located in the relatively hilly, southern portion of the refinery, rises to an elevation of approximately 136 feet above sea level. A Topographic map of the facility is included as Figure 1.4, and is excerpted from USGS Topographic Map for Vine Hill CA Quadrangle.	The Amorco terminal is partially located on relatively hilly terrain, with peak elevation of approximately 83 feet above sea level. A Topographic map of the facility is included as Figure 1.4, and is excerpted from USGS Topographic Map for Vine Hill CA Quadrangle.
Site Layout	The Processing areas of the refinery are identified on the GER Evacuation Map included as Figure I-4-2.	

FIGURE 1.3
FACILITY INFORMATION SUMMARY

<table>
<tr><td>Meteorological Conditions</td><td colspan="3">Wind: The prevailing wind direction is from the northwest. However, on the water, the wind is generally channeled through the Carquinez Strait. A Wind Rose is included as Figure I-4-3.
Temperature: The San Francisco and San Pablo Bay areas have a mild Mediterranean climate, with temperatures moderated by the waters of the bays. Temperatures measured over approximately 28 years in Martinez as based on historical data stored at the Western Regional Climate Center in Reno, Nevada are as follows:
• Minimum Recorded 19 Deg. F
• Maximum Recorded 115 Deg. F
• Avg. Annual Low 28 Deg. F
• Avg. Annual High 106 Deg. F

Rainfall: Rainfall information is based on Contra Costa County Public Works Department duration-frequency-depth curves.
• Design Conditions: 10-yr Storm with an average 20-in. annual rainfall.
• Maximum Intensity: 0.87 inch/hour
• Duration of Max. intensity: 1 Hour
• Maximum Daily: 6 inches
• Maximum Annual: 20 inches
• Snowfall: None</td></tr>
<tr><td>Telephone/FAX:</td><td>(925) 228-1220 / (925) 372-3120 (24-Hour)</td><td colspan="2">925-228-1220</td></tr>
<tr><td>Financial Responsibility Certified Number:</td><td>Avon: 21922-00-002 Expires 4/30/14</td><td colspan="2">Amorco: 21922-00-001 Expires 4/30/14</td></tr>
<tr><td>OSPR Certificate of Approval</td><td colspan="3"></td></tr>
<tr><td>Initial IC</td><td colspan="3">Shift Superintendent
(925) 372-3047</td></tr>
<tr><td>Qualified Individuals:

*For further information on Qualified Individuals' training and qualifications, refer to SECTION 4.5 and APPENDIX A.2 in this plan.</td><td>Steve Bishop
Operations Area Supt.
(925) 372-3144 (Office)
(925) 688-6063 (Pager)
(b) (6) [redacted] (Cell)

Larry Hanson
Production Proj. Mgr.
(925) 370-3360 (Office)
(b) (6) [redacted] (Cell)</td><td>Eric Legare
Operations Area Mgr.
(925) 335-3526 (Office)
(b) (6) [redacted] (Cell)

Don Gray
Operations Area Mgr.
(925) 228-1220 ext. 2335 (Office)
(b) (6) [redacted] (Cell)</td><td>Tim Pettibone
Operations Area Mgr.
(925) 370-3385 (Office)
(b) (6) [redacted] (Cell)</td></tr>
<tr><td>Date of Storage Startup:</td><td colspan="3">1912</td></tr>
<tr><td>Wellhead Protection Area:</td><td colspan="3">No</td></tr>
</table>

FIGURE 1.3
FACILITY INFORMATION SUMMARY

Dates(s) and Type(s) of Substantial Expansion:	
	1912 Refinery beginning – two steam batch stills, a boiler house, storage tanks, cooling water system, and shipping facilities. 1913 Addition of five topping retorts, sixteen crude stills, combination crude stilling unit, portion of the tank farm, water treatment plant, compound house, cooper shop, and lubricating oil pumping facility. 1919 Construction of original Control Laboratory and Experimental Refinery. 1920 Construction of Clay Treating Facilities – manufacturing of improved grades of lubricating oil by clay treating the stocks from California crudes. 1922 Construction of a four still battery for reducing lubricating oils. 1922-1924 Large tank farm construction – three (b) (7)(F), (b) (3) [redacted] 1924 Construction of a clarifying plant and Edeleanu liquid sulfur dioxide plant. 1926 Avon wharf reconstruction. 1927 Fractionation equipment installed. 1928 Installation of economizer for fractionation equipment; construction of a pipestill and a vacuum & atmospheric bubble tower. 1929 Construction of railroad drawbridge. 1931 Thermal cracking unit and No. 2 thermal cracking unit constructed. 1934 Port Costa Terminal acquired. 1937 Construction of No.3 Thermal cracking unit. 1938 Construction of Thermal Polymerization Plant. 1940 Construction of Sulfuric Acid Alkylation Plant. 1943-1944 Construction of Butane and Pentane Isomerization Plants and series of storage spheres. 1944 Construction of the Fluid Catalytic Cracking Unit (FCCU), No. 4 Gas Plant, and No. 1 Feed Prep. 1947 Shell stills replaced by the 50 Unit Crude Distillation Unit complex. 1953 Chemical Plant beginning – Sulfuric Acid Plant constructed, Phenol Plant Commissioned. 1954 Construction of UOP Hydrogen Platformer, No. 1 HDS (Hydro-Desulfurization) Unit, and No. 2 Feed Prep. No. 3 Boiler portion of No. 4 Boiler House placed into operation. 1955 Construction of Fluid Coker, No. 5 Gas Plant, Coker-CO Boiler, and No. 2 HDS Unit. 1958 Construction of No. 6 Boiler House and No. 2 Reformer. The Chemical Plant replaced the coke gasifier and related on the Sulfuric Acid Plant with a combustion chamber and waste heat boiler. 1961 Construction of Phenol-sulfonic acid plant at the Chemical Plant. 1963 In-line gasoline blender built in Tract 6. New TEL (Tetraethyl lead), additive and dye facilities were built with the gasoline blender. Old facilities in Tract 3 were abandoned. Early 1960's Construction of Hydrocracker, hydrogen plant, HDN Units. Also, a new DEA stripper tower and two-stage SRU (Sulfur Recovery Unit) were built at Chemical Plant. Phenol-sulfonic acid plant and phenol plant portions of the Chemical plant were shut down in 1963. 1951-1966 Refinery's older facilities either dismantled or abandoned including the No. 3 Gas Plant and the No. 1 Thermal Cracker. Mid-1960's Port Costa Terminal shut down. 1966 New Sulfuric Acid Alkylation Plant completed replacing older plant constructed in 1940. Bio-oxidation pond constructed along with a new refinery sewer system that included clean and "oily" systems. Vanadium pentoxide catalyst plant constructed by Monsanto Corporation next to Chemical Plant.

FIGURE 1.3
FACILITY INFORMATION SUMMARY

Dates(s) and Type(s) of Substantial Expansion:	1966-1976 Fourteen plants shut down – No. 2 Thermal Cracker, Original Alkylation Plant, Pentane Isomerizer, Lube Oil Plant and Rerun facilities, Agitators and Solvent Manufacturing Plant, Edeleanu Solvent Treating Plant and Liquid Sulfur Dioxide Plant, Mercaptan Recovery and Shipping Facilities, Caustic Revivication Unit, Doctor Sweetening Plants, Ammonia Refrigeration Plant, DEA section of No. 1 Gas Plant, part of the Stabilizers, No. 1 Solvent and No. 2 PD Rerun Units, and Drum Reconditioning Facilities. 1975 Glycol/salicylic acid process to control Claus Sulfur Recovery Unit's stack emissions built. 1975-1976 Merox treating installed at Sulfuric Alkylation Plant. Late 1970's New BioDisc Waste Water Treating Plant constructed at former site of Edeleanu Plant. 1980 Construction of No. 3 Reformer. 1981 Revamp of Sulfuric Acid Plant portion of Chemical Plant completed. World's largest FCCU Precipitator built. 1982 Modernization of the 50 Unit and No. 3 Crude. 1983 No. 3 HDS Unit commissioned. Major revamp of Chemical Plants Sulfur Recovery Unit, and Ammonia Recovery Unit built at the Chemical Plant. 1976-1982 Shutdown of No.1 and No. 2 Thermal Crackers, blowdown facilities, No. 1 and No. 2 Isomerization Plants, the Clarifying Area and several tanks, seven of the nine superfractionators at the 50 Unit complex, the Tract 3 lube oil and grease blending and packaging facilities, and piping from the Tract 1 pumphouse that related to the old Shell systems. 1985 New SCOT Unit commissioned at the Chemical Plant replacing the old glycol/salicylic acid process. 1987 Vapor recovery system commissioned at Avon Wharf. 1992 Oxygen injection equipment installed at Chemical Plant's Sulfur Recovery Unit. 1993 MTBE Unit and No. 2 Hydrogen Plant constructed; conversion of No. 1 Reformer to a HDA Unit. 1994 FCC Unit modified. 1996 Benzene Saturation Unit built and No. 2 Reformer modified to include a fractionator for splitting the No. 2 and No. 3 Reformer product. 1998 #3 Crude Unit taken out of service 2000 Facility purchased by Ultramar Diamond Shamrock on Sept. 1 and renamed Golden Eagle Refinery. 2001 #3 Crude Unit put back in service. 2002 Facility purchased by Tesoro Refining and Marketing Co. on May 17, 2002. 2003 #4 HDS Unit commissioned. New FCC naphtha Splitter tower at #4 Gas Plant commissioned. #4 Gas Plant Merox reactors converted to Diolefin Saturation reactors. Two new flare gas recovery compressors commissioned. 2003 Shut Down MTBE Plant 2004 Recommissioned gasoline / diesel truck loading rack. 2006 Central Control Building commissioned 2007 Crude Transfer and Blending Project commissioned. 2008 Modified fluid coker to replace fluid coking reactor / burner with delayed coking drums. Installed Coker Flare 2009 Central Maintenance building commissioned 2009 50 Unit Flare commissioned 2011 Relocated Primary EOC to upstairs in Central Maintenance Building
Date Updated	August 2013

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

THIS PAGE INTENTIONALLY LEFT BLANK.

FIGURE 1.4
FACILITY LOCATION MAP

(b) (7)(F), (b) (3)

[redacted]

THIS PAGE INTENTIONALLY LEFT BLANK.

FIGURE 1.5

(b) (7)(F), (b) (3)

[redacted]

THIS PAGE INTENTIONALLY LEFT BLANK.

FIGURE 1.6
FACILITY PLOT PLAN – TRACT 3 AND AVON WHARF

(b) (7)(F), (b) (3)

[redacted]

THIS PAGE INTENTIONALLY LEFT BLANK.

FIGURE 1.7
FACILITY PLOT PLAN – TRACTS 4 AND 6

(b) (7)(F), (b) (3)

[redacted]

THIS PAGE INTENTIONALLY LEFT BLANK.

FIGURE 1.8

(b) (7)(F), (b) (3)

[redacted]

THIS PAGE INTENTIONALLY LEFT BLANK.

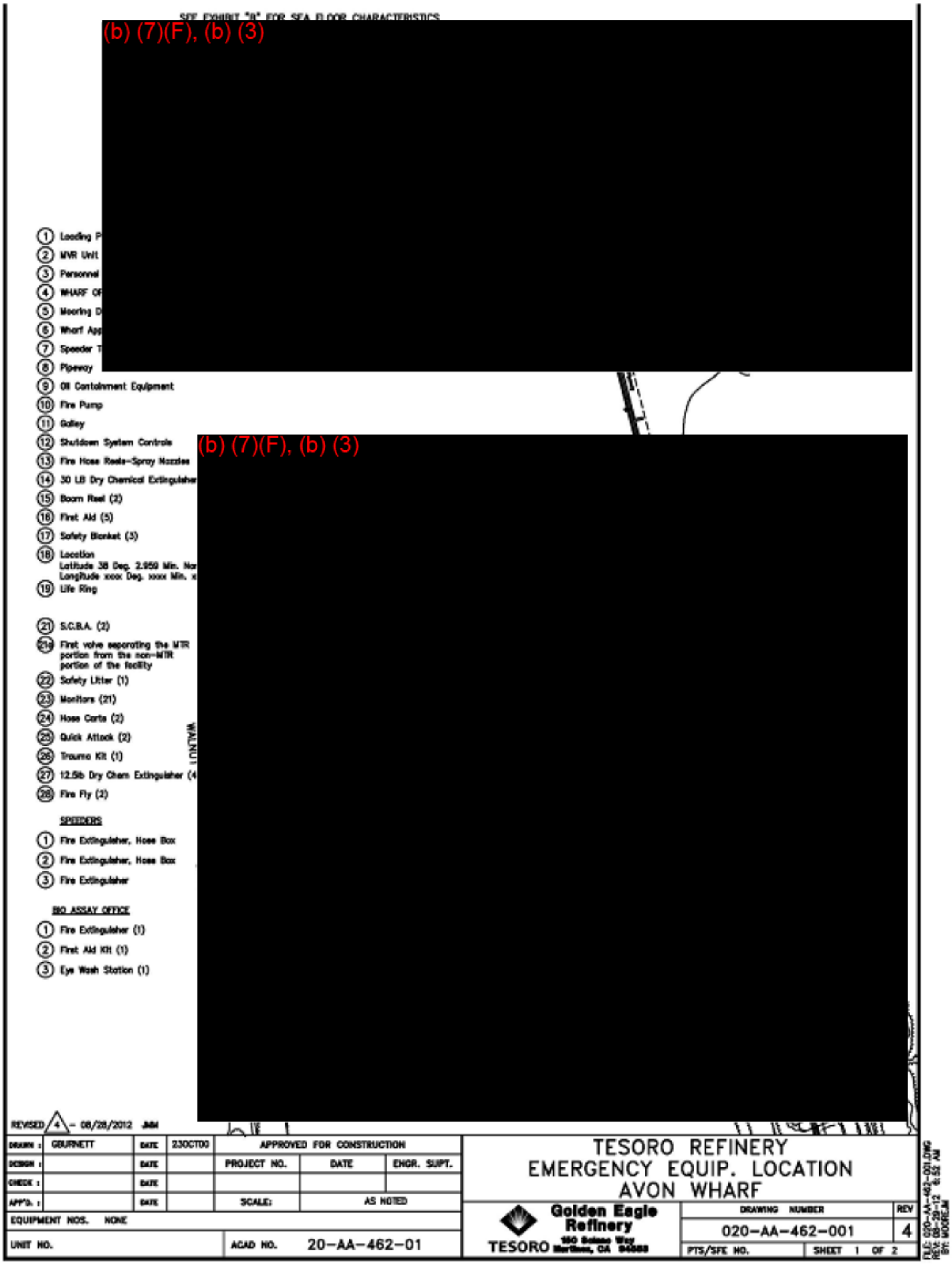
FIGURE 1.9
AVON/AMORCO WHARF PIPELINE SYSTEM

(b) (7)(F), (b) (3)

[redacted]

THIS PAGE INTENTIONALLY LEFT BLANK.

FIGURE 1.10
AVON SAFETY EQUIPMENT & FIRST VALVE IN CONTAINMENT



THIS PAGE INTENTIONALLY LEFT BLANK.

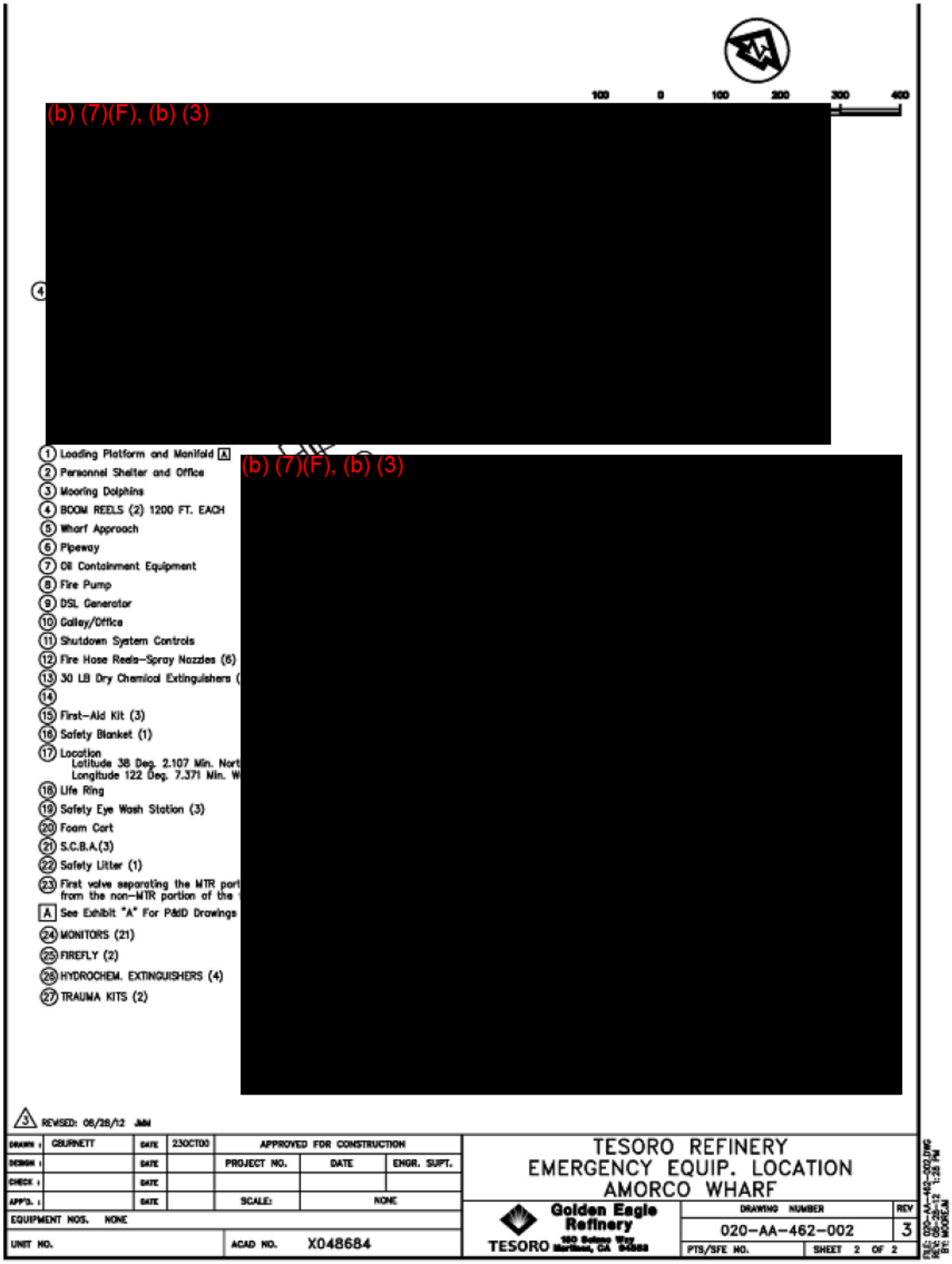
FIGURE 1.11
FACILITY PLOT PLAN – AMORCO WHARF

(b) (7)(F), (b) (3)

[redacted]

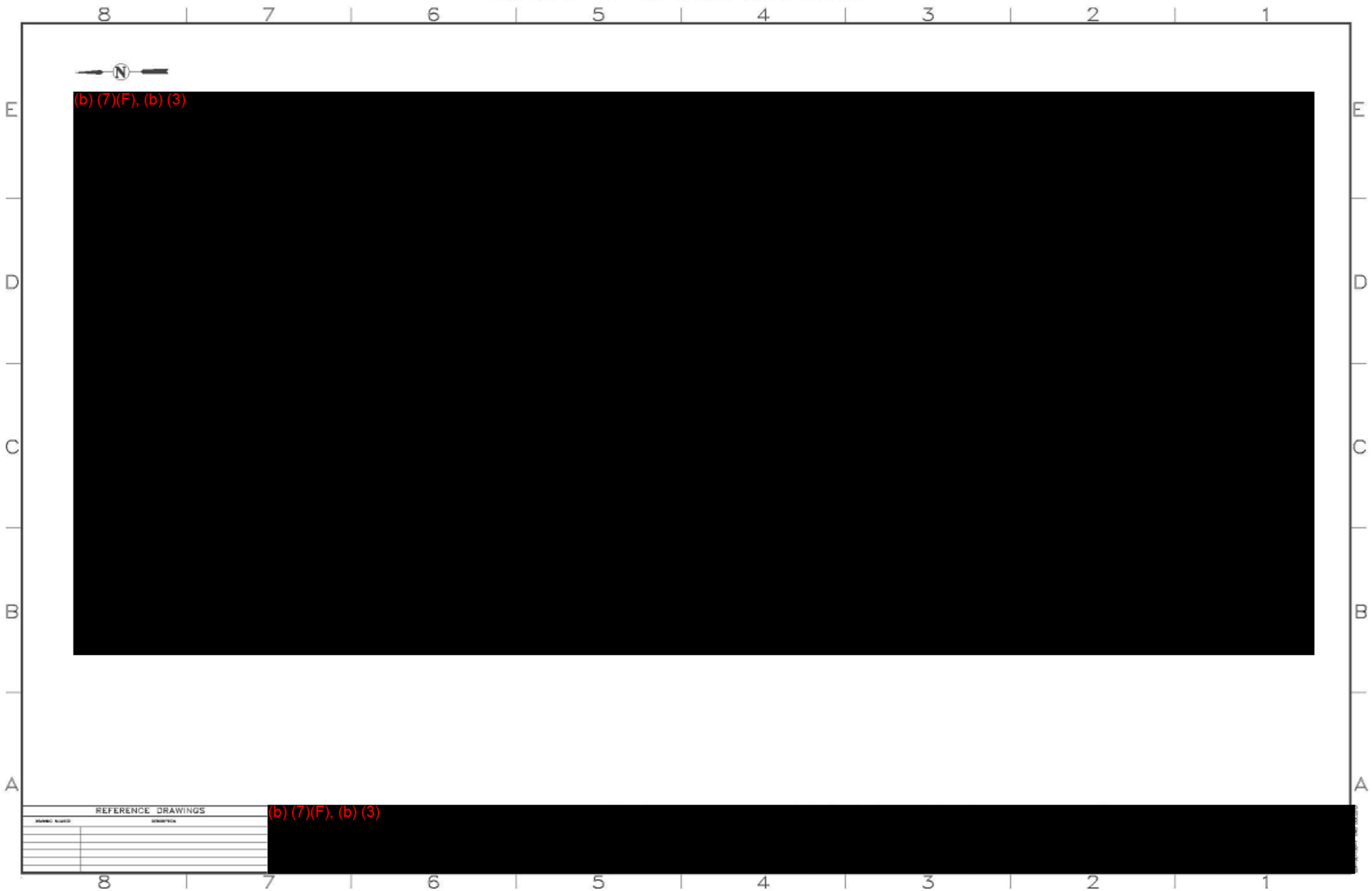
THIS PAGE INTENTIONALLY LEFT BLANK.

FIGURE 1.12
AMORCO WHARF SAFETY EQUIPMENT



THIS PAGE INTENTIONALLY LEFT BLANK.

FIGURE 1.13
AMORCO WHARF FIRST VALVE IN CONTAINMENT



[redacted]

THIS PAGE INTENTIONALLY LEFT BLANK.

FIGURE 1.14
AMORCO WHARF FLOW DIAGRAM

THIS PAGE INTENTIONALLY LEFT BLANK.

FIGURE 1.15
AMORCO WHARF TO REFINERY CSFM PIPELINE SCHEMATIC

THIS PAGE INTENTIONALLY LEFT BLANK.

SECTION 2 INITIAL RESPONSE ACTIONS

FIGURE 2.1
INITIAL RESPONSE ACTION CHECKLIST

Response Action		
First Person to Discover Spill		
Notify Security Control at 2222. Ensure safety of personnel.		
Wharfinger		
Notify Ship Services if spill occurs to Bay during vessel loading /unloading, unless already present.		
Security		
Announce oil spill emergency over radio all-call and public address system.		
Shift Superintendent		
Assume role of EOC/ Incident Commander until relieved.		
Activate the Spill Response Team and Spill Management Team (Minor or Major depending on magnitude) via SendWordNow emergency notification system.		
Determine local CWS level and begin prioritized notification of agencies according to the Initial Agency Notification Log (FIGURE 3.4) and ICS 201 Incident Briefing form.		
Establish the Incident Command System (ICS) with the on-shift supervisor and oil spill responders.		
Gather any additional information and fill out the *Information on Discharge Form* (FIGURE 3.5) and ensure that the following oil spill specific notifications are made: NRC (800) 424-8802 Cal E-M-A (800) 852-7550 (Emergency. Management. Agency) CCC HSD (925) 677-6700 County OES (925) 228-5000 USCG (415) 399-3455		
Assess and ensure safety of personnel. Conduct preliminary assessment of the situation and of the potential health and safety hazards. If someone is injured or if there is the potential for a fire or explosion, call out necessary emergency services not already activated (refer to SECTION 3). Evacuate personnel as needed (refer to SECTION 2.1).		
Determine the sources of spill and direct Facility responders to shut down and control the source of the spill. Be aware of potential hazards associated with crude, refined petroleum products, and any other hazardous substances, and ensure that the lower explosive limits (LELs) and airborne concentrations of toxins are within safe levels before sending personnel into the spill area.		

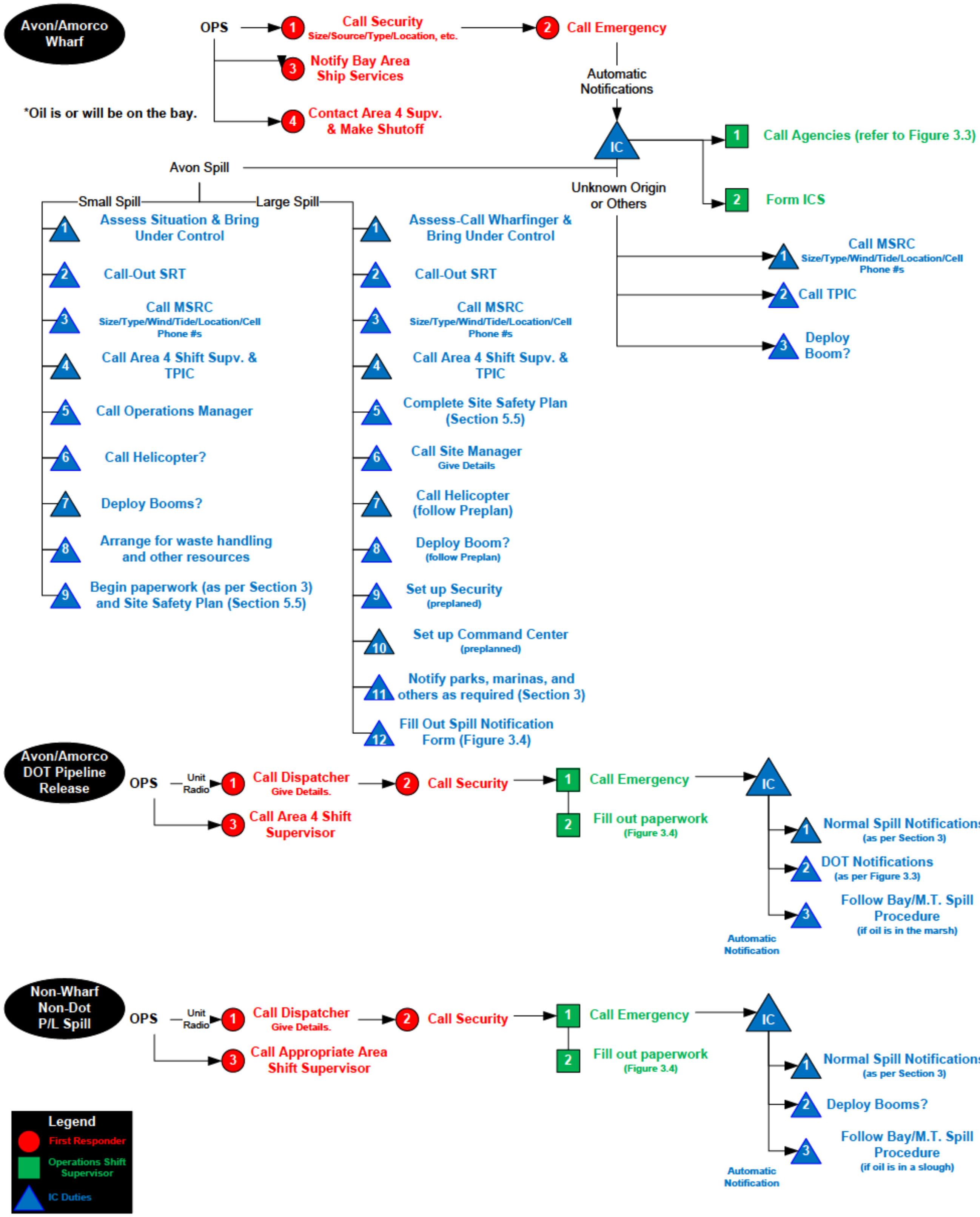
FIGURE 2.1, CONTINUED
INITIAL RESPONSE ACTION CHECKLIST

Response Action		
1. If safe to do so, direct Facility responders to shut down potential ignition sources in the vicinity of the spill, including motors, electrical pumps, electrical power, boats, etc.		
2. Call-out MSRC and provide details of situation, if needed (800) 645-7745		
3. Call Area – 4 Shift Supervisor, if required.		
4. If safe to do so, direct Facility responders to deploy containment and sorbent boom located at the Facility in a manner that limits the spread of the oil. Consider deploying boom well in advance of the slick to reduce the safety hazards associated with operating boat engines near hydrocarbon vapors. See **SECTION 2.5 and APPENDIX E** for recommended strategies.		
5. If there is a potential to impact shorelines, consider lining shoreline with sorbent or diversion boom to reduce impact.		
* If oil spill is another company's product, no further action is required.		
If spill < 1 gallon		
1. Notify Assistant Refinery Manager and General Manager		
2. Call for South Bay Helicopters (510) 259-1279, only if needed.		
3. Arrange for waste handling and other spill resources.		
4. Complete paperwork: • Initial Notification Log (**FIGURE 3.4**) • ICS 201 Form • Oil Discharge Form (**FIGURE 3.5**) • Begin Site Safety Plan (refer to **SECTION 5.4**).		
If spill requires Spill Management Team callout for cleanup, then:		
1. Activate SMT call-out.		
2. Complete Site Safety Plan (refer to **SECTION 5.5**).		
3. Call for South Bay Helicopters (510) 259-1279, as needed. Options for Landing Zones include: • Buchanan Field • 50 Unit Helipad		
4. Notify Assistant Refinery Manager and General Manager.		

FIGURE 2.1, CONTINUED
INITIAL RESPONSE ACTION CHECKLIST

Response Action		
5. Call MSRC - (800) 645-7745		
6. Activate EOC (Emergency Operations Center).		
7. Arrange for additional security.		
8. Notify parks, marina and others as required (refer to **SECTION 3**).		
9. Gather accurate data and transfer command to SMT responders.		
10. Initiate documentation procedures (ICS 201). Document all response actions taken, including agency and internal notifications, media contacts, equipment and personnel mobilization and deployment, and area impacted.		
11. Initiate spill tracking and surveillance operations. Determine extent of pollution via surveillance aircraft and/or watercraft. Estimate trajectory of spill utilizing information in **SECTIONS2 and 6**. Send photographer if safe.		
12. Refer to SMT job descriptions in **FIGURE 4.3** for detailed checklist of responsibilities.		

FIGURE 2.2
INITIAL RESPONSE FLOWCHART



2.1 SITE CONTROL/EVACUATION PLAN

(b) (7)(F), (b) (3)

[redacted]

(b) (7)(F), (b) (3)

[redacted]

(b) (7)(F), (b) (3)

[redacted]

(b) (7)(F), (b) (3)

[redacted]

(b) (7)(F), (b) (3)

[redacted]

(b) (7)(F), (b) (3)

[redacted]

(b) (7)(F), (b) (3)

[redacted]

FIGURE 2.3
REFINERY WASTEWATER TREATMENT SYSTEM

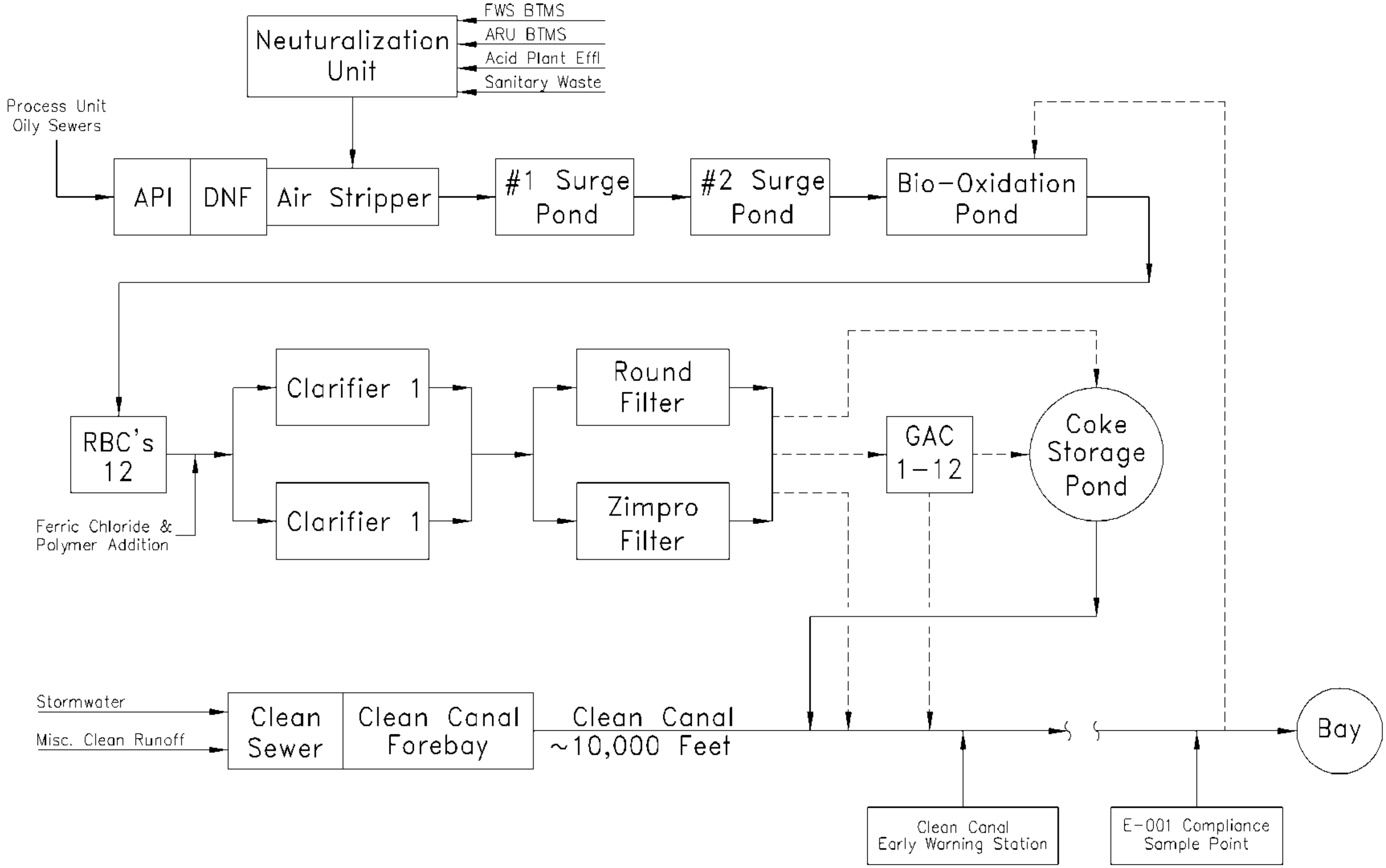


FIGURE 2.4

(b) (7)(F), (b) (3)

[redacted]

THIS PAGE INTENTIONALLY LEFT BLANK.

FIGURE 2.5
EVACUATION DIAGRAM

GOLDEN EAGLE REFINERY - EVACUATION MAP

(b) (7)(F), (b) (3)

[redacted]

THIS PAGE INTENTIONALLY LEFT BLANK.

FIGURE 2.6
EVACUATION CHECKLIST

(b) (7)(F), (b) (3)

[redacted]

2.2 SOURCE CONTROL AND MITIGATION

Following assessment of safety conditions, source control is one of the first actions that should be taken in order to reduce the extent of damage from a spill. Once a spill occurs, cleanup efforts and costs are extremely high, therefore, prompt effort must be directed toward controlling the spill source.

Operations at the Tesoro refinery are geared toward maintaining the safety of personnel and the environment. Prevention of a potential discharge of oil is stressed as a high priority. Each tract in the refinery is designed to route any potential spills from equipment failures to secondary containment (e.g., diked or bermed areas, retention ponds, collection basins, etc.) or into the oily sewer system. Refer to **FIGURES 2.3 and 2.4** for a layout of facility drainage, and **APPENDIX F** for a description of the facility's inspection and maintenance program. Repairs to transfer equipment, tanks, piping, valves and other related equipment are promptly initiated as indicated by the magnitude of the problem.

The personnel who perform transfer operations are the first step in spill prevention. A qualified Terminal Person-In-Charge (TPIC) is assigned while a ship or barge is loading or unloading cargo. Transfer operations are performed in an efficient manner to prevent spillage.

Actions taken to reduce the amount, extent or effects of a discharge are mitigation measures. Such actions can substantially reduce the effects of a discharge on the environment and the effort and cost of cleanup. On-Scene personnel should determine that the mitigation measure can be accomplished safely before attempting to implement the measure.

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 2.7** describes these mitigation procedures.

Additional information regarding all equipment and mitigation procedures to minimize spill magnitude and shutdown affected operations may be found in the *Marine Terminal Operational Manu*al, specific oil spill emergency response procedures and the *Tesoro Emergency Response Plan*.

FIGURE 2.7

(b) (7)(F), (b) (3)

[redacted]

2.3 SPILL ASSESSMENT

Before some actions can be taken to mitigate a spill, several factors must be determined about the spill, including magnitude, product type and direction. The following information contained in this subsection provides straight-forward methods to assess spill characteristics before initial activities can be taken to stop and/or lessen a spill.

Any oil in any form including sheen, sludge, oil refuse, and mixed oil, in visually detectable quantities, that is spilled, leaked, pumped, poured, emitted, emptied or dumped into the waters of the United States will be reported immediately to the appropriate Federal, State and local agencies. Any quantity of oil released to the Straight is a “spill” under Federal definitions.

This includes, but is not limited to, the following examples:

1. Oil intrusion into saltwater cooling system outfalls.
2. Hose failure during cargo transfer at one of the terminal berths.
3. Interior or exterior corrosion perforating of a transfer line routed over water.
4. Structural failure of a transfer line.
5. Disconnection of transfer hoses while still under pressure.
6. Land side failure of transfer or storage facilities with subsequent migration to waters of U.S.
7. Deliberate acts of sabotage.

2.3.1 First Response Observation

Upon notification of any oil spill, the initial Incident Commander (Shift Superintendent) will immediately dispatch personnel to visually evaluate the spill area. The spill size, type, direction and speed is to be assessed.

As a result of the variations in oil types and environmental conditions, no two spills will be identical. Each spill must be evaluated independently on the basis of incident-specific conditions. This subsection deals with assessment guidelines for initial response actions.

Tesoro is committed to a rapid and effective oil spill response in the manner which prioritizes safety according to the following:

- Safety of personnel
- Safety of the public
- Safety of the environment
- Safety of facilities

The assessment process includes the following sequence of steps:

1. Determine spill type and safety hazards to refinery personnel, contractors and the general public.
2. Evaluate the properties of the spilled oil as they influence response movement, recovery and environmental effects.
3. Estimate spill size and movement.
4. Determine level of Contingency Plan activation.
5. Establish response priorities.

2.3.2 Follow-up Observations

Once an oil spill is in progress, it is important to maintain good information about the movement of the spill so cleanup resources can be used effectively. The Incident Commander will provide personnel and equipment to obtain the information required to maintain control of the spill.

2.3.3 Type of Spill

- **Wharf Spill** – In general, the type of material spilled will be reported by shipping personnel. If uncertain, it may be possible to identify the material by appearance and location.
- **Vessel Spill (Wharves)** – Vessel spills may involve unidentified or mixed materials. If shipboard reports can not identify the material, judgmental decision based on the appearance of the slick will be necessary.
- **Other's Oil (oil of uncertain origin found around the marine terminal)** – Appearance and samples can provide data to make judgmental decisions.

2.4 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.

- 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.
- 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.
- A list of helicopter and aircraft companies are included in **FIGURE 3.6**.
- An Oil Spill Surveillance Form is included in **FIGURE 2.8**.
- A Glossary of Standard Oil Spill Surveillance Forms are included in **FIGURE 2.9**.

FIGURE 2.8
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)
____
____

FIGURE 2.8, CONTINUED
OIL SPILL SURVEILLANCE FORM

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

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

Other Observations

Response Operations

Skimmer deployment (general locations where skimmers are working).
Are they working in the heaviest concentration of oil? Describe.

____

____

FIGURE 2.8, CONTINUED
OIL SPILL SURVEILLANCE FORM

Boom deployment
Describe general locations of boom(s). ____________________________________
Does the boom contain oil? ________ Is oil entraining under the boom?_____________

Environmental Observations

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

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

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

General Comments:
____
____

FIGURE 2.9
GLOSSARY OF STANDARD OIL SPILL OBSERVATION TERMS

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

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

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

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

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

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

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

FIGURE 2.9 CONTINUED
GLOSSARY OF STANDARD OIL SPILL OBSERVATION TERMS

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

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

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

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

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

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

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

2.4.1 Spill Volume Estimating

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

- Report to agencies;
- Determine liquid recovery requirements;
- Manpower and equipment requirements;
- 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:

- If a spill occurs during transfer operations, the total spill volume can be estimated by multiplying the pumping rate by the elapsed time that the leak was in progress, plus the drainage volume of the line between the two closest valves or isolation points. Volume loss = Pump Rate (bbls/min) x Elapsed Time (min) + Line Contents (bbl).

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

(b) (7)(F), (b) (3)

[redacted]

- 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 2.11**) 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 2.12** to estimate the spill volume.

  Example:

(b) (7)(F), (b) (3)

[redacted]

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 2.10
SPILL ESTIMATION FACTORS

DEFINITIONS	GALLONS OF OIL PER SQUARE MILE
barely visible	(b) (7)(F), (b) (3) [redacted]
silvery	
slightly colored	
brightly colored	
dull	
dark	

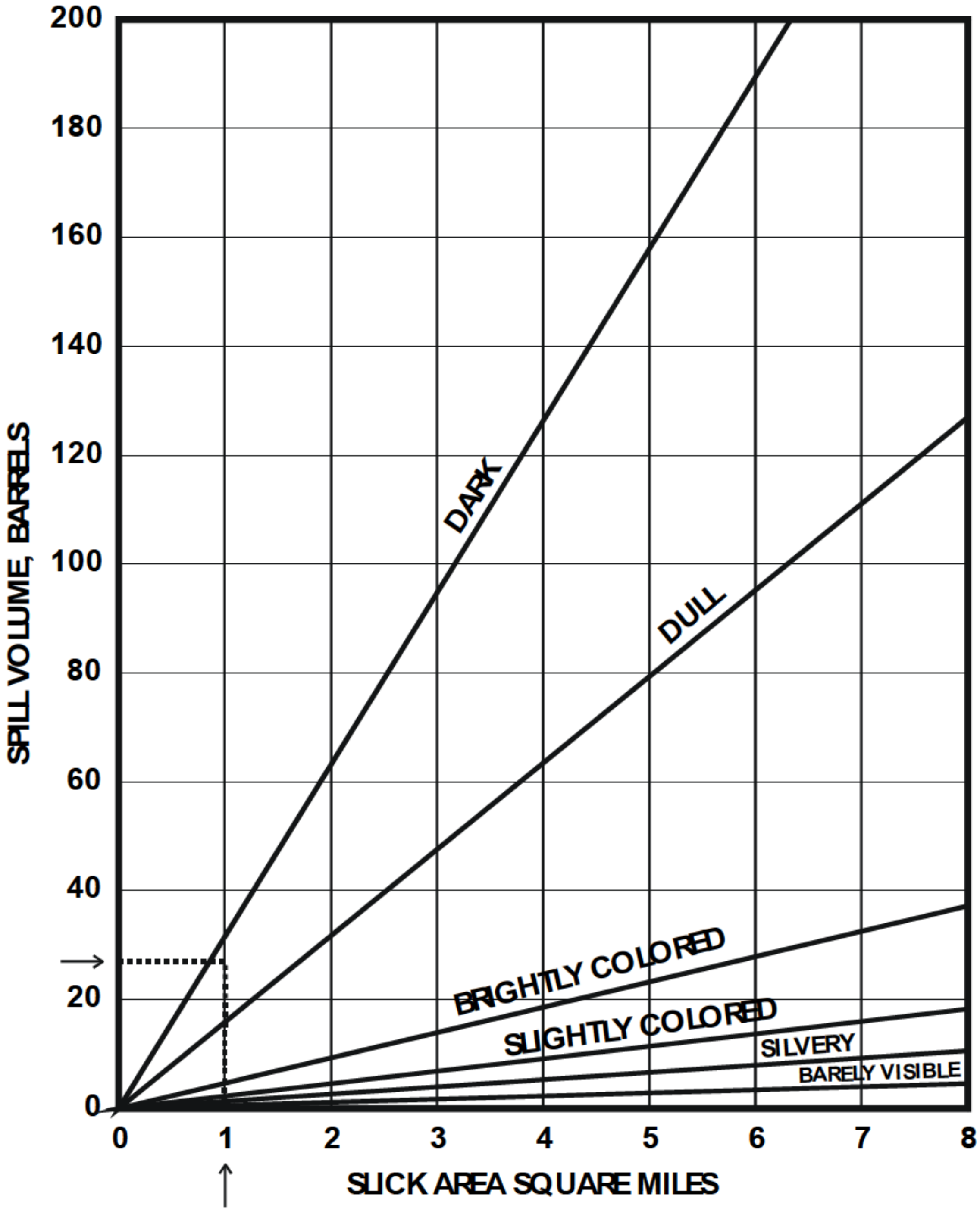
FIGURE 2.11
Visual **SLICK SIZE IN FRACTION OF A SQUARE MILE CHART**

	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

FIGURE 2.12

ESTIMATIONS OF SPILLED OIL VOLUMES FROM SLICK APPEARANCES (Large Volumes)



2.4.2 Monitoring and Predicting Spill Movement (Trajectories)

Factors Affecting Slick Movement

The movement of spilled oil on the water will depend primarily on the effects of wind and surface currents present near the site of the spill. Surface currents will dominate slick movement unless the winds are strong. When winds are strong, they will cause the slick to move at approximately 3.4 percent of the wind speed in the same general direction. This means that if a 20 mph wind is blowing from the east, the oil will move 0.68 miles to the west in one hour. When currents and strong winds are absent, slick spreading will dictate slick movement. However, even if only weak winds or surface currents are present, they will dominate slick movement. Examples of oil movement on water surfaces are shown in **FIGURE 2.14**.

Current speeds and directions may have to be estimated at the time of the spill by pacing off a 100-foot section of shoreline, throwing a stick or orange into the water upcurrent 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 slick movements. The initial direction of a slick'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. As the response effort proceeds, more sophisticated predictions would be generated by the Scientific Support Coordinator using the National Oceanic and Atmospheric Administration (NOAA) Oil Spill Simulation Model (OSSM), or Continental Shelf Associates (CSA) Model.

These techniques are briefly discussed below.

Visual

The **On-Site Supervisor** is familiar with the local geography and, when daylight and weather conditions permit, would be able to determine the initial direction of the slick's movement. In the event of a major spill, every effort would be made to enhance visual surveillance activities by placing a knowledgeable observer in a helicopter or fixed wing aircraft.

NOAA Oil Spill Simulation Model

During a major spill, the **Federal On-Scene Coordinator** would have access to 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 slick 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.

FIGURE 2.13
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 2.14
EXAMPLES OF OIL MOVEMENT ON WATER SURFACES

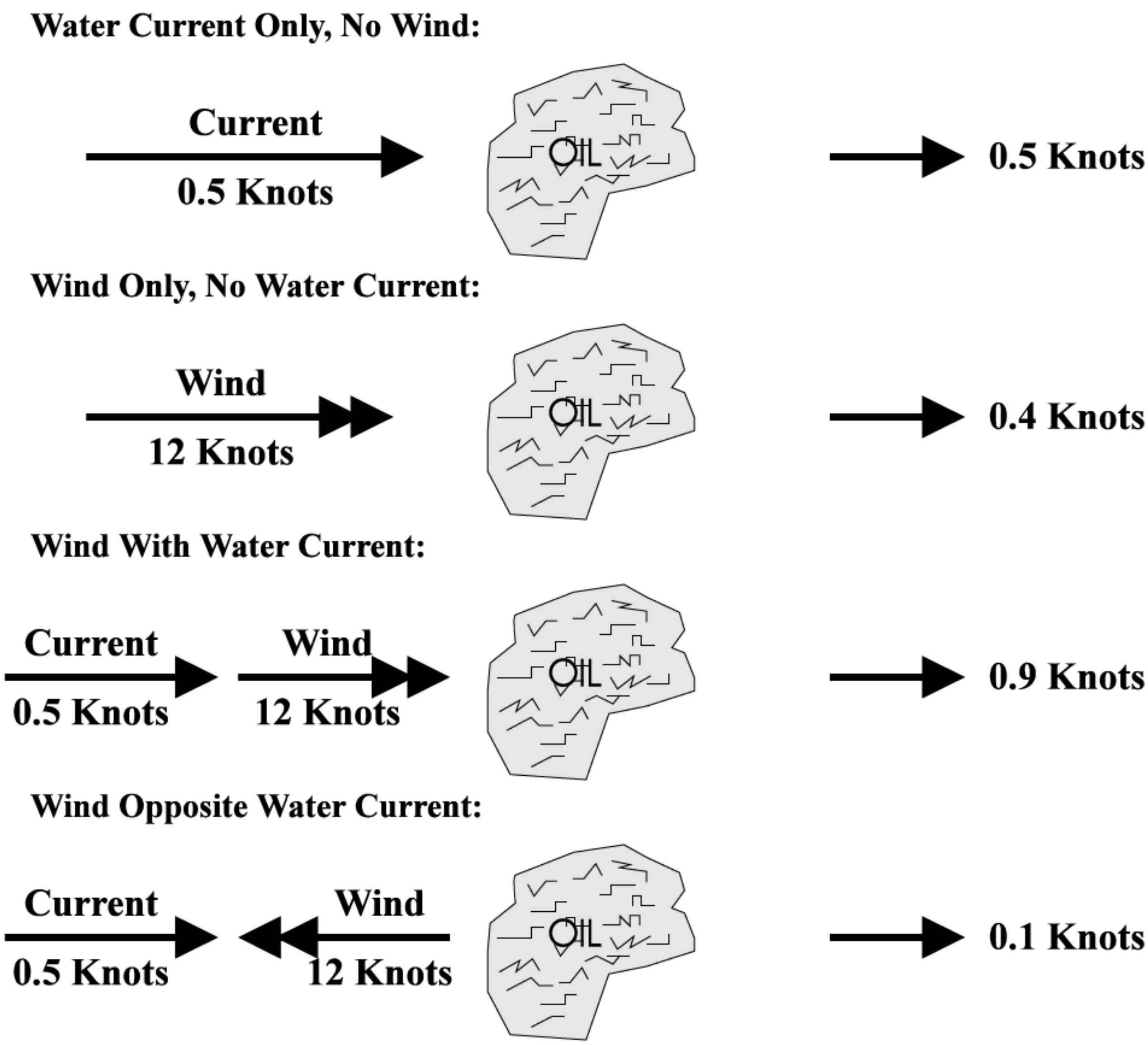
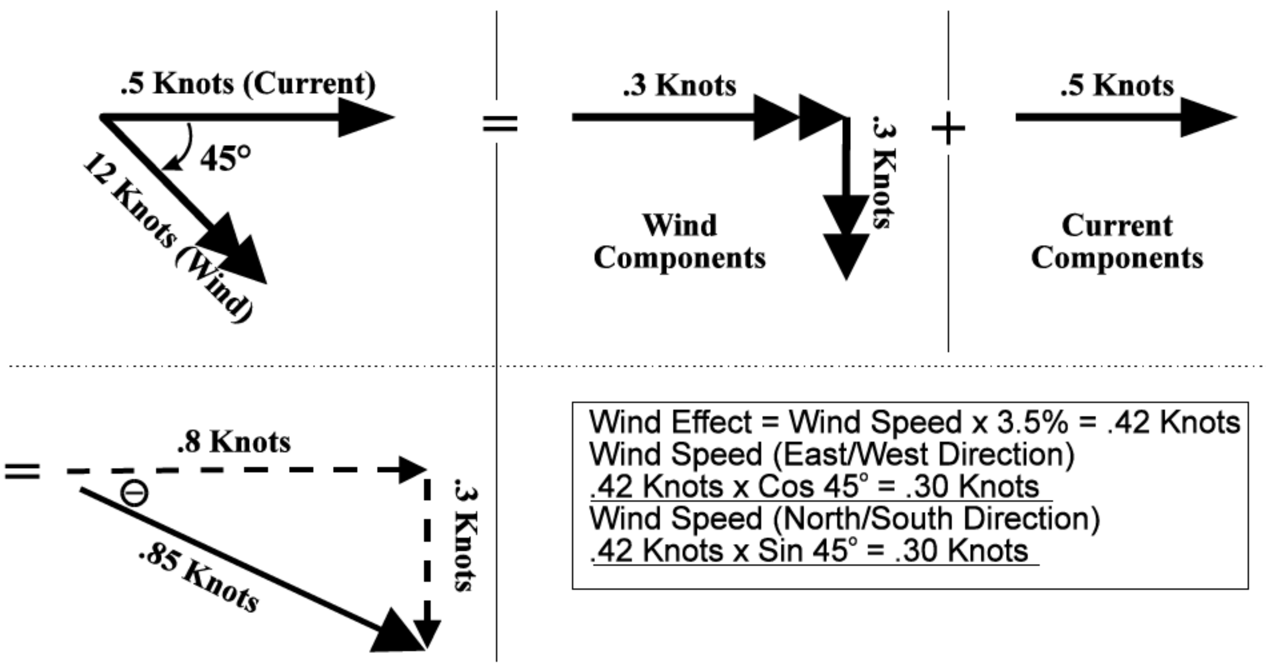
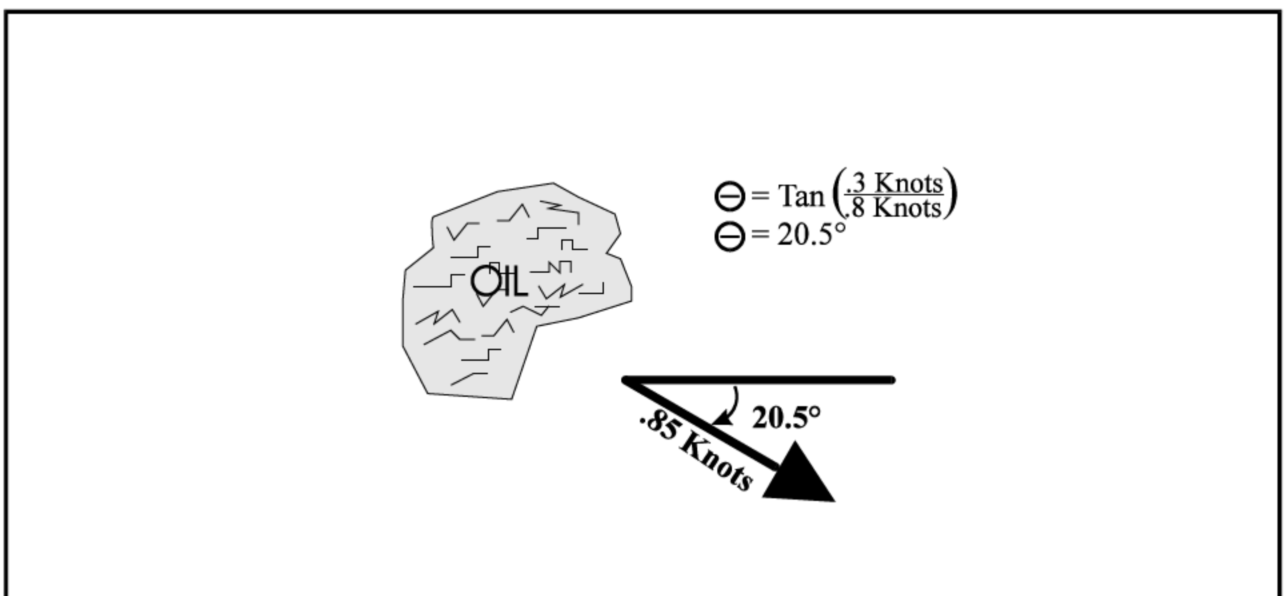


FIGURE 2.14, CONTINUED
EXAMPLES OF OIL MOVEMENT ON WATER SURFACES

Wind Current and Wind Not Directly Aligned:





Resultant Trajectory

2.5 INITIAL CONTAINMENT ACTIONS

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

- 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; and
- Limit the environmental impact to the immediate spill area.

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; and
- Environmental factors such as wind speed and direction.

2.5.1 Safety Considerations

- 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.

2.5.2 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 after reducing the spread of the slick and protecting shorelines, 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 3.6**.
- 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.

2.5.3 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 3.6**.
- 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**.

SECTION 3 NOTIFICATIONS/TELEPHONE NUMBERS

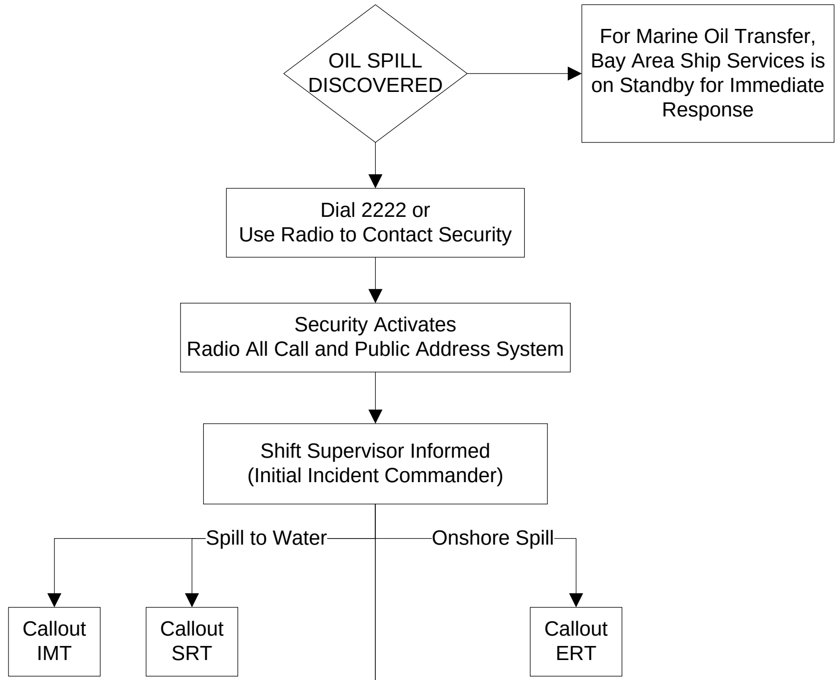
3.1 EMERGENCY INFORMATION AND NOTIFICATION PROCEDURES

To initiate emergency response for an oil spill at Tesoro's Golden Eagle Refinery, facility personnel will report the emergency to Security Control by dialing 2222, main ops radio channel, or (925) 370-3200. Security starts emergency activation by announcing the emergency on the radio all call and public address systems. Included in those who receive the announcement are the on-shift Operations Supervisors and Health & Safety personnel. The Operations Shift Superintendent, as the initial IC, will collect details about the incident, and begin the prioritized notifications in **FIGURE 3.4** according the Community Warning System (CWS) levels described in **FIGURE 3.2**. Operation Shift Superintendent will also call out the Spill Response Team (SRT) and Spill Management Team (SMT) responders, as needed depending on the magnitude of the release, utilizing the SendWordNow emergency notification system.

This section describes the notifications to be made and information summaries to be provided internally and to federal, state, and local agencies after identification of spill event. The priority of actions and response procedures will depend upon actual circumstances and will be determined by the Operations Shift Superintendent. The contents of this section are as follows:

- **FIGURE 3.1** provides a graphical representation of the initial notification procedure utilized at Tesoro.
- **FIGURE 3.2** contains the CWS *Incident Classification Levels* as defined by Contra Costa County, with supplemental industry and refinery guidance.
- **FIGURE 3.3** presents a summary of agency notifications.
- **FIGURE 3.4** provides the *IC Initial Notification Log* to be utilized by the initial IC (Shift Superintendent) for recording initial notifications based on Incident Classification Levels.
- **FIGURE 3.5** contains an Oil Spill Response Report. This form includes information required by the EPA/USCG/OSPR to be completed in the event of an oil spill. The Incident Commander will complete this form. **FIGURE 3.6** includes a notification summary and documentation form to assist in documenting notifications.
- **FIGURE 3.7** outlines agency notification procedures for pipeline spills.

FIGURE 3.1
OIL SPILL NOTIFICATION FLOW CHART



Notify OSROs (If needed)

MSRC	800-645-7745
Bay Area Ship Services	707-745-8411

Make Initial Notifications

NRC	800-424-8802
State EMA	800-852-7550
CCC OES	925-228-5000
USCG	415-399-3455
BAAQMD	800-334-6367
CCC Fire	925-930-5531
CC Health Services	925-646-2441(Sheriff Dispatch)

Other Notifications As Necessary

Regional Water Quality Control Board	510-622-2300
Contra Costa Water District	925-688-8374
Department of Toxic Substances Control	800-618-6942
California Dept. of Fish and Wildlife	916-445-0044 (option 5)
Office of Histroic Preservation	925-653-6624
Sheriff Dispatch (COMM1)	925-646-2441
California State Fire Marshal	916-445-8200
Martinez Police Dept.	925-372-3440
California Highway Patrol	707-551-4100
Concord Police Dept.	925-671-3333

*See Figure 3.3 for Reporting Information and Required Follow Up Reports.

FIGURE 3.2

HAZARDOUS MATERIAL REPORTING CLASSIFICATION LEVELS

LEVEL 0 (easily contained and controlled by plant personnel) is categorized by any of the follov

1. On-site only.
2. Safety Supervisor, or equivalent, is placed on alert due to a release or threatened release resulting from an emergency situation, including, but not limited to, emergency shutdowns or major unit start-ups.
3. Vapor release that is not expected to pose an immediate threat to the health and safety of people in the affected area. The release is more than an instantaneous release or “puff.”
4. Liquid spill contamination. (The spill is more than three 55-gallon drums—165 gallons—and does not meet any of requirements for notification listed in levels 1 - 3 and if the spill is not contained.)
5. The facility receives or is made aware of three (3) or more unsubstantiated odor complaints within an hour.

LEVEL 1 is categorized by any of the following:

1. On-site: possible off-site.
2. Confirmed (3 or more odor complaints within one hour and substantiated by plant personnel as an on-site problem) off-site odor from facility.
3. Fire/smoke which requires a response from workers outside the immediate area, but not visible off-site.
4. Excess flaring.
5. Spill or release incident that meets an RQ (Reportable Quantity) requirement and does not meet any of the requirements of Level 2 or 3.

LEVEL 2 is categorized by any of the following:

1. Off-site impact where eye, skin, nose and/or respiratory irritation may be possible.
2. Explosion with noise/pressure wave impact off-site.
3. Fire/smoke/plume (other than steam) visible off-site (does not include fire training exercises).

LEVEL 3 is categorized by any of the following:

1. Off-site impact that is expected to cause eye, skin, nose and/or respiratory irritation in the community (ERPG Level 2 concentration reading or greater).
2. Fire, explosion, heat, or smoke with an off-site impact.
   Example: On a process unit/storage tank where mutual aid is requested to mitigate the event and the fire will last longer than 15 minutes.

Hazardous material or fire incident where the incident commander or unified command, through consultation with the Hazardous Material Incident Response Team, requests that sirens should be sounded.

3.2 OIL SPILL PRIORITIZED INFORMATION/NOTIFICATIONS

- To initiate emergency response at Tesoro, facility personnel will contact Security Control by dialing 2222. For an oil spill to the Bay during a marine transfer, the Wharfinger at the impacted wharf will immediately notify Ship Services if they are not already at the Golden Eagle wharf.

- The Operations Shift Superintendent will assume the role of initial Incident and EOC Commander [Note: With an SMT callout, the Shift Superintendent will be relieved by the first designated (relieving) Incident / EOC Commander/Qualified Individual to arrive.]

- The Incident Commander will collect details about the incident, and make the prioritized notifications according the Community Warning System (CWS) levels described in **FIGURE 3.2**. Additional notifications will be made by the Environmental On-Call Representative or designee, as shown in **FIGURE 3.2 AND 3.3.**

- The Incident Commander will assemble the On-Shift Supervisors and Emergency Responders into a response team utilizing the Incident Command System. The Incident Commander will determine the need to call-out additional responders including the Spill Response Team and/or Spill Management Team based on the conditions of the incident, if they have not already been activated. Call-outs will via the SendWordNow emergency notification system and/or home telephone numbers

- During the assessment of the situation, the EOC/Incident Commander will begin to complete the ICS 201 *Incident Briefing Form* **SECTION 5.3**, to document the initial oil spill response and prepare a briefing for responders/agencies.

FIGURE 3.3
AGENCY NOTIFICATION SUMMARY

AGENCY	SPILL SIZE	REPORT
National Response Center (NRC)	The NRC must be notified of any release to surface waters of oil (any amount), or hazardous substance or (constituent thereof). The NRC must also be notified of the release of a reportable quantity of a hazardous substance or extremely hazardous substance as required by CERCLA and EPCRA/SARA. This notification is also applicable for covered releases from the on-shore pipelines and the wharves.	Verbal. The NRC is then responsible for notifying other federal agencies. The company must also file a written report with the appropriate agencies (**FIGURE 3.5**).
U.S. Coast Guard	Any release to surface waters of oil (any amount), or hazardous substance or (constituent thereof).	Verbal.
Department of Transportation (DOT)	Report any release of a hazardous material from the Avon/Amorco pipelines.	Written reports must include the following: a. Name and address of operator, b. Name and telephone number of reporter, c. Location of the failure, d. Time of the failure, e. Fatalities and personal injuries, if any, f. All other significant facts known by the operator that are relevant to the cause of the failure or extent of the damages. Reports for intrastate pipelines under jurisdiction of a state agency pursuant to certification under Section 205 of the Hazardous Liquid Pipeline Safety Act of 1979 may be submitted in duplicate to that agency if the regulations of that agency require submission of these reports (PHMSA Form 7000-1)* and provide for further transmittal of one copy within 10 days of receipt to the Information Resources Manager.

* DOT Form 7000-1 can be found on the internet at http://phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/HazLiq%20Accident%20Form%20-%20PHMSA%20F%207000-1(01-2010).pdf

FIGURE 3.3
AGENCY NOTIFICATIONS REQUIREMENTS (CONTINUED)

AGENCY	SPILL SIZE	REPORT
California State Lands Commission	The California State Lands Commission must be notified of any spills which threaten state land, including onshore lands, waterways, tide and submerged lands out to three nautical miles, managed by the State Lands Commission.	The verbal report should include the following: 1. Date, time and location of spill 2. Name and telephone number of person reporting 3. Type and quantity of spill 4. Description of events 5. Injuries, if applicable 6. Measures taken or planned to contain and clean up spill 7. Local agencies on scene or notified
California Emergency Management Agency Cal E-M-A	Any release or threat of release of a hazardous material that poses a significant present or potential hazard to human health, safety, property, or the environment.	Report information above when making a verbal report. Within 30 days of verbal report, a written report may be required.
Regional Water Quality Control Board	Any release of oil or hazardous substance to surface water or groundwater, or to land where there is the probability of the material reaching surface water or groundwater.	Verbal to either Compliance or Groundwater Section.
Contra Costa County Office of Emergency Services (OES)	Any release or threat of release of a hazardous material that poses a significant present or potential hazard to human health, safety, property, or the environment.	Verbal or Community Warning System (CWS) Notification.
Contra Costa County Health Services Dept. (CUPA)	Releases or threatened releases as defined in Figure 3.2.	Verbal, with written 72-hour and 30-day follow-up reports generally required for CWS Level 2 and 3 incidents.
California State Fire Marshal (CSFM)	Any incident that occurs during the hazardous material transportation through the Avon/Amorco pipelines that falls under California State Fire Marshal jurisdiction.	Verbal, and follow-up written reports are required.
California Office of Historic Preservation	Any release or threat of a release of hazardous material that poses a threat to property or the environment.	Verbal

FIGURE 3.4
SAMPLE* EOC COMMANDER INITIAL NOTIFICATION LOG
*See Shift Superintendent guide (ERP Annex 1) for most recent version.

CWS Circle One				OTHER CRITERIA	EOC COMMANDER Initial Notification Log GOLDEN EAGLE REFINERY	
LEVEL 0	LEVEL 1	LEVEL 2	LEVEL 3 Call 811		150 Solano Way, Martinez CA 94553 **Name:** ____ **Incident** : ____ **IIS #** ____ **Date**: ____ **Time:** ____ Time Localized Emergency.:____ Time All Clear:____ Horn Sounded? ☐ Yes ☐ No ☐ Notifications only ☐ ERT ODD ☐ ERT EVEN ☐ EOC Minor ☐ EOC Major ☐ SRT ☐ SMT Minor ☐ SMT Major ☐ PMAO Weather conditions: (sun, rain, fog, etc.) ____ Wind direction (from, in degrees): Wind speed (mph):	Note whether the agency asked for a follow-up call: **YES/NO**
Call 8-911 to activate emergency assistance for all Level 3 incidents, building fires, need for law enforcement, etc.						
X CWS	X CWS	X CWS	X CWS PB TENS Zones		**COMMUNITY WARNING SYSTEM ACTIVATION** **Contra Costa County Health Services Department (CCCHSD)** Time CWS terminal sequence or PB: Numeric Pager: **(925) 677-6700** Time agency callback received:____ Call from:____	
Call these agencies for designated levels after the CWS sequence is sent:						
	CWS	CWS	CWS		**CCC Fire Protection District** **(925) 930-5531** Time of call:____ Person contacted: ____	
X	X	X	X		**GE Environmental On-Call** Pager: **(925) 688-6158** Time of call:____ Person contacted: ____	
X	X	X	X		**GE Public Relations** Cell: (b) (6) [redacted] Pager: **(925) 688-6360** Time of call:____ Person contacted: ____	
	X	X	X		**GE Operations Manager** Cell: (b) (6) [redacted] Time of call:____ Pers ____	
Make these notifications for any quantity oil spill to Bay or if requested to do so by Environmental:						
				X	**Marine Spill Response Corp. (MSRC)** **(800) 259-6772** Time of call: Person contacted: **or (800) OIL SPIL**	
				X	**California Emergency Management Agency (Cal EMA)** **(800) 852-7550** Time of call:____ Person contacted: ____ Report #____	
				X	**National Response Center (NRC) / U.S. Coast Guard** **(800) 424-8802** Time of call: Person contacted: Report # ____	
Make these notifications as appropriate if for city or highway impact, or requesting a road closure, etc.						
	CWS	CWS	CWS	X	**Sheriff, Senior COMM 1 Dispatcher** Time of call:____ **(925) 646-2441** *(Call to report CWS activation problem. Use 8-911 for emergency response.)*	
	CWS	CWS	CWS	X	**CA Highway Patrol** Time of call:____ **(707) 551-4100 Select 1**	
	CWS	CWS	CWS	X	**Martinez Police Dept.** Time of call:____ **(925) 372-3440** *(Amorco Terminal/Pipeline to Waterbird Way)*	
					Concord Police Dept. Time of call:____ **(925) 671-3333** *(Arnold Industrial Way and Concord Industrial Park)* NO CWS TERMINAL	

Fax completed form to Environmental at 372-3179, and copy Operations Manager. **Rev. 12/08/11**
Original to investigation packet, if applicable.

FIGURE 3.5
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 3.6
NOTIFICATION SUMMARY AND DOCUMENTATION FORM

*Represents after hours telephone numbers

AFFILIATION	PHONE NUMBER	NAME OF PERSON CONTACTED	TIME CONTACTED
A. TESORO MARKETING AND REFINING COMPANY PERSONNEL			
Steve Bishop Operations Area Supt. (Qualified Individual)	(925) 372-3144 (Office) (925) 688-6063 (Pager) (b) (6) [redacted] (Cellular)		
Larry Hanson Production special Projects Mgr. (Qualified Individual)	(925) 370-3360 (Office) (b) (6) [redacted] (Cellular)		
Eric Legare Operations Area Mgr. (Qualified Individual)	(925) 335-3526 (Office) (b) (6) [redacted] (Cell)		
Tim Pettibone Operations Area Mgr. (Qualified Individual)	(925) 370-3385 (Office) (b) (6) [redacted] (cellular)		
Don Gray Operations Area Mgr. (Qualified Individual)	(925) 228-1220 ext. 2335 (Office) (b) (6) [redacted] (Cell)		
Greg Clayton Manager, Emergency Response	(925) 370-3686 (Office) (b) (6) [redacted] (Cellular) (925) 688-6118 (Pager)		
Rob Donovan Vice President Corporate Environmental Affairs	(253) 896-8716 (Office) (b) (6) [redacted] (Cellular)		
Eric Haugstad Manager, Contingency Planning and Emergency Response	(210) 283-2636 (Office) (b) (6) [redacted] (Cellular)		
Doug Price Managing Director Refining Environmental	(210) 626-6287 (Office) (b) (6) [redacted] (Cellular)		
Jeff Haffner Corporate Environmental Attorney	(210) 283-2418 (Office) (b) (6) [redacted] (Cellular)		
B. MANDATORY NOTIFICATIONS			
National Response Center Washington D.C. Direct Line	(800) 424-8802 (202) 267-2675		
California Office of Emergency Services (OES)	(800) 852-7550		
California Department of Fish and Wildlife (Caltip)	(800) 852- 7550		
California State Lands Commission	(562) 590-5201		
Contra Costa County Health Services Department	(925) 646-2441* (Sheriff Disp.) (925) 957-5400 (During Business Hours)		
Contra Costa County Office of Emergency Services (OES)	(925) 228-5000		
D. NOTIFICATIONS AS APPROPRIATE			
Federal Agencies			
US Coast Guard- Sector San Francisco	(415) 399-3547 Primary # (415) 556-2103 Emergency #		
EPA Region IX	(800) 300-2193 (415) 495-8895 (Non- Emergen		
U.S. Dept. of the Interior - USGS	(916) 278-3000		
National Park Service	(415) 561-5656		

FIGURE 3.6
NOTIFICATION SUMMARY AND DOCUMENTATION FORM

*Represents after hours telephone numbers

AFFILIATION	PHONE NUMBER	NAME OF PERSON CONTACTED	TIME CONTACTED
U.S. Fish and Wildlife Services, Sacramento, CA	(916) 414-6464 (Non- Emergen (916) 414-6590 (NRDA) (916) 414-6601 Emergency #		
U.S. Dept. of Transportation	(415) 744-3115		
U.S. Forest Service – Region 5	(707) 562-8737		
State Agencies:			
CA Dept. of Fish & Wildlife, Office of Oil Spill Prevention Response #5	(916) 445-0045 (Sac. Office) (800) 645-7911		
California State Fire Marshal Sacramento, CA, Business	(916) 445-8200 (916) 323-7390 Emergency.#		
CA Dept. of Forestry & Fire Protection Sacramento, CA	(916) 845-8680 24Hr. (916) 327-3063 (Non- Emergency)		
CA Dept. of Conservation Division of Oil & Gas, District 6	(916) 322-1110		
California Dept. of Health Services	(916) 449-5661 (925) 313-6710 Public Info.		
CA Office of Historic Preservation	(916) 953-6624 (916) 445-7000		
California Regional Water Quality Board SF Bay Region	(510) 622-2300		
Local Agencies:			
Contra Costa County Fire Protection District	(925) 930-5531 Business (925) 933-1313 Emergency		
Bay Area Air Quality Management District	(415) 771-6000 (800) 334-6367 Complaint line		
Joint CCC/BCDC Oil Spill Program`	(415) 904-5200 (415) 693-8375 Oil Spill		
Emergency Medical:			
Poison Control Center	(800) 222-1222		
Kaiser Medical Center	(925) 372-1000		
CalSTAR (CA Shock/Trauma Air Res.)	(800) 252-5050 (925) 933-1313 CCCFD		
Valley Urgent Care (Livermore)	(925) 373-4018		
Reach Helicopter	(800) 338-4045		
Fire Departments:			
Contra Costa County Fire Protection District	9 - 1 - 1 (925) 933-1313 (Emergency)		
Police Departments:			
Concord Police Department (Industrial Park/Arnold Industrial in city)	(925) 671-3333		
Martinez Police Department (Amorco Wharf and Pipelines)	(925) 372-3440		
Sheriff Dispatch (Main refinery)	(925) 646-2441		
CA Highway Patrol	(707) 551-4100		

D. EMERGENCY SERVICES:			
Hospitals:			
Contra Costa County EMS, Martinez, CA	(925) 646-4690		
Contra Costa Regional Medical Center	(925) 370-5000*		
John Muir /Mount Diablo Medical Center, Concord, CA	(925) 682-8200*		

FIGURE 3.6
NOTIFICATION SUMMARY AND DOCUMENTATION FORM

*Represents after hours telephone numbers

AFFILIATION	PHONE NUMBER	NAME OF PERSON CONTACTED	TIME CONTACTED
John Muir Medical Center, Walnut Creek, CA	(925) 939-3000*		
E. MEDIA			
Radio:			
K101 FM Business Office	(520) 458-4313 (800) 595-7525 Request Line		
KCBS ALL NEWS 74	(415) 765-4113		
KRQR 97 FM	(530) 342-2200		
KFOG 99.7	(415) 995-6800		
KFOG FM 104.5	(415) 995-6800		
KQED FM	(415) 864-2000		
KOIT RADIO 96.5 FM / 1260 AM	(415) 777-0965 (800) 564-8965 Listener Line		
Television:			
KBHK TV, San Francisco	Disconnected- no # avail.		
KCNS TV 38, San Francisco	(415) 954-7149		
KDTV CH. 14, San Francisco	(415) 538-8000		
KGO TV CH. 7, San Francisco	(415) 954-7321		
KICU TV CH. 36, San Francisco	(408) 953-3636		
KOFY TV 20, San Francisco	(415) 821-2020		
KPIX Ch. 5, San Francisco	(415) 765-8935		
KQED TV Ch. 9, San Francisco	(415) 864-2000		
KRON TV CH. 4, San Francisco	(415) 561-8905 (415) 441-4444		
Newspapers:			
Contra Costa Times, Walnut Creek, CA	(925) 935-2525		
Pleasant Hill Martinez Gazette, Concord, CA	(925) 228-6400		
San Francisco Chronicle	(415) 777-1111		
San Francisco Examiner	(415) 359-2600		
J. ENVIRONMENTAL SERVICES			
Weather:			
NOAA – National Weather Service Sacramento Office	(916) 979-3051		
NOAA – National Weather Service Western Region web site	www.nws.noaa.gov		
K. HELICOPTERS / SEA PLANES			
Helicopters:			
South Bay Helicopters	(510) 259-1279 Bus Hrs. (b) (6) [redacted] Emergency to Mike's cell as long as he's not in the air.		
Aris Helicopters Sidney Retamoso	(813) 638-1056		
L. DISPOSAL SERVICES			
Allied Waste	(925) 685-4711		
M. WILDLIFE REHABILITATION SPECIALISTS			
Oiled Wildlife Care Network (OWCN)	(707) 207-0380 (888) 447-1743 Oil Spill # ((530) 752-4167 (2nd Option (b) (6) [redacted] Cell (3rd)		
Birds/Mammals:			
Int'l Bird Rescue Center	(707) 207-0380		

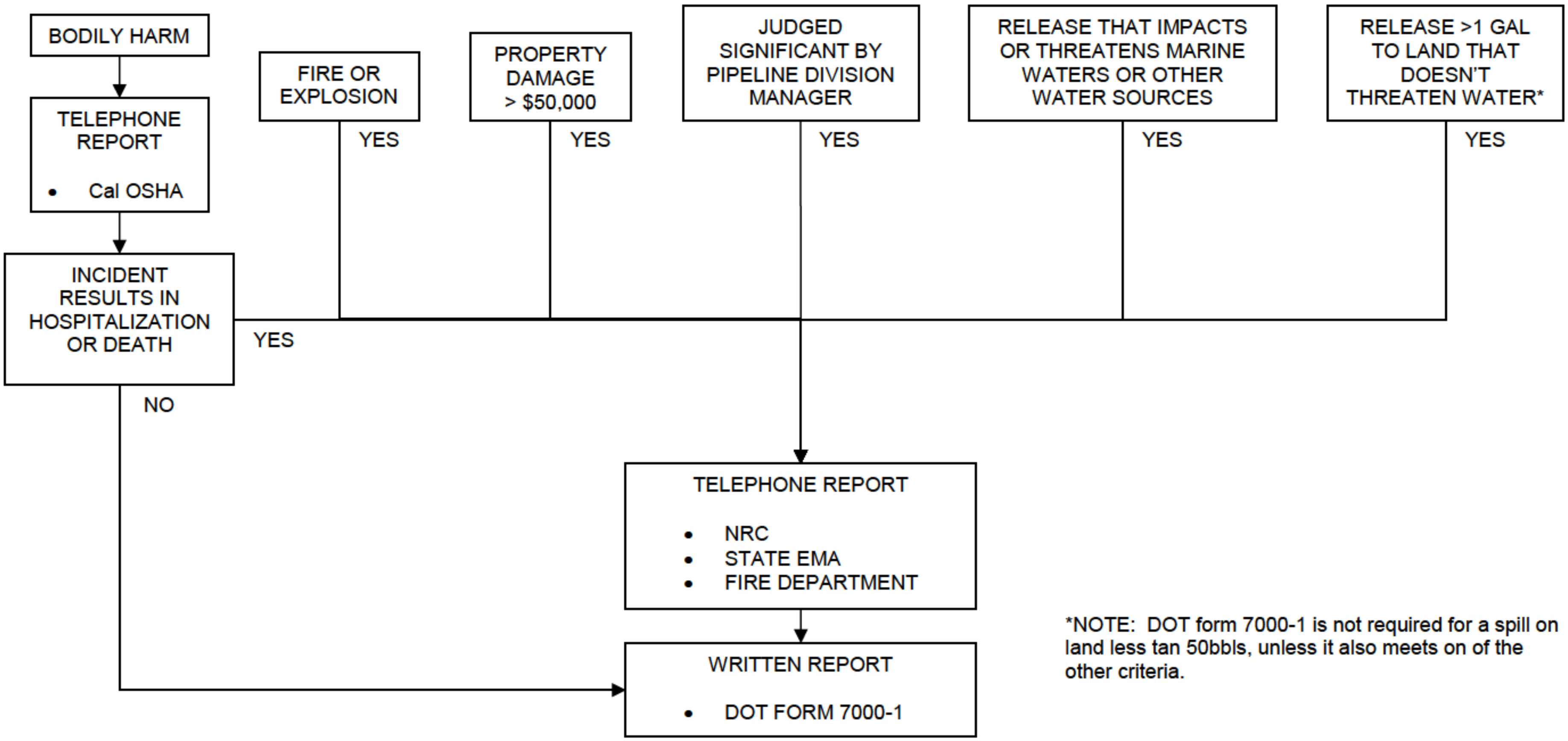
FIGURE 3.6
NOTIFICATION SUMMARY AND DOCUMENTATION FORM

*Represents after hours telephone numbers

AFFILIATION	PHONE NUMBER	NAME OF PERSON CONTACTED	TIME CONTACTED
Bay Oiled Wildlife Care & Education Center, Cordelia (new center near Fairfield)			
Bird Rescue Center, Santa Rosa	(707) 523-2473 Leave Msg		
CA Center for Wildlife, San Rafael	(415) 456-7283		
Peninsula Humane Society Wildlife Care Center, San Mateo	(650) 340-7022		
The Lindsay Museum, Walnut Creek	(925) 935-1978		
Native Animal Rescue, Santa Cruz	(831) 462-0726		
Monterey SPCA, Monterey	(831) 373-2631		
Pacific Wildlife Care, San Luis Obispo	(805) 543-9453		
S B Wildlife Care Network, Santa Barbara	(805) 681-1080		
All Creatures Care Cottage, Costa Mesa	(949) 642-7151		
Sea World of California, San Diego	(619) 222-6363		
North Coast Marine Mammal Center, Crescent City	(707) 465-6265 (707) 951-4722		
The Marine Mammals Center - Marine Headlands, Sausalito	(415) 289-7325		
Friends of the Sea Lion Marine Mammal Center	(949) 494-3050		
N. LOCAL ACCOMMODATIONS			
Crowne Plaza Hotel, Concord	(925) 825-7700		
John Muir Inn, Martinez	(925) 229-1010		
Residence Inn by Marriott, Pleasant Hill	(925) 689-1010		

FIGURE 3.7
AGENCY NOTIFICATION PROCEDURES

INCIDENT RESULTS IN ONE OR MORE OF THE FOLLOWING



*NOTE: DOT form 7000-1 is not required for a spill on land less tan 50bbls, unless it also meets on of the other criteria.

THIS PAGE INTENTIONALLY LEFT BLANK.

SECTION 4 RESPONSE TEAM ORGANIZATION

4.1 DESCRIPTION

The spill response team at Golden Eagle consists of a Incident Management Team, and a Field Response Team supplemented by contracted services for oil recovery efforts. The Incident Management Team (IMT) has been created and organized to plan for and manage emergencies involving oil spills. The IMT is composed of company personnel assigned to the refinery, including EOC responders and other personnel with specific skills and training to support a spill response. The IMT will develop strategies and priorities for the spill response, then will supervise contractors, handle safety and security matters, and will provide logistical support for contractor personnel. The IMT will handle all communications with the media and the public. The organizational structure of the IMT follows the fundamental principles of NIMS ICS and uses standard ICS forms. Refer to **FIGURE 4.1** for a representation of a typical ICS organizational structure for an oil spill.

The refinery Emergency Response Team (ERT) responds to all emergencies (fire, injury, oil releases, hazardous materials emergencies) except oil spills to water. If oil is spilled to water, without a fire or explosion risk, the refinery Spill Response Team (SRT) will be immediately activated to mitigate, assess, and determine the necessary steps to respond to the emergency. If only a small quantity of oil is spilled, the initial SRT responders will complete the cleanup. For larger releases, The ERT may be activated to support SRT activities including land based efforts for leak control and containment. In addition, contracted spill response resources (Bay Area Ship Services and MSRC) will be activated to assist with the response and recovery.

IMT activation procedures are outlined in **FIGURE 4.4** and described below. Job descriptions for each IMT member are included in **FIGURE 4.5**. The IMT will train by participating in drills as noted in **APPENDIX A**.

4.2 OIL SPILL IMT ACTIVATION PROCEDURES

Activation of the IMT may be accomplished in stages. Initially, the First Responder reports the incident, and the Operations Shift Superintendent assumes the role of Incident Commander. During a very minor spill incident, the Incident Commander (IC) may be able to respond without assistance from the IMT. If the situation requires more resources, he or she will request activation of the IMT. IMT activation procedures are illustrated in **FIGURE 4.4** and described below:

- First Responder (Employee) discovers the spill to water and notifies Security at **2222.**

- Security notifies the Operations Shift Superintendent (IC) and other on-shift personnel by announcing an emergency over the radio all-call and public address system. On-site ERT members are automatically activated with the sounding of any refinery emergency.

- Based on initial reported information, the IC determines if the SRT and IMT should be activated, and if necessary, notifies them using SendWordNow emergency notifications. The SRT is activated at a full response level each time. The IMT can be activated at two different levels (IMT Minor and IMT Major). IMT minor activation is appropriate when it is known that the release is very minor, and is under control. IMT Major activation is appropriate when the size and cause of the release is either unknown, or large.
- SRT members report to the field staging area at the Tract 3 boathouse, and IMT responders go to EOC.

- The Initial IC (Shift Superintendent) briefs the IMT upon arrival at the EOC, and is relieved by the incoming EOC Commander / QI.

- IC and Section Chiefs continually assess staffing needs.

- IC de-activates IMT personnel that are not needed.

4.3 TEAM MEMBER RESPONSE TIMES

The Incident Commander and other IMT personnel will likely mobilize to the EOC initially. The IMT's maximum expected arrival time during off-hours is less than one hour.

4.4 UNIFIED COMMAND SYSTEM

A Unified Command (UC) will be utilized as a method of integrating federal, state and local agencies within 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 UC structure consists of three key On-Scene Coordinators: Federal On-Scene Coordinator (FOSC), State On-Scene Coordinator (SOSC), and the Responsible Party Incident Commander. These three entities will share decision-making authority as Incident Commander in the Command Center and will consult with each other regarding spill response management issues.
Depending upon the size and complexity of the incident, additional federal and state agency personnel will be integrated into the other functions of the IMT.

4.5 QUALIFIED INDIVIDUAL

At Golden Eagle, the Qualified Individual (QI) fills the role of Incident Commander, and as such, oversees the management of the entire response, establishes the response priorities and objectives, serves as the liaison with Corporate management and works with the State and Federal On-Scene Coordinators in Unified Command. The QI is an English-speaking representative of the refinery, available on a 24-hour basis, trained in responsibilities outlined in this section. 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; and
- Direct cleanup activities 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) and CALOSHA standards for emergency response operations (8 CCR 5192);
- How to implement the OSCP;
- Requirements of the NCP, ACP, and State Oil Spill Contingency Plan;
- Overall spill prevention and response provisions in the OSCP and the specific responsibilities assigned to the QI position;

- Resources committed or that could be potentially committed during an incident;

- Procedures for obtaining and obligating funds to carry out the necessary or directed response activities; and the persons or offices to contact outside or within Tesoro. who would facilitate and expedite such actions;

- Ability to perform liaison duties between Tesoro 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 transfer process also includes internal notification of the Tesoro oil spill response organization. Notification procedures are provided in **SECTION 2**.

A listing of designated Qualified Individuals, and c Alternate Qualified Individuals to relieve the first responding Qualified Individual in included in Figure 1.3 and Figure 3.6.

FIGURE 4.1
TESORO INCIDENT RESPONSE TEAM ORGANIZATION

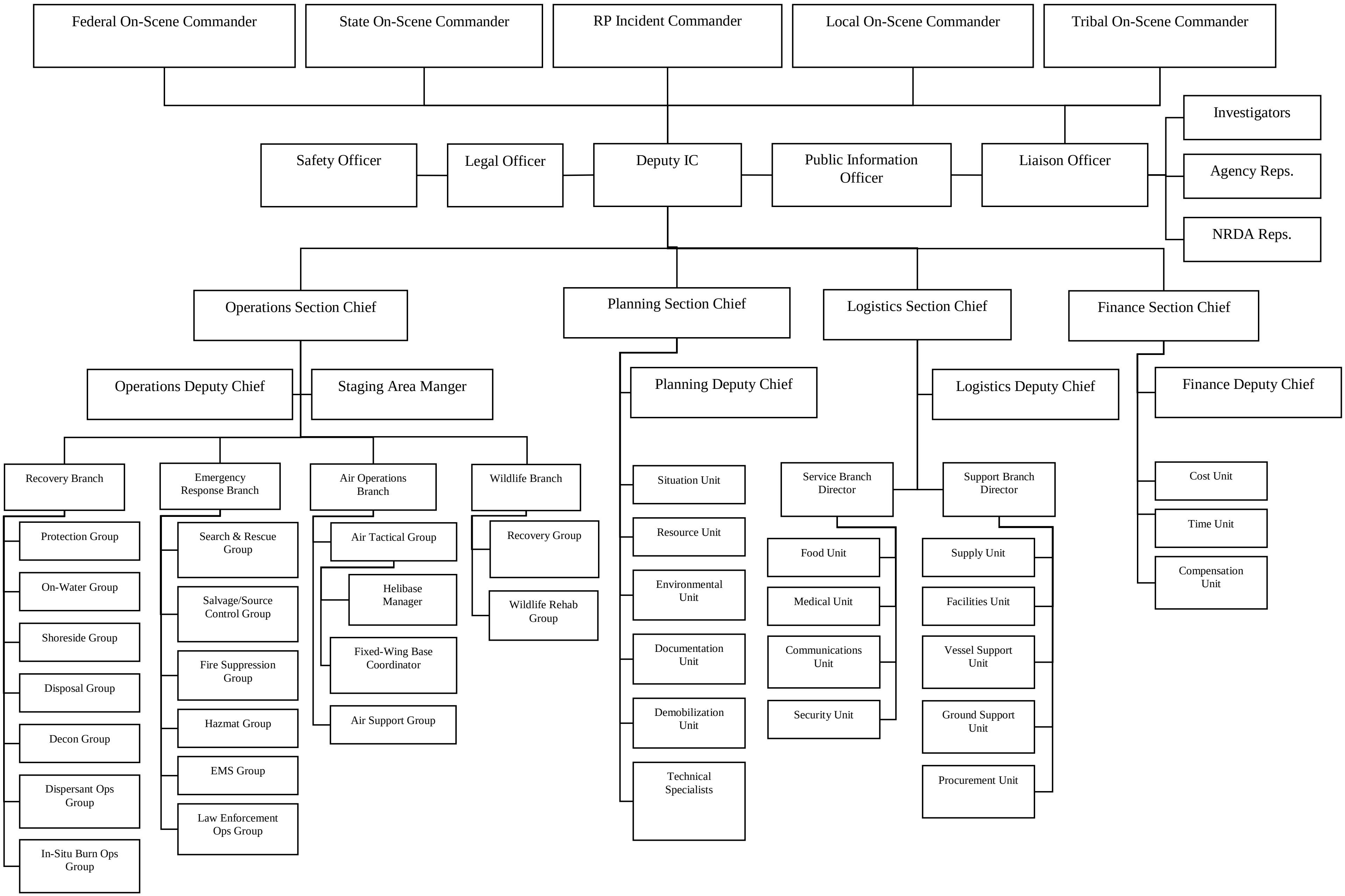


FIGURE 4.2
GOLDEN EAGLE INCIDENT MANAGEMENT TEAM

IMT Position	Name
Qualified Individual	Bishop, Steve
Qualified Individual	Hanson, Larry
Qualified Individual	Legare, Eric
Qualified Individual	Pettibone, Tim
Qualified Individual	Savage, Alan
Qualified Individual	Gray, Don
Safety Officer	Mancera – Strachan, Carla
Safety Officer	Broker, Jim
Safety Officer	McCarthy, Mike
Security Officer	Orr, Greg
Security Officer	Moore, Rob
Liaison	Gokcen, Sabiha
Liaison	Leland, Richard
Public Information Officer	Marcy, Mike
Public Information Officer	Dami, Ken
Planning Section Chief	Buell, Matt
Planning Section Chief	McDowell, Chris
Resource Unit Leader	Johansson, Lars
Resource Unit Leader	Wong, Daniel
Situation Unit Leader	Cole, Ken
Situation Unit Leader	Burnett, George
Documentation Unit Leader	Grinton, Leilani
Documentation Unit Leader	Simmons, Karla
Environmental Unit Leader – Deputy (OSPR is EUL)	Spencer, Claire
Environmental Unit Leader – Deputy (OSPR is EUL)	Carroll, Peter
Operations Section Chief	Pettibone, Tim
Operations Section Chief	Hanson, Larry
Operations Section Chief	Legare, Eric
Logistics Section Chief	Getz, Sandy
Logistics Section Chief	Peterson, Roger
Finance Section Chief	Bailey-Murray, Fountain
Finance Section Chief	Madden, Mike

FIGURE 4.3
INCIDENT MANAGEMENT TEAM ACTIVATION PROCEDURE

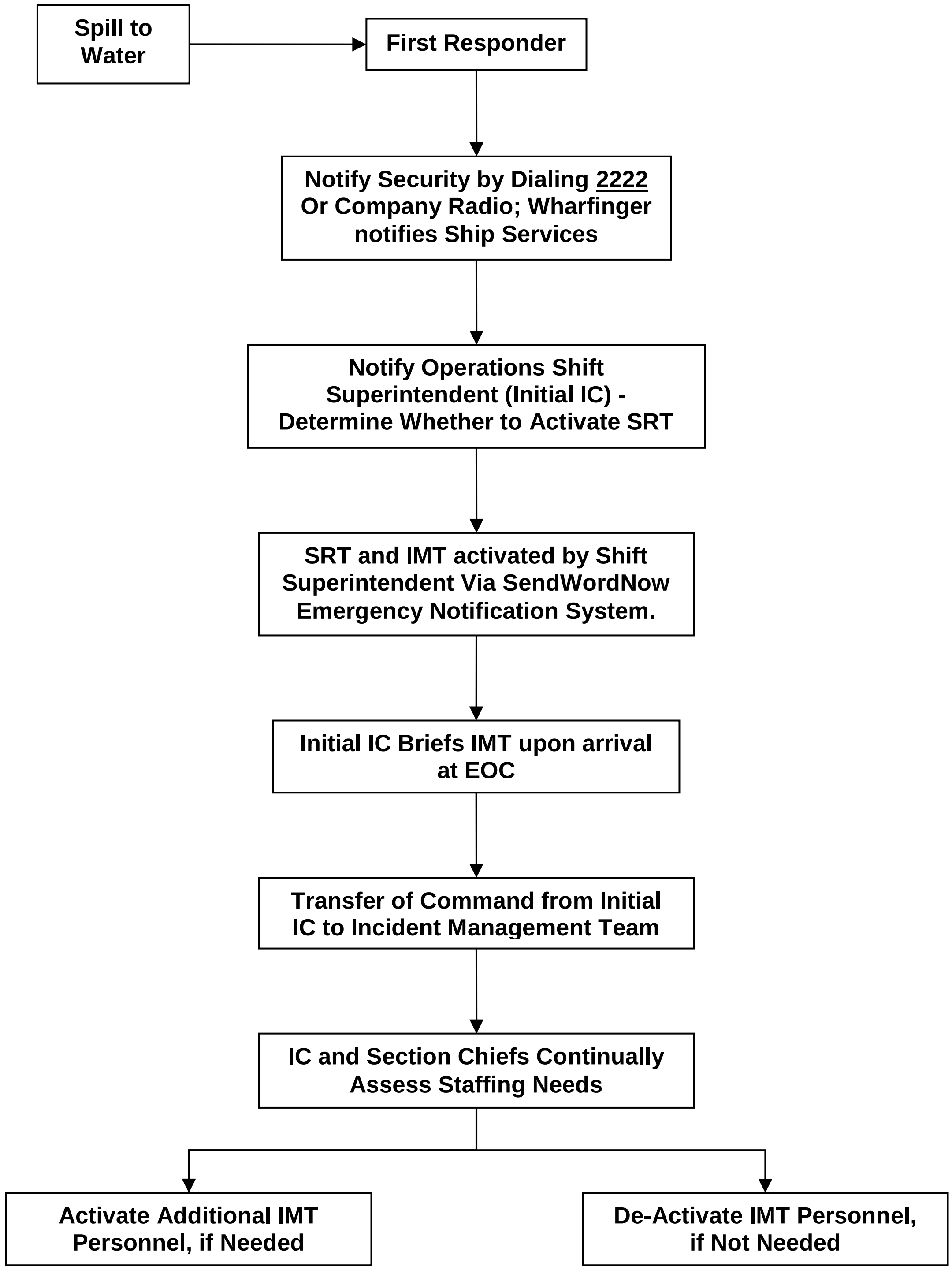


FIGURE 4.4
INCIDENT COMMAND TEAM DUTIES AND RESPONSIBILITIES

Tesoro positions and roles described below are intended to be representative of the positions and roles described in the USCG Incident Management Handbook (IMH) in the most currently updated San Francisco Bay/Delta Area Contingency Plan. For the purpose of training and/or role clarification we will refer to the ACP 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 response contractor or contract personnel, **at no time will these individuals be cast in the role of IC or Section Chief.**.Tesoro will follow a Planning Cycle consistent with the ACP. Refer to the Tesoro Incident Management Handbook and position Job Aids for more information on organization and duties for each specific position.

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. 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 Crisis Management Team (CMT) and/or Unified Command is 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 crisis to the news media. 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 a crisis event. 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. 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. 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. 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. 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.

Comms 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 SECTION

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: Initiates investigation and documentation on all claims other than personal injury and arranges for damage surveyors and adjusters.

SECTION 5 INCIDENT PLANNING/DOCUMENTATION

5.1 DOCUMENTATION PROCEDURES

Detailed documentation must be kept for all aspects of an oil spill response. It ensures that corresponding company records are correct, and that accurate reports can be provided to government agencies and the media. The following considerations will 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 the adequacy of the spill response plan, if any modifications are needed, and what potential improvements could be made for future response operations.

Documentation should begin immediately upon notification of an oil spill and continue until post spill assessments have been made. A member of the SMT will be assigned the duty of documentation during each operational period, which will rotate throughout the spill event. This will include compiling notes and other documentation from other members of the SMT.

The type of information to be documented includes, but is not limited to, the following:

- Section, Unit, and Personnel Activity Logs.
- Spill response status/Incident Action Plans.
- Spill scenario.
- Correspondence with government agencies and other entities.
- Weather information.
- Costs incurred.
- Photographs.

5.1.1 Spill Response Status

Information relating to the status of ongoing response operations should be maintained and posted in the central and field command posts, if possible. Status boards are a valuable tool to ensure that all response team members are kept informed of the status of the response operation.

This aids in efficiency and communications between team members by reducing the length and number of informational briefings required. This also helps to reduce duplicated efforts or ordering of services, and improves the ability of team members to function effectively since they are able to stay informed without being interrupted from their required duties. The type of information that is useful to maintain includes:

- Maps which detailed slick size and location, trajectories, location of environmental and socioeconomic sensitivities, and location of deployed equipment.
- Activity logs
- Resource availability and status
- Recovered oil volumes
- Wildlife impact
- Historic asset impact (obtain locations from environmental unit)
- Personnel counts
- Current and forecasted weather information

5.1.2 Spill Scenario Information

All information pertaining to the oil spill and why it occurred should be documented throughout the event. Information should include the following:

- Person(s) and equipment that caused the spill.
- Details on equipment failure and/or human error.
- Person(s) discovering the spill.
- Date and time spill occurred.
- Location(s) of spill area covered by oil, and estimated volume.
- Product spilled.
- Effectiveness of containment and recovery operations.

5.1.3 Correspondence with Government Agencies

The person in charge of documentation should record all correspondence with regulatory agencies. This correspondence may include permitting, requests for permitting, notifications, and orders from the agencies.

In addition to documenting conversations with government agencies, each response team member should document all conversations, meetings, and actions. The Incident Commander must utilize an assistant or recording secretary to accomplish this. **ICS Form 214a** is a form that can be utilized for response team members to document their conversations and actions.

5.1.4 Costs Incurred

Documentation of all costs incurred should be recorded. This may include claims, legal services, equipment rental and purchases, contract services, and support costs (transportation, meals, lodging). Spill Response Requisitions form the basis for tracking costs for resources required for the spill.

5.1.5 Photographs

Photographs provide excellent documentation of oil spill response operations and should be utilized if conditions permit. Aerial photographs of the spill taken for planning and surveillance purposes are also useful for documentation purposes. In order to ensure adequate documentation, all photographs should be labeled to include location, date, time and direction. Note the following guidelines for photographing oil spills.

- Photographs should be taken from several views:
  - ✓ Showing the point of discharge.
  - ✓ Showing the complete route of pollutant from point of discharge to the water.
  - ✓ Showing the extent of environmental or economic impact of the pollutant. Several angles may be shown, both up close to indicate the thickness, color, and composition of the pollutant, and an overall view showing the total area affected
  - ✓ Showing an overall view of the area to establish a geographical reference.

- ✓ Showing identifying markings, such as name of vessels or facilities.

- When photographing oil in or on the water, ensure the distance and angle are such to avoid:
  - ✓ Confusion between the oil and natural surface reflection of the water,
  - ✓ Shadow effects of organic or inorganic materials in the water column, or on the water,
  - ✓ Differences in water temperature and currents.

Photographs may be in the form of instant (Polaroid), regular film (35 mm), digital or video. Instant film is the least desirable, since it does not provide negatives that may be submitted to verify the chain of custody. All types of film should be fresh for each incident, starting with the first picture on the roll, or a new videotape cassette. No other incidents should be filmed on that roll. Those pictures not used should be taken with a lens cap on the camera to use up the remainder of the roll. A chain of custody must be maintained to ensure the authenticity of the evidence. Negatives should be included in the file. If a commercial film developer is utilized, they should be asked to develop the film in a continuous roll, not cut (or in as large a section as possible). **Do not discard pictures that do not turn out properly.**

5.2 ICS FORMS

Forms are used to properly facilitate the ICS system and are a reminder of the important information that should be documented. The Planning Section Chief is ultimately responsible for ensuring that these forms are maintained

ICS Forms during a spill response. Electronic copies of Tesoro's ICS forms are maintained on the Contingency Planning and Emergency Response intranet site at **http://gotso/departments/contingency-planning/Pages/default.aspx** **.** The ICS forms used for spill response at Tesoro are consistent with NIMS ICS.

5.3 MEETINGS AND BRIEFINGS

The period of **Initial Response and Assessment** occurs in all incidents. Short-term responses (small in scope and/or duration, e.g. few resources working one operational period) can often be coordinated using only **ICS 201 briefings**.

Longer term, more complex responses will likely require a dedicated Planning Section Chief who must arrange for transition into the **Operational Period Planning Cycle**. Certain meetings, briefings, and information gathering during the Cycle lead to the development of the Incident Action Plan (IAP) which guides operations of the next operational period. Only the meetings and events directly relevant to assembling the IAP are described. The Incident Commander/Unified Command (IC/UC) specifies the operational periods (e.g. 72 hour shifts, sunrise to sunset, 24 hour shifts).

The **Special Purpose** meetings are most applicable to larger incidents requiring an **Operational Period Planning Cycle**, but may have utility during **Initial Response and Assessment**. The **Unified Command Meeting** is described in some detail, other special purpose meetings are briefly noted.

5.4 Site Safety Plan

PERMIT & PLAN
SIGN-OFF SHEET

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

OPERATIONAL PERIOD: ______________________________

Safety Plan

APPROVED BY:

RPIC	DATE
FOSC	DATE
SOSC	DATE
LOSC	DATE
TOSC	DATE

COMMENTS:

Table of Contents

SECTION 1 – INCIDENT DESCRIPTION

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

1.1 EVENT DESCRIPTION

Type of Event:

___ SHIP OR BARGE ____ PIPELINE ____ STORAGE TANK

___ OTHER: ____

Event Description:

Enter event description here.

1.1 HAZARDS:

Check all that apply:

_____ Oxygen
_____ Explosive Vapors >10% LEL
_____ Benzene
_____ H2S
_____ High CO
_____ Fire Hazard
_____ Skin Exposure
_____ Eye Hazards
_____ Heat Stress

_____ Slips, Trips & Falls
_____ Wind Chill
_____ High Winds
_____ Working 4' Over the Ground
_____ Night Ops
_____ Pinch Points
_____ Hypothermia
_____ Other (working on water)
____

1.2 METEOROLOGICAL OUTLOOK

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

The Onsite Command Post has been established at: location

Community Safety:
Roads: enter information
Boaters: enter information
Surrounding Community: enter information
Sheriff: enter information
Air: enter information

2.6 COMMUNICATIONS

1. Channel # and Name has been designated as the radio frequency for personnel in Hot Zone.

   Other channels for spill activities are:
   - Air Ops. – enter information
   - Air medical to Ambulance – enter information
   - Bird Rescue – enter information

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 there personnel and all unaffected personnel will be moved to a safe distance form 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 judgement 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. When ever 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 sorbant 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 times.
- 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 you 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

5.5 DECONTAMINATION PLAN

Incident Name:__________________ Plan Location:______________________

Effective Date of Plan: ___________ Effective Time Period of Plan:_________

Spill Location: __________________ Plan Prepared By:___________________

1. Decontamination Zones:

Work areas will be divided into three zones;

- Support Zone (Cold Zone),
- Contamination Reduction Zone (Warm Zone)
- Exclusion Zone (Hot Zone)

These zones are to be identified at each work area by signs and/or barrier tape or other means. Decontamination is performed in the Contamination Reduction Zone. Each time cleanup workers exit the Contaminated Zone they must perform decontamination procedures.

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

2. Decontamination Stations:

Decontamination is performed at a series of stations within appropriate, impermeable Contamination Reduction Zone. The floor of each station is covered with PVC sheets to prevent contamination of the soil. Dikes are installed under these sheets to prevent contaminated runoff from impacting soil.

Procedures for these stations are as follows:

FIGURE 5.1
DECON PROCEDURES FOR MAXIMUM DECONTAMINATION LAYOUT
LEVEL C PROTECTION

STATION 1	Segregated Equipment Drop	Deposit equipment used on site (tools, sampling devices and container, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths or in different containers with plastic liners. Segregation at the drop reduces the probability of cross contamination. During hot weather operations, a cool down station may be set up within this area.
STATION 2	Boot Cover and Glove Wash	Scrub outer boot cover and gloves with decon solution or detergent and water
STATION 3	Boot Cover and Glove Rinse	Rinse off decon solution from Station 2 and conserve water.
STATION 4	Tape Removal	Remove tape around boots and gloves and deposit in container with plastic liner.
STATION 5	Boot Cover Removal	Remove boot covers and deposit in containers with plastic liner.
STATION 6	Outer Glove Removal	Remove outer gloves and deposit in container with plastic liner.
STATION 7	Suit and Boot Wash	Wash splash suit, gloves, and safety boots. Scrub with long-handled scrub brush and decon solution.
STATION 8	Suit and Boot, and Glove Rinse	Rinse off decon solution using water. Repeat as many times as necessary.
STATION 9	Canister or Mask Change	If worker leaves exclusion zone to change canister (or mask), this is the last step in the decontamination procedure. Worker's canister is exchanged, new outer gloves and boot covers donned, and joints taped, worker returns to duty.
STATION 10	Safety Boot Removal	Remove safety boots and deposit in container with plastic liner
STATION 11	Splash Suit Removal	With assistance of helper, remove splash suit. Deposit in container with plastic liner.
STATION 12	Face Piece Removal	Remove face piece. Deposit in container with plastic liner. Avoid touching face with fingers.
STATION 13	Inner Glove Removal	Remove inner gloves and deposit in lined container.
STATION 14	Field Wash	Shower if highly toxic, skin-corrosive or skin-absorbable materials are known or suspected to be present. Wash hands and face if shower is not available.

FIGURE 5.1 CONTINUED
DECON PROCEDURES FOR MAXIMUM DECONTAMINATION LAYOUT
LEVEL C PROTECTION

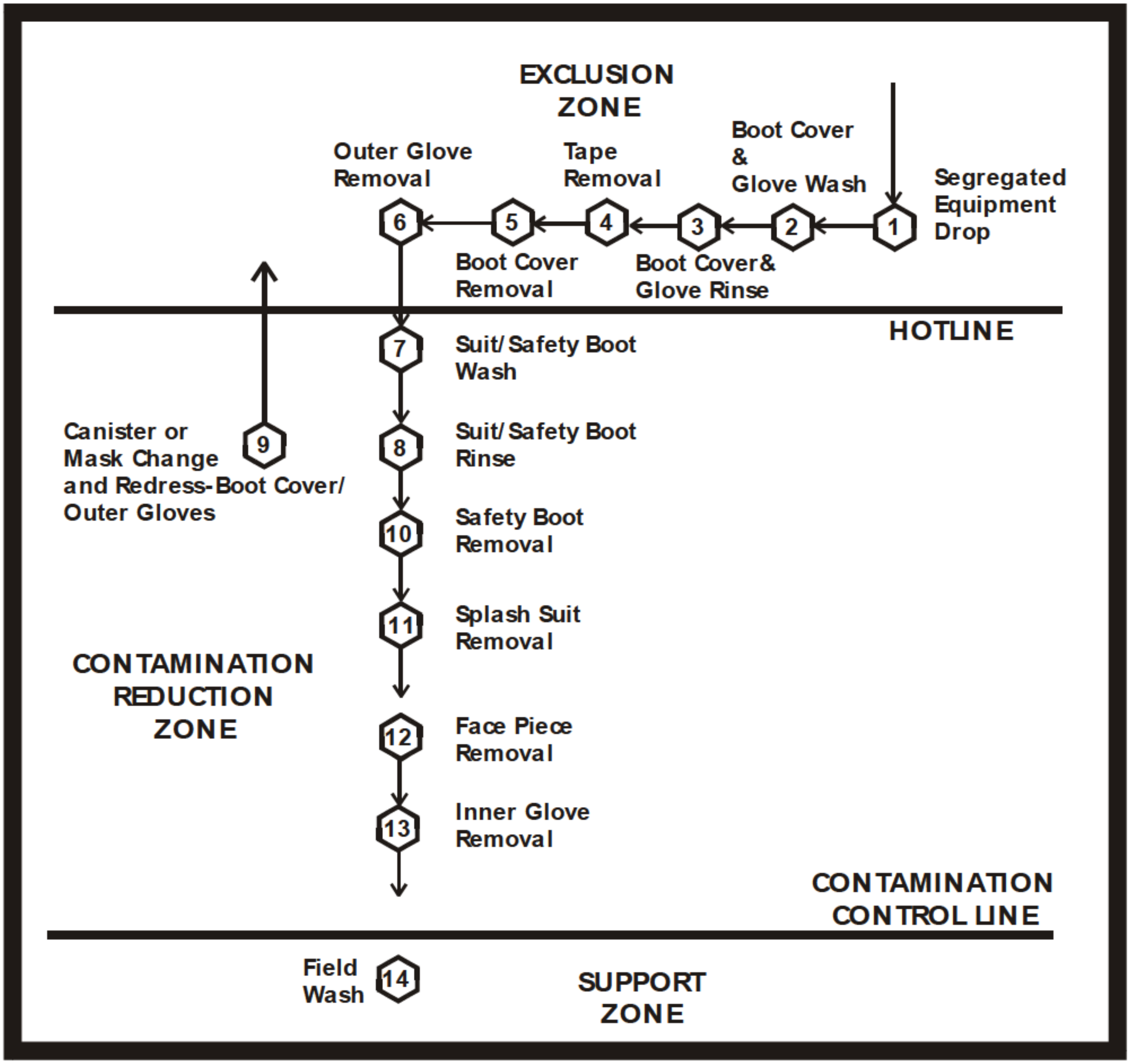
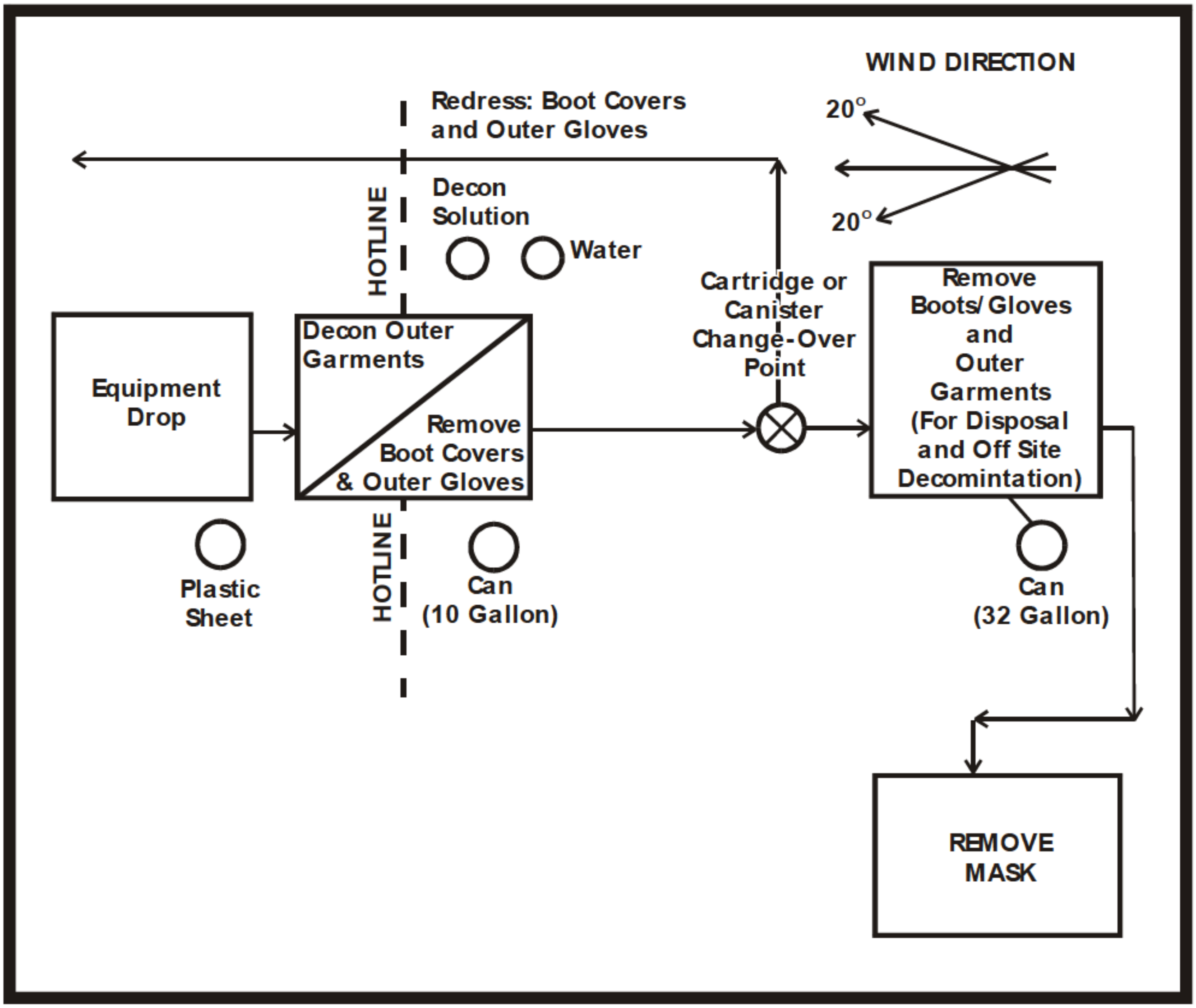


FIGURE 5.2
DECON PROCEDURES FOR MINIMUM DECONTAMINATION LAYOUT

STATION 1	**Equipment Drop**	Deposit equipment used on site (tools, sampling devices and container, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths. Segregation at the drop reduces the probability of cross contamination. During hot weather operations, a cool down station may be set up within this area.
STATION 2	ɔots, and Gloves Wash and Rinse	Scrub outer boots, outer gloves and splash suit with decon solution or detergent and water. Rinse off conserving water.
STATION 3	Outer Boot and Glove Removal	Remove outer boots and gloves. Deposit in container with plastic liner.
STATION 4	Canister or Mask Change	If worker leaves exclusive zone to change canister (or mask), this is the last step in the decontamination procedure. Worker's canister is exchanged, new outer gloves and boot covers donned, joints taped, and worker returns to duty.
STATION 5	Boot, Gloves and Outer Garment Removal	Boots, chemical-resistant splash suit, inner gloves removed and deposited in separate containers lined with plastic.
STATION 6	Face Piece Removal	Face piece is removed. Avoid touching face with fingers. Face piece deposited on plastic sheet.
STATION 7	Field Wash	Hands and face are thoroughly washed. Shower as soon as possible.

FIGURE 5-2 CONTINUED
DECON PROCEDURES FOR MINIMUM DECONTAMINATION LAYOUT



5.6 SITE SECURITY PLAN

TESORO

PERMIT & PLAN
SIGN-OFF SHEET

INCIDENT NAME: ______________________ **DATE PREPARED:** ____________

OPERATIONAL PERIOD: ______________________________

Security Plan

APPROVED BY:

RPIC	DATE
FOSC	DATE
SOSC	DATE
LOSC	DATE
TOSC	DATE

COMMENTS:

Table of Contents

SECTION 1 - EVENT & SITE DISCRIPTION

1.1 EVENT LOCATION / AREA AFFECTED

The event was the result of a Transportation Security Incident? **Yes** **No** **Unknown**
If yes, provide time / date / case # of NRC notification: enter information here

Event Description: enter information here

1.2 SITES AFFECTED

(List communities, locations, and venues (i.e. Stageing Areas,ICP, JIC) that require security resources/ personnel)

1.3 SURROUNDING POPULATION

Terrain: enter information here

Community Type: enter information here

Population: enter information here

1.4 CURRENT WEATHER CONDITIONS

(Identify weather conditions that will influence ability of security personnel to deliver services)

SECTION 2 – GENERAL SECURITY RESPONSE ASSESSMENT

The following is a summary of general activities and potential threats identified that require the Incident Response Team to implement mitigation measures. If multiple sites/venues are involved refer to Section G for individual sites.

Response Activity Identified	Yes	NO	Goal
	(Check One)		
Access Control			To insure safety of public and event response personnel control access to ICP, event scene, staging, and other sensitive work areas. Exclude public from areas where their presence may create a risk to themselves or response personnel. Insure only those personnel authorized to work are allowed entry. Verify identity of those personnel via government or company issued identification. Log entry / exit on ICS 211 form. Focus efforts to facilitate single point entry and exit from controlled locations.
Traffic Control Response			Initial response to focus on maintaining safety of public. Protect integrity of access / egress routes surrounding work sites. Facilitate the free movement of response personnel, equipment, supplies and emergency response personnel to and from identified sites and through emergency evacuation routes
Public Demonstration			In cooperation with Law Enforcement assess individual venues for potential risk of public demonstrations. Maintain open exchange of information with LEOs and plan response strategy that minimizes potential of confrontation or violence. Insure safety of personnel and property. Minimize disruption of response activities. Insure private security personnel are briefed on their appropriate roles.
Asset Protection			Work cooperatively with Resource Unit to insure strong property controls are in place. Establish security practices that minimize the potential of theft and pilferage
Bear Guard			Provide trained, qualified Bear Guard to field units working in habitat areas where likelihood of a bear encounter is high. Initiate requests for appropriate wildlife hazing permits. Insure responsible personnel are personnel are cognizant of permit conditions and reporting requirements. Establish review process for DLP and hazing activity.
Personal Protection Detail			In the event the incident creates an atmosphere of heightened public emotions provide leadership personnel with qualified executive protection details.
Investigation Support			Provide investigation and documentation support as required by the Safety Officer or Incident Commander

SECTION 3 - SECURITY RESPONSE ORGANIZATION

The Security Manager is assigned to the Safety Unit within the ICS structure and reports to the Safety Officer.

Role	Contact	Phone	Email
Safety Officer			
Security Manager			

The following functional or geographical unit security leads report to the Security Manager:

Role	Contact	Phone	Email	Radio – responsible for: ID resources and sites responsible for
______ **Unit Lead**				
______ **Unit Lead**				
______ **Unit Lead**				
______ **Unit Lead**				
______ **Unit Lead**				

SECTION 4 - SECURITY COMMUNICATION PLAN

1. Incident Name	2. Operational Period (Date/Time) From: To:	COMMUNICATION PLAN

3. STATE / LOCAL / FEDERAL L.E. AGENCIES & FIRE DEPARTEMENTS

NAME	LOCATION	PRIMARY	SECONDARY

4. SECURITY DIVISION CONTACTS

SITE NAME	SECURITY LEAD / SITE LOCATION	Phn # & Radio	#PERSONEL / TYPE RESOURCE

5. OTHER SECURITY SUPPORT CONTACTS

AGENCY OR INDIVIDUAL NAME	ADDRESS	CONTAC T#	COMMENT / NOTES

6. Emergency Procedures / Special circumstances:
All personnel are authorized to initiate emergency notice to Fire / EMS / Law Enforcement – follow up to IC

Identify security personnel authorized to initiate information sharing and requests for routine service with LEOs

SECTION 5 - LAW ENFORCEMENT CONTACTS

The following individuals are identified as command level personnel in their respective agencies who have been identified as Security Liaison points of contact.

STATE / LOCAL / FEDERAL L.E. AGENCIES & FIRE DEPARTEMENTS			
Name	Position	Primary Contact #	Secondary

SECTION 6 – INCIDENT COMMAND POST SECURITY ACCESS CONTROL

The following access control measures have been implemented at the ICP located at: Identify location of ICP

Insert Security Company Name has been designated to coordinate access control and security at the Command Post, Staging Areas, and Satellite sites as required. Access and egress at the ICP is limited to a single location except in the event of an emergency. That access point is located Identify location of access point.

In the event of an emergency at the ICP the muster location is located at Identify location of muster point.

All non-company personnel entering the facility are required to identify themselves to the security officers with government issued ID and/or company ID. All personnel entering must advise the security officer of their assigned role within the ICS.

Upon entry all personnel must complete the ICS 211p Check In List form in it's entirety including the name of the agency by which they are employed. Upon exiting the IC all personnel must log off site on the same form.

Unauthorized personnel will not be allowed in the ICP.

Members of the Press will be referred to the Joint Information Center (JIC) located at Identify location. Press will only be allowed into the ICP under escort by a member of the JIC.

Concerned family members of employees or the public will be referred to the medical officer who will respond to the access control site.

SECTION 7- EVENT SCENE ACCESS CONTROL & TRAFFIC CONTROL

7.1 AVIATION AND MARITIME EXCLUSION ZONES

The following Aviation and Maritime Exclusion Zones have been established:
(Identify exclusion zones, restrictions, and responsible party if applicable)

a. Aviation Exclusion Zone - Detail restrictions / insert diagrams & maps if needed

b. Maritime Exclusion Zone - Detail restrictions / insert diagrams & maps if needed

7.2 LAND SIDE ACCESS AND TRAFFIC CONTROLS

The following land side access and traffic controls are being implemented:
(If event is limited in scope detail control measures, if event creates mulit-sites, ID general measures and duplicate and use Section G Appendices to detail specific sites activities)

a. Access Controls - Detail control measures / insert diagrams & maps if needed

b. Traffic Controls – Detail control measures / insert diagrams & maps if needed

7.3 INSERT LOCATION NAME SECURITY & ACCESS CONTROL

1. Location	2. Operational Period (Date/Time) From: To:	SITE ACCESS & TRAFFIC CONTROL PLAN

3. Site Specific Concerns	Access Control	Traffic Control	Asset Protect	Public Dem	Bear Guard	Personnel Protection	Invest support	Other

4. SECURITY DIVISION & AGENCY CONTACTS

NAME	AGENCY / POSITION	PRIMARY# & RADIO	SECONDARY

5. ON SITE RESOURCES (LIST PERSONNEL / EQUIPMENT)

6. ACCESS CONTROL

7. TRAFFIC CONTROL

8. OTHER SECURTY MEASURES:			
All personnel are authorized to initiate emergency notice to Fire / EMS / Law Enforcement – follow up to IC Security personnel authorized to initiate information sharing and requests for routine service with LEOs :			
9. DIAGRAMS / PHOTO			
SUBMITTED BY	**DATE**	**REVIEWED BY:**	**DATE:**

7.4 INSERT LOCATION NAME SECURITY & ACCESS CONTROL

1. Location	2. Operational Period (Date/Time) From: To:	SITE ACCESS & TRAFFIC CONTROL PLAN

3. Site Specific Concerns	Access Control	Traffic Control	Asset Protect	Public Dem	Bear Guard	Personnel Protection	Invest support	Other

4. SECURITY DIVISION & AGENCY CONTACTS

NAME	AGENCY / POSITION	PRIMARY# & RADIO	SECONDARY

5. ON SITE RESOURCES (LIST PERSONNEL / EQUIPMENT)

6. ACCESS CONTROL

7. TRAFFIC CONTROL

8. OTHER SECURTY MEASURES:			
All personnel are authorized to initiate emergency notice to Fire / EMS / Law Enforcement – follow up to IC Security personnel authorized to initiate information sharing and requests for routine service with LEOs :			
9. DIAGRAMS / PHOTO			
SUBMITTED BY	**DATE**	**REVIEWED BY:**	**DATE:**

7.5 INSERT LOCATION NAME SECURITY & ACCESS CONTROL

1. Location	2. Operational Period (Date/Time) From: To:	SITE ACCESS & TRAFFIC CONTROL PLAN

3. Site Specific Concerns	Access Control	Traffic Control	Asset Protect	Public Dem	Bear Guard	Personnel Protection	Invest support	Other

4. SECURITY DIVISION & AGENCY CONTACTS

NAME	AGENCY / POSITION	PRIMARY# & RADIO	SECONDARY

5. ON SITE RESOURCES (LIST PERSONNEL / EQUIPMENT)

6. ACCESS CONTROL

7. TRAFFIC CONTROL

8. OTHER SECURTY MEASURES:			
All personnel are authorized to initiate emergency notice to Fire / EMS / Law Enforcement – follow up to IC Security personnel authorized to initiate information sharing and requests for routine service with LEOs :			
9. DIAGRAMS / PHOTO			
SUBMITTED BY	**DATE**	**REVIEWED BY:**	**DATE:**

7.6 INSERT LOCATION NAME SECURITY & ACCESS CONTROL

1. Location	2. Operational Period (Date/Time) From: To:	SITE ACCESS & TRAFFIC CONTROL PLAN

3. Site Specific Concerns	Access Control	Traffic Control	Asset Protect	Public Dem	Bear Guard	Personnel Protection	Invest support	Other

4. SECURITY DIVISION & AGENCY CONTACTS

NAME	AGENCY / POSITION	PRIMARY# & RADIO	SECONDARY

5. ON SITE RESOURCES (LIST PERSONNEL / EQUIPMENT)

6. ACCESS CONTROL

7. TRAFFIC CONTROL

8. OTHER SECURTY MEASURES:			
All personnel are authorized to initiate emergency notice to Fire / EMS / Law Enforcement – follow up to IC Security personnel authorized to initiate information sharing and requests for routine service with LEOs :			
9. DIAGRAMS / PHOTO			
SUBMITTED BY	**DATE**	**REVIEWED BY:**	**DATE:**

SECTION 8 – ASSET PROTECTION

The following asset protection measures have been implemented. (Identify site specific or general protection measures associated with the prevention of pilferage and theft including special custodial requirements imposed, procurement controls, and automated property controls such as bar-coding & tagging technology.)

APPENDIX A - BEAR GUARD DEPLOYMENT PLAN (IF APPLICABLE)

The following provisions are employed for requesting and deploying Bear Guards with field units working in areas where bears are observed or in habitat where there is a high probability of a short range bear encounter.

A.1 Bear Guard Request

Employees are briefed on Bear Guard request procedures at safety briefing delivered at GRU field deployment muster locations. A field operations unit can request Bear Guard service if they observe animal(s) in proximity to their work activity or if they are working in habitat locations that have an increased potential for a bear encounter i.e. a salmon stream with heavy cover along banks.

A.2 Hazing Permits

The Environmental Unit will prepare appropriate Wildlife Hazing Permit requests and submit to the identify agency & attach permit.

Verify Bear Guards are deployed with copies of the Wildlife Hazing Permit and familiar with agency permit and reporting requirements.

A.3 Bear Guard Qualification & Deployment Procedures

Verify TSO and Contract Security Bear Guards deployed with this responsibility are appropriately trained regarding their duties and use in the use of the issued firearms. Verify personnel are equipped with firearms /ammunition adequate for the mission along with hazing rounds and / or devices.

Ensure personnel responsible for Bear Guard duties on off-duty firearms storage requirements are briefed.

A.4 Incident Reporting and Review Process

DLPs will be immediately reported to the agency of jurisdiction as well as the IC.

All Hazing and DLPs incident reports are submitted through supervisors to the Security Manager for review and forward to the Environmental Officer and appropriate agency for review.

A.5 Current Deployment Locations:

Enter current deployment locations

APPENDIX B – PERSONAL PROTECTION DETAIL (IF APPLICABLE)

The event has created an environment that may pose an elevated risk to specific members of the company leadership team. Personal protective details have been deployed with the following personnel.

EXECUTIVE / EMPLOYEE PROTECTION DETAIL

Dependant on nature of the event work closely with LEOs to evaluate threat environment existing for company executives and employees.

☐Maintain awareness of arrival schedules of company executives who may require protection details.☐☐

Assess which personnel and venues requiring protection and implement appropriate vulnerability mitigation measures.

Work with primary security provider to identify and procure qualified personnel for protective details.

5.7 Applied Response Technologies

Non-mechanical methods for cleanup operations could involve the use of chemical cleaning products, appropriate bioremediation products, in-situ burning, and dispersants, among others.

The National Oceanic and Atmospheric Administration has published a guide for evaluating and screening various Applied Response Technologies (ART) for application to an Oil Spill. The guide, Selection Guide for Oil Spill Applied Technologies: Volume 1 - Decision Making, is available on NOAA's Website. The direct link is: http://response.restoration.noaa.gov/book_shelf/676_selguide.pdf

Evaluation of available response strategies is an important consideration in the early phases of a spill response, and will receive priority during initial strategy and tactics sessions to ensure available windows of effectiveness are utilized where appropriate.

5.7.1 Dispersants

While physical removal is the most common method for eliminating spilled oil from the environment, mechanical removal may be limited by equipment capability, weather, sea conditions, and spill magnitude. An alternative strategy for reducing impacts from oil spills 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 resisting resurfacing and recoalescing. Dispersants may be effective in area where environmental or logistical considerations do not allow the deployment of cleanup equipment and personnel, and may reduce the overall level of effort and manpower requirement and personnel.

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 part of the oil leaving the more viscous fraction behind. As its viscosity and other properties change, it becomes less likely that dispersant use will be successful.

A timely assessment of the potential viability of a dispersant application as a response strategy is critical. The assessment process and application for approval are covered under the Regional Contingency Plan, California Dispersant Plan which can be located at the Department of Fish and Wildlife Website:
http://www.dfg.ca.gov/ospr/response/acp/marine/2005RCP/rcp_2005_index.html
Appendix XII Describes the California Dispersant Plan
Appendix 06.05 Section I CDP 1 to the California Dispersant Plan addresses dispersant use in pre-approval zones.
Appendix 06.05 Section II CDP to the California Dispersant Plan addresses dispersant use in other zones which require the approval of the Regional Response Team (RRT).

The appropriate flow charts to guide the decision process, up to and including approval by the RRT are included in the Appendices to the California Dispersant Plan.

Through association with MSRC, Tesoro has access to the resources necessary to implement a dispersant application, including dedicated aircraft, dispersants, and application gear.

FIGURE 5-3 provides a listing of the dispersants available from the California oil spill response cooperatives and the equipment available for dispersant application.

The use of dispersants and other chemicals for oil spill control is strictly regulated by the State of California and the federal government. The Federal Region 9 Regional Contingency Plan and the California Regional Contingency Plan address Applied Response Technologies, including dispersants, as viable alternatives to mechanical recovery under certain circumstances. The California Dispersant Plan provides guidelines for

consolidating existing federal and state policies and streamlining the approval process without jeopardizing the proper environmental considerations of dispersant and other chemical use.

FIGURE 5-3
DISPERSANT AND APPLICATION EQUIPMENT AVAILABLE FROM MSRC

Co-op	Available Dispersant	Amount (gal)	Application Equipment	Dispersant Capacity (gal)	Swath Width Feet
MSRC Contracted King Air	Corexit 9500 and Corexit 9527	(b) (7)(F), (b) (3) [redacted]	Aerial System	(b) (7)(F), (b) (3) [redacted]	(b) (7)(F), (b) (3) [redacted]
MSRC Contracted C-130	Corexit 9500 and Corexit 9527		Aerial System		
MSRC Pacific Responder	Corexit 9527		Vessel System		
MSRC California Responder	Corexit 9527		Vessel System		
California Dispersant Inventory					
MSRC Richmond	Corexit 9527	(b) (7)(F), (b) (3) [redacted]			
MSRC Long Beach	Corexit 9500				
TOTAL					

5.7.2 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, potassium, and others.

Although nutrient-enhanced bioremediation techniques have been used extensively for land-farming and groundwater application, their use in oil spills has been limited until the relatively recent Exxon Valdez (1989) and Mega Borg (1990) spills in Prince William Sound, Alaska and the Gulf of Mexico, respectively. Historically, bioremediation has been given little attention as it has been viewed as a slow process requiring months or years to reach cleanup objectives.

There are, however, instances on open seas or shorelines where standard recovery or cleanup techniques are not practical or will result in significant environmental or physical impacts. In these cases, bioremediation may be a viable response option and should be considered for use.

Appendix XIV of the Region IX Regional Contingency Plan provides a checklist for evaluating the possible use of Bioremediation for a spill response. The Checklist is available at
: http://www.dfg.ca.gov/ospr/response/acp/marine/2005rcp/Appendices/Appx_XIV_biorem.pdf

5.7.3 InSitu Burning

Under certain conditions, InSitu burning of released hydrocarbon is a viable alternative strategy for spill mitigation. Appendix XIII of the Region IX Regional Contingency Plan addresses the evaluation and approval process for considering InSitu Burning as an Applied Response Technology to supplement or replace mechanical recovery.
InSitu Burning is often viable only during the early phases of a release when the oil still retains sufficient volatility to sustain combustion, and therefore is required to be considered early on during an incident.
Detailed information and a checklist for guiding the decision process and obtaining approval to conduct InSitu burning is included in Appendix XIII, and can be accessed at the following link to the OSPR website.
http://www.dfg.ca.gov/ospr/response/acp/marine/2005rcp/Appendices/Appx_XIII_insituburn.pdf

THIS PAGE INTENTIONALLY LEFT BLANK.

SECTION 6 SENSITIVE AREAS/RESPONSE TACTICS

6.1 INTRODUCTION

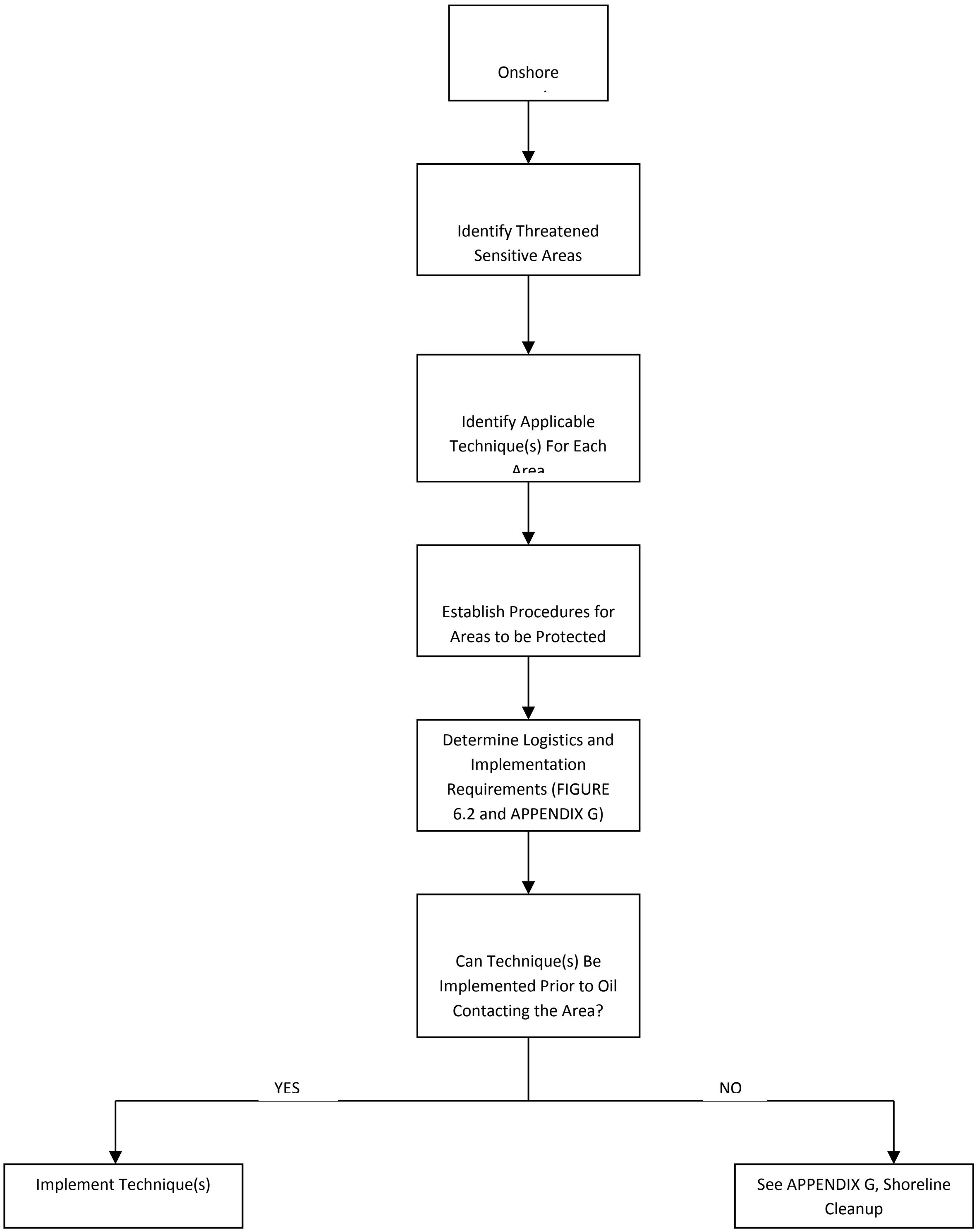
In the event of an oil spill to marine water, it may be necessary to protect nearby sensitive areas if it appears that local containment and recovery efforts will not be sufficient to control the entire spill. A critical initial step in protecting sensitive resources is identifying the presence and types of resources in the likely path of the oil. Once these resources have been identified, decisions will be made as to the proper protection strategies for each locale and the priority for application of resources to each sensitive site. The Environmental Unit will utilize the ICS 232 to document identified resources at risk. **FIGURE 6.1** presents an implementation sequence for protection of sensitive areas.

This section describes in general terms different ecologically and culturally/economically sensitive areas. Specific sensitive resources, which may be impacted by an off-site spill from the Tesoro Refinery, are provided in **APPENDIX D**. In addition, the various coastal marine habitats are presented in order of their relative sensitivity to spills based on the Ecological Sensitivity Index (ESI) system used by the National Oceanic and Atmospheric Administration (NOAA). Methods for protecting these sensitive resources are discussed in **APPENDIX E** and discussed in the ACP. The *Area Contingency Plan (ACP)* also provides additional maps, which show the sensitive resources that could be affected by oil spills.

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. Examples of sensitive species include shore birds and other waterfowl, seals and other marine mammals, shellfish, and commercially important finfish, as well as species with limited distribution or populations. 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 in **TABLE 6.1** with a presentation of NOAA's ESI classification scheme.

FIGURE 6.1
SENSITIVE AREA PROTECTION IMPLEMENTATION SEQUENCE



6.2.1 Key Sensitive Areas

Wildlife

Wildlife is susceptible to significant injury and mortality from contact with oil spills. In general, the degree of sensitivity to oil spills is based on habitat location and behavior characteristics. For example, most waterfowl and shorebirds, particularly diving birds, are very sensitive to oil spills due to their extensive use of the water, whereas terrestrial birds may nest near the water but have a low sensitivity to oil spills if they do not frequent shoreline areas.

Similarly, animals that frequent coastal areas may be impacted by oil spills if they feed on vegetation or dead animals along the shoreline that could become oiled.

Wildlife impacts may result from the physical effects of the oil on their fur or feathers or through ingestion during preening or scavenging. Selected marine mammals (e.g. sea otters and fur seals) and birds (primarily waterfowl) rely on their fur or feathers for insulation and buoyancy, which can be adversely affected if they become oiled. Significantly oiled sea otters, fur seals, or birds can perish from hypothermia and exhaustion or may become sick from ingestion of the oil while preening. The effects of ingestion vary depending on the toxicity of the oil. In general, the lighter the crude oil or petroleum product, the more toxic it is to wildlife.

The California Department of Fish and Wildlife is the lead agency for the protection of environmentally sensitive areas and resources and also takes the lead in determining how collection and rehabilitation of oiled wildlife will be conducted. The exceptions are for federally protected species, such as bald eagles and sea otters, for which the U.S. Fish and Wildlife Service and the National Marine Fisheries Service, respectively, have primary jurisdiction.

Finfish and Shellfish

The sensitivity of various fish species to oil spills typically depends on their growth stage (juveniles are generally much more sensitive than adults), their feeding or migration habits, and the type of oil. Species that frequent shallow or near-surface areas will often be exposed to higher concentrations of dissolved hydrocarbons than those that reside primarily in deeper waters. Lighter crude oils and refined products have a greater impact on fish than heavier oils due to their generally greater solubility and higher concentrations of toxic components.

The substantial size and exposed nature of many finfish and shellfish spawning and foraging areas and migration routes often makes their protection from oil spills impractical. Therefore, cleanup efforts in these areas may have a low probability for success. It is, however, practical to protect smaller, fishery-related areas such as anadromous fish streams, shellfish beds, and spawning grounds in protected bays, and other similar areas.

Wetlands and Tidal Inlets

Most wetlands and tidal inlets in the coastal areas of California are very productive, biologically diverse, and highly sensitive to impacts from spills. Due, in part, to this productivity and diversity, these locations are typically associated with the congregation of large numbers of waterfowl and marine mammals for feeding and other activities. Many inlets are also associated with anadromous fish streams and should be given special consideration during spawning and salmoid outmigration seasons. Due primarily to their sensitivity and general difficulty in self-cleansing, wetlands and most inlets should be given high priority for protection. Because they tend to be situated within bays or coastal inlets, they are also relatively easily protected.

Kelp and Eelgrass Beds

Kelp and eelgrass beds are valuable habitats for numerous finfish and shellfish. Eelgrass is much less abundant than kelp but is used as spawning grounds for some fish and as an important sanctuary for a number of planktonic organisms. Eelgrass is very susceptible to the toxic and physical effects of oil spills. Kelp beds also serve as habitats and sanctuaries for a number of finfish, shellfish, and other marine organisms but are less susceptible to the effects of oil spills. Kelp fronds and blades are covered with a mucous that inhibits the oil from sticking although a kelp forest canopy can trap substantial quantities of oil resulting in the mortality of many of the organisms inhabiting the canopy. The effect of the oil is generally short-term due to kelp's rapid growth rate.

Commercial and Recreational Areas

Commercial waterfront areas, parks, public beaches, marinas, and other recreational areas are typically assigned a high priority for protection. The environmental sensitivity of these areas varies; however, aesthetic impacts are almost always a primary concern. Crude and heavier fuel oils have the greatest aesthetic impacts due to their dark color, odor, and opacity. Public beach areas are comparatively easy to clean and consequently, should receive a lower priority for protection except for areas where significant safety hazards are associated with the spill. Commercial areas are often similar to recreational areas and should be evaluated on a case-by-case basis.

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 **TABLE 6.1**.

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 type affects 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**.

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 6A	Sheltered Sand Beaches (Coarse or Fine) Gravel Beaches &Riprap Structures	High	Oil can persist for years.
7	Exposed Tidal Flats	High	Significant penetration can result in long-term oil persistence.
8	Sheltered Rocky Shores and Sheltered Artificial Structures	High	Oil may persist for many years.
9	Sheltered Tidal Flats	Moderate	Oil may persist for a significant period of time.
10	Salt & Brackish Marshes/Fresh Water Marshes/Swamps & Mangroves	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. There are no known culturally important sites immediately adjacent to the facility, however in the event of a spill, local agencies and stake holders would be contacted to ensure identification of any culturally important sites that might be impacted. The San Francisco, Suisun and San Pablo Bays are surrounded by marshes and mudflats. This vast area contains the largest contiguous marshes on the west coast of North America. Although the historical marsh lands have been greatly reduced, the various existing wet lands including open water bordered by mud flats, tidal marshes and sloughs edged by cordgrass and pickleweed dominated salt marshes, provide habitat for a variety of water birds, particularly waterfowl and shorebirds.

Description of shoreline types and specific shoreline protection and cleanup techniques are presented in **APPENDIX E** for the shorelines and the area adjacent to the Facility. The strategies and response examples provided must be evaluated **at the time of actual spill** to establish appropriate shoreline response priorities. These priorities should reflect the actual resources threatened, human safety considerations, weather, estimated times until impact, type and volume of oil spilled, and the availability of response personnel and equipment.

It may be advisable to mobilize personnel and equipment for a range of potential activities including shoreline protective booming and beach cleanup.

The following information provides general descriptions of sensitive resources in the area.

6.3.1 Bird Colonies

The San Francisco, Suisun and San Pablo Bays and the Delta Region are located in the Pacific flyway where ducks, geese and shorebirds from Alaska, western Canada and the United States migrate south after the breeding season. 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. MSRC maintains several bird cannons (propane) and has used them under the direction of California Fish and Wildlife. Their effectiveness is reported to be very limited because of habituation.

6.3.2 Harbor Seal

The harbor seal is found in protected sloughs and inlets, often hauled out and lying on the mudflats or marsh plants close to the waters edge. Harbor seals haul out in the San Francisco Bay National Wildlife Refuge near Newark from late March to June to bear their pups. After the pups are born and weaned, harbor seals distribute throughout the San Francisco, Suisun and San Pablo Bays, to a number of haul out locations. Harbor seals hauling out at these locations are particularly vulnerable to an oil spill in these areas.

The primary goal of harbor seal protection should be focused on the animals; the secondary goal is to protect the habitat. Preferred protection methods are booms, which should be used to divert or exclude oil away from animals and habitat.

6.3.3 Threatened and Endangered Species

The upper boundary of marshes, referred as the transition zone, around the San Pablo and Suisun Bays provide habitat for a number of threatened and endangered plant and animal species including the salt marsh harvest mouse, California black rail, California clapper rail, soft bird’s beak and Jepson’s peas. These sensitive species in the transition zone could be affected by an oil spill. Generally, the appropriate response technologies are those applicable to the habitats in which the species occur, or those discussed under the biological group (e.g., birds).

6.3.4 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. Dispersants may be applied in deeper water where dilution will be rapid. If applied in shallow water, use only in areas with adequate flushing from tidal or wave action. If applied directly over seagrass beds, dispersed oil may impact seagrass and organisms associated with seagrass beds. Herding agents may be used between the oil and shoreline.

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.

6.3.5 Shellfish Beds

The primary shellfish beds in the San Francisco Bay region occur on various estuaries along the outer coast and are not discussed here. Within the Bay region there are areas which have been identified by California Dept. of Fish and Wildlife as having, or having had in the past, populations of two species of clams, which may be recreationally harvested (Japanese littleneck and soft-shelled clam).

For cleanup, natural cleansing is again the most preferable method. 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.

6.3.6 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. 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.

Diversion booming should be used where the water current in an area is greater than 1 knot or if the areas is too large to boom with available supplies. Diversion booms are deployed at an angle from the shoreline closest to the leading edge of the approaching oil slick to deflect oil toward shore, where pickup of pooled oil is more effective.

Since the area is predominantly environmentally sensitive, recommended response strategies are to attempt to limit the extent of shoreline fouling and to limit the area covered by the slick to the maximum extent possible. Since oil is the primary product handled, containment booming operations will be initiated. In addition, shoreline protection boom may be utilized in attempt to prevent fouling of shorelines.

It is also important to recognize that while certain **immediate** environment protection response strategies must be planned for in advance, the ongoing protection and cleanup during a major spill would involve professional input from the company's oil spill advisors and the Federal and State On-Scene Coordinators.

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 San Francisco Bay area were identified and are described below.

6.4.1 Environmentally Sensitive Areas

Environmentally sensitive areas in San Francisco, San Pablo and Suisun Bays which may require protection in the event of an oil spill include:

1. Specific types, such as tidal flats, marshlands, wetlands and the associated marine resources (Area Contingency Plan (ACP), USGS Topographic Maps);

2. National and State wildlife refuges or sanctuaries including: breeding, nursery, stopover, haul-out, and population concentration areas by season (ACP);

   - Sherman Island Waterfowl Management Area
   - Grizzly Island Wildlife Area
   - San Pablo Bay National Wildlife Refuge

3. Aquatic resources such as marine fish, invertebrates, and plants including important spawning, nursery, and foraging areas (ACP);

   - Shellfish beds
   - Eelgrass beds

4. State or Federally-listed rare, threatened, or endangered species (ACP)

   - Salt Marsh Harvest Mouse
   - California Least Tern
   - California Clapper Rail
   - California Black Rail
   - Soft Birds Beak

5. Commercial and recreational fisheries, including aquaculture sites, kelp leases, and other harvest areas.

   - A herring season may run from the end of November to as late as March throughout San Francisco, San Pablo and Suisun Bays, with most fishing taking place in South San Francisco Bay. There is also a year-round bait fish (shrimp, sculpins, gobies) fishery throughout these same areas.

6. Inlets, stream mouths (identified from USGS topographic maps)

   - There are numerous sloughs, creeks, etc. that are considered sensitive areas in the San Francisco Bay Area. These are identified in the Area Contingency Plan.

6.4.2 Economic Sites

Recreational and economically important areas in the San Francisco Bay, San Pablo and Suisun Bays, may require special protection in the event of an oil spill. These are identified in the Area Contingency Plan.

6.5 SENSITIVE RESOURCES BASED ON TRAJECTORY ANALYSIS

In the event of an oil spill to marine waters, it may be necessary to protect nearby sensitive areas if it appears that local containment and recovery efforts will not be sufficient to control the entire spill. A critical initial step in protecting sensitive resources is identifying the presence and types of resources in the likely path of the oil. Once these resources have been identified, decisions need to be made as to the proper protection techniques for each locale and the priority for application of resources to each sensitive site. The information necessary to make these decisions is presented in the ACP. This information includes:

- 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 (ES) 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.
- Maps showing the sensitive resources that could be affected by oil spills based on the spill envelopes presented in the ACP.
- Booming strategies for specific areas within the spill envelope of the evaluated spills.

APPENDIX D contains trajectory maps identifying areas that could potentially be impacted by a Reasonable Worst Case Discharge spill from the facility.

Maps and associated complete listings of environmental and economic sites, by Geographic Response Area, are included in Volume II of the Area Contingency Plan (ACP) for California: North Coast, San Francisco Bay and Delta, and Central Coast, (AREA 2). Per trajectory modeling analysis as documented in Appendix D, a Reasonable Worst Case Discharge spill from the facility could impact portions of GRA 3, 4, 5, 6, and 7. It is recognized that the accepted guidance document for identification and prioritization of the environmental and economic sites is the San Francisco Bay and Delta Area Contingency Plan. The ACP provides a listing of the sites and identifies the response strategies for minimizing impact. A copy of the ACP is maintained at facility.

TABLE 6.2 lists the appropriate sections of the ACP that identify **Environmentally Sensitive Sites** within the RWCD potentially effected areas. **TABLE 6.3** lists the appropriate sections of the ACP that identify Economic Sites within the RWCD potentially effected areas.

Listings of Economic Sites and associated maps, by Geographic Response Area, are included in Volume II of the 2011 Area Contingency Plan (ACP) for California: North Coast, San Francisco Bay and Delta, and Central Coast, (Area 2). Per trajectory modeling analysis, a Reasonable Worst Case Discharge spill from the facility could impact portions of GRA3, 4, 5, 6, and 7. It is recognized that the accepted guidance document for identification and prioritization of the environmental and economic sites is the San Francisco Bay and Delta Area Contingency Plan. The ACP provides a listing of the sites and identifies the response strategies for minimizing impact. A copy of the ACP is maintained at the facility.

FIGURE 6.3
APC LISTING OF ENVIRONMENTAL SENSITIVE SITES

GEOGRAPHIC RESPONSE AREA	ACP MAP PAGE	ACP SENSITIVE SITE LISTING PAGE	ACP RESPONSE STRATEGY PAGES
GRA 3	9843.0-1	9843.0-2 & 9843-3	9843.1-1 to 9843.1-108
GRA 4	9844.0-1	9844.0-2	9844.1-1 to 9844.1-64
GRA 5	9845.0-1	9845.0-2	9845.1-1 to 9845.1-45
GRA 6	9846.0-1	9846.0-2	9846.1-1 to 9846.1-72
GRA 7	9847.0-1	9847.0-2	9847.1-1 to 9847.1-84

FIGURE 6.4
APC LISTING OF ECONOMIC SITES

GEOGRAPHIC RESPONSE AREA	ACP SECTION ECONOMIC SITE LISTING	ECONOMIC SITE MAPS
GRA 3	9843.3-2 to 9843.3-4	Unnumbered – Follow Listing
GRA 4	9844.3-2 to 9844.3-4	Unnumbered – Follow Listing
GRA 5	9845.3-2	Unnumbered – Follow Listing
GRA 6	9846.3-3	Unnumbered – Follow Listing
GRA 7	9847.3-2	Unnumbered – Follow Listing

In event of a spill, the current edition of the ACP would be used as guidance for the response. A copy of the latest edition is maintained and available at the facility.

FIGURE 6.5
SAN FRANCISCO GEOGRAPHIC RESPONSE AREA 3

FIGURE 6.6
SAN FRANCISCO GEOGRAPHIC RESPONSE AREA 3
SITE INDEX/RESPONSE ACTIONS

Site ID	Priority	Site Name	Assignment	Date/Time Required	Date/Time Completed
2-304		(b) (7)(F), (b) (3) [redacted]			
2-307		[redacted]			
2-309		[redacted]			
2-310		[redacted]			
2-312		[redacted]			
2-315		[redacted]			
2-320		[redacted]			
2-324		[redacted]			
2-325		[redacted]			
2-326		[redacted]			
2-328		[redacted]			
2-340		[redacted]			
2-342		[redacted]			
2-344		[redacted]			
2-346		[redacted]			
2-350		[redacted]			
2-351		[redacted]			
2-352		[redacted]			
2-353		[redacted]			
2-354		[redacted]			
2-361		[redacted]			
2-362		[redacted]			
2-363		[redacted]			
2-364		[redacted]			
2-365		[redacted]			
2-366		[redacted]			
2-367		[redacted]			
2-370		[redacted]			
2-372		[redacted]			
2-373		[redacted]			
2-374		[redacted]			
2-375		[redacted]			
2-376		[redacted]			
2-378		[redacted]			

FIGURE 6.7
SAN FRANCISCO GEOGRAPHIC RESPONSE AREA 4

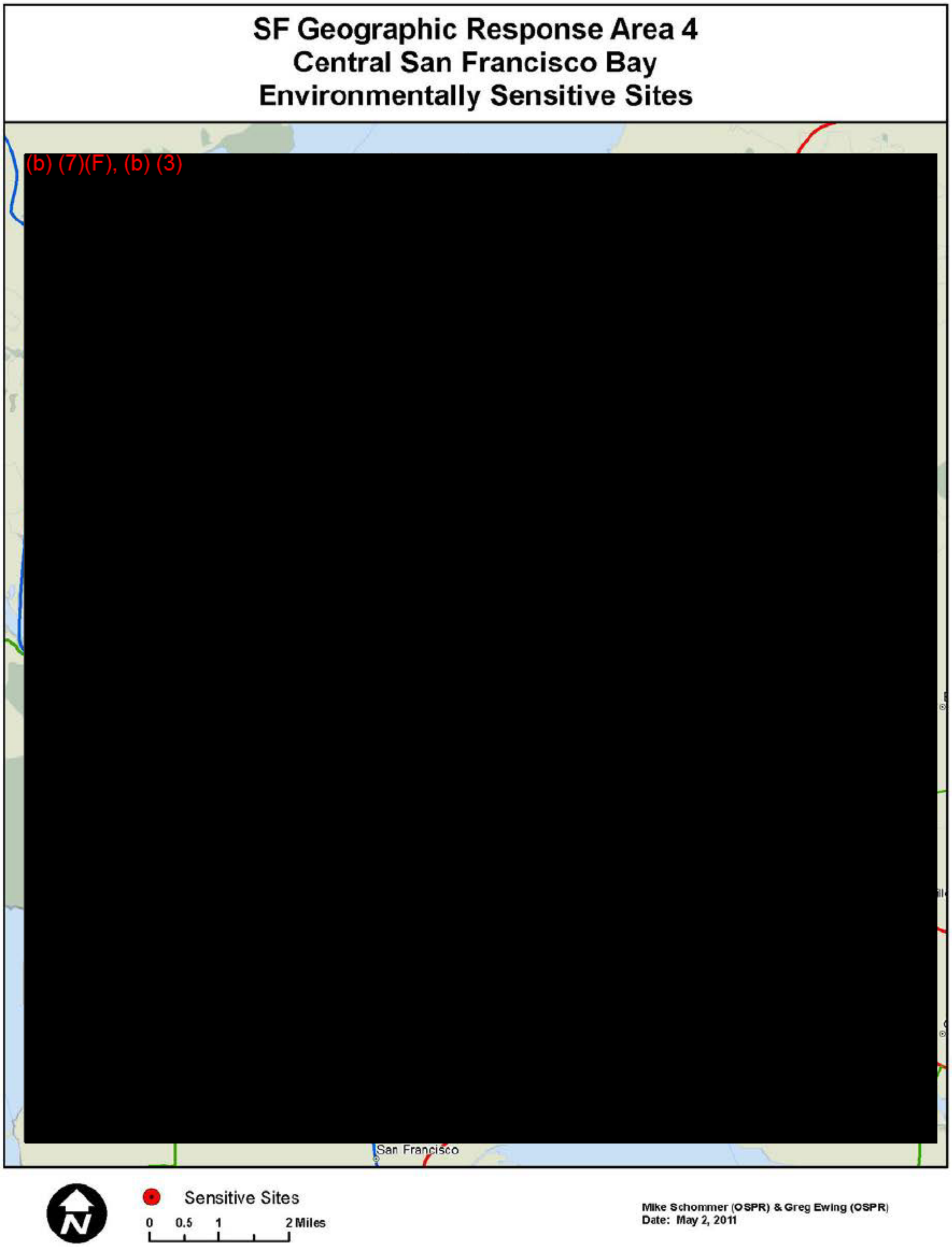
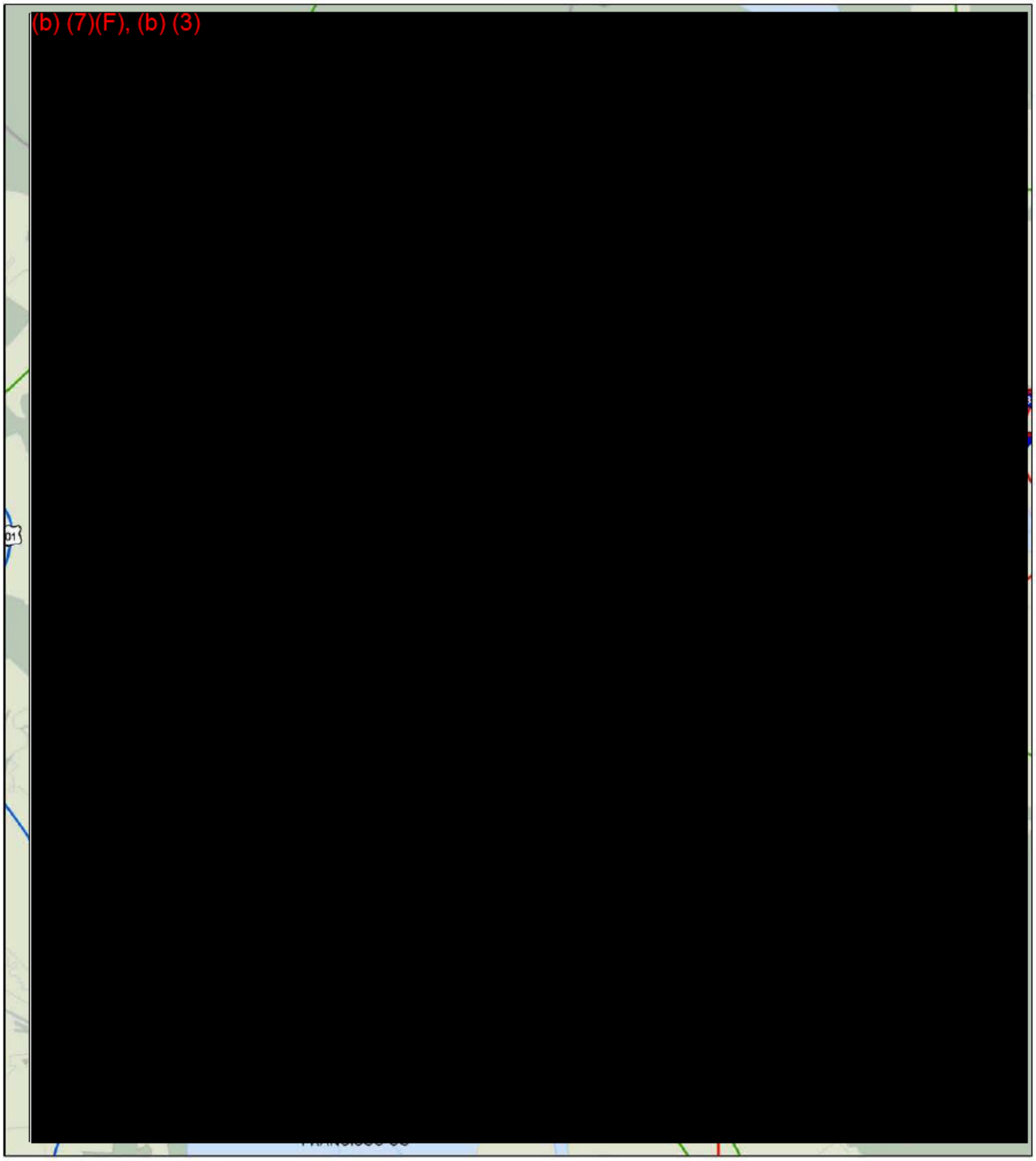


FIGURE 6.8
SAN FRANCISCO GEOGRAPHIC RESPONSE AREA 4
SITE INDEX/RESPONSE ACTIONS

Site ID	Priority	Site Name	Assignment	Date/Time Required	Date/Time Completed
2- 400		(b) (7)(F), (b) (3) [redacted]			
2- 401					
2- 402					
2- 403					
2- 415					
2- 420					
2- 421					
2- 422					
2- 423					
2- 424					
2- 425					
2- 426					
2- 427					
2- 451					
2- 452					
2- 453					
2- 454					
2- 455					
2- 480					
2- 490					
2- 495					

FIGURE 6.9
SAN FRANCISCO GEOGRAPHIC RESPONSE AREA 5
SF Geographic Response Area 5
San Pablo Bay
Environmentally Sensitive Sites


(b) (7)(F), (b) (3)
[redacted]

Mike Schommer (OSPR) & Greg Ewing (OSPR)
Date: May 2, 2011

FIGURE 6.10
SAN FRANCISCO GEOGRAPHIC RESPONSE AREA 5
SITE INDEX/RESPONSE ACTIONS

Site ID	Priority	Site Name	Assignment	Date/Time Required	Date/Time Completed
2-501		(b) (7)(F), (b) (3) [redacted]			
2-502		[redacted]			
2-503		[redacted]			
2-504		[redacted]			
2-505		[redacted]			
2-506		[redacted]			
2-552		[redacted]			
2-553		[redacted]			
2-554		[redacted]			
2-571		[redacted]			
2-572		[redacted]			
2-581		[redacted]			
2-582		[redacted]			
2-583		[redacted]			

FIGURE 6.11
SAN FRANCISCO GEOGRAPHIC RESPONSE AREA 6

SF Geographic Response Area 6
Carquinez Strait and Suisun Bay
Environmentally Sensitive Sites

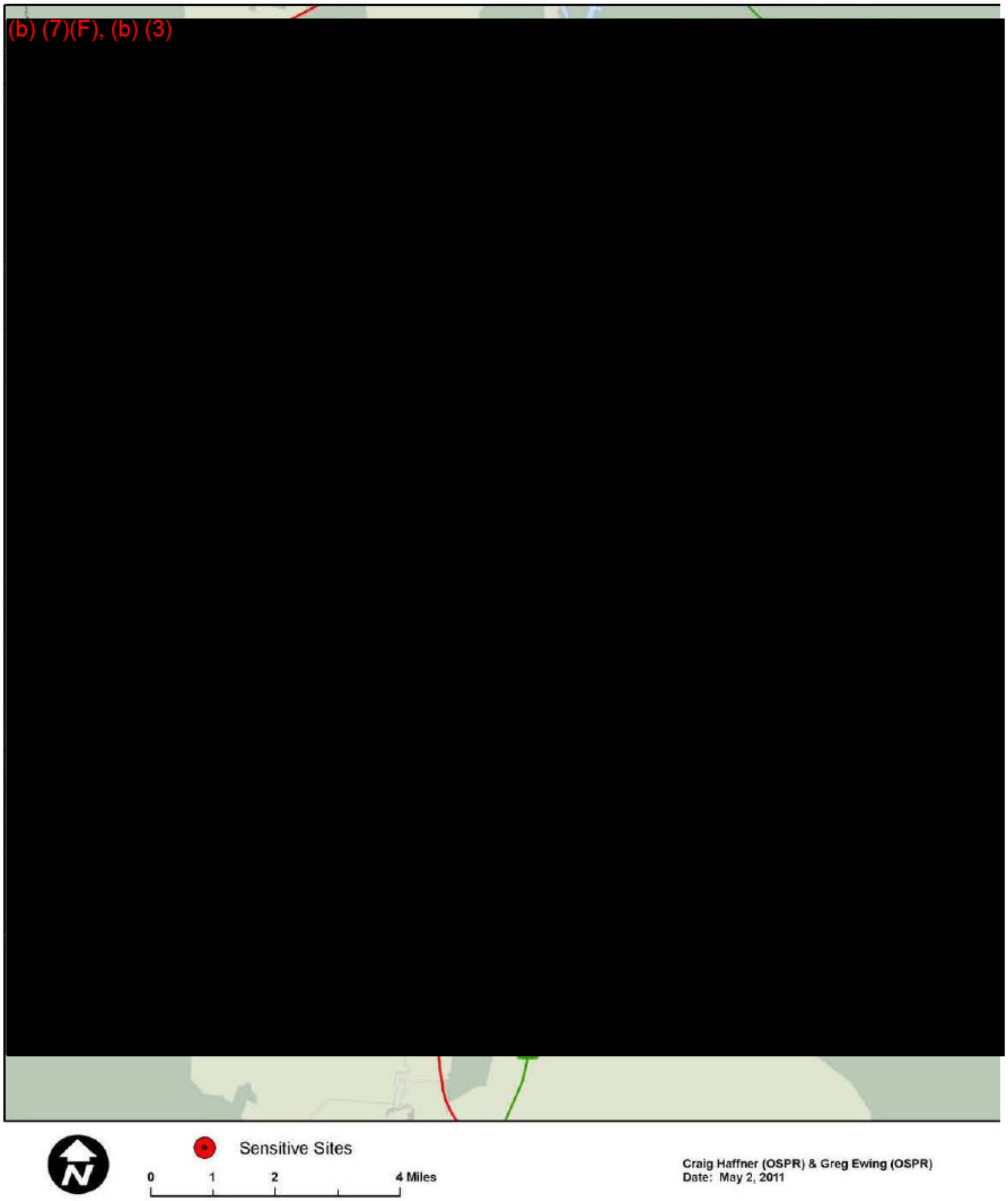


FIGURE 6.12
SAN FRANCISCO GEOGRAPHIC RESPONSE AREA 6
Site Index/Response Actions

Site ID	Priority	Site Name	Assignment	Date/Time Required	Date/Time Completed
2-601		(b) (7)(F), (b) (3) [redacted]			
2-603					
2-605					
2-607					
2-608					
2-630					
2-631					
2-632					
2-633					
2-651					
2-652					
2-654					
2-655					
2-660					
2-665					
2-667					
2-668					
2-670					
2-671					
2-672					
2-673					
2-680					
2-690					
2-695					

FIGURE 6.13
SAN FRANCISCO GEOGRAPHIC RESPONSE AREA 7

SF Geographic Response Area 7
West Delta - Pittsburg to Old River
Environmentally Sensitive Sites

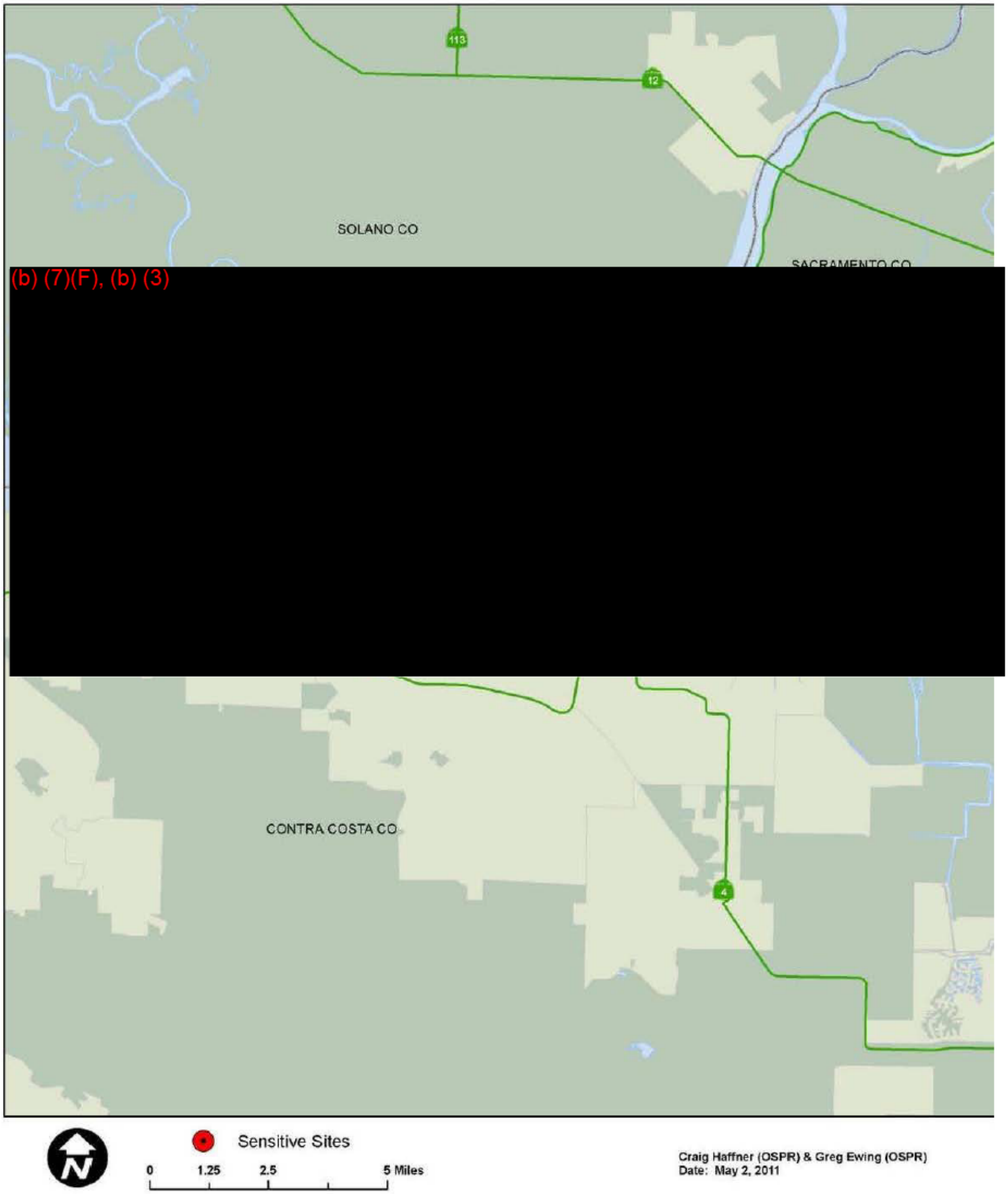


FIGURE 6.14
SAN FRANCISCO GEOGRAPHIC RESPONSE AREA 7
SITE INDEX/RESPONSE ACTIONS

Site ID	Priority	Site Description	Assignment	Date/Time Required	Date/Time Completed
2-700		(b) (7)(F), (b) (3) [redacted]			
2-702					
2-705					
2-710					
2-712					
2-715					
2-718					
2-719					
2-730					
2-734					
2-735					
2-736					
2-737					
2-740					
2-742					
2-743					
2-752					
2-755					
2-757					
2-760					
2-765					
2-770					
2-780					
2-783					
2-786					
2-789					
2-790					

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:

- Protecting the affected habitats using technologies that minimize ecological impacts, and
- 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.

In California, the Oiled Wildlife Care Network provides for the collection, care and rehabilitation of oil contaminated wildlife. Phone numbers for professionals and organizations available for rescue and rehabilitation of wildlife are included in SECTION 2.

Additional information regarding wildlife rehabilitation may be found in the *ACP*.

6.7 CULTURAL RESOURCES

The California Office of Historic Preservation (COHP), under California State Law, is responsible for administrating federal and state programs in California to preserve the state’s cultural heritage. This office is the steward of the inventory of historic or archeological significant sites. These sites include, but are not limited to bridges, buildings, historic districts, and archaeological sites (active and inactive). An oil or hazardous materials spill could impact the state of the historic resource and reduce the value or destroy the historic asset.

The location of these historic resources are known by COPH and therefore notification of this office is necessary in the early stages of a spill event. Notification information is included in Section 3.

SECTION 7 SUSTAINED RESPONSE ACTIONS

7.1 RESPONSE RESOURCES

7.1.1 Fire-fighting Equipment

The refinery maintains a large inventory of fire-fighting equipment throughout the refinery and marine terminals. There are inspection sheets for fire and other health and safety equipment for each unit. Inspections are conducted monthly. Detailed information on the equipment is found in the facility Emergency Response Plan. Inspection records are maintained by the Health and Safety Department.

7.1.2 Oil Spill Response Equipment

The Facility maintains a large inventory of spill response equipment. The primary purpose of this equipment is to provide fast initial response to attempt to contain a spill before it spreads to a large area. Containment boom can be deployed within one hour of confirmation that a spill has occurred. A list of equipment at the Tesoro Refinery is provided in **FIGURE 7.1.**

Contractor equipment and manpower resources are described in Appendix B. Evidence of contract between Tesoro and MSRC and Ship Services is presented in Appendix B.

Facility response equipment is tested and inspected as noted below. The Health & Safety Department is responsible for ensuring that the following response equipment and testing procedures are implemented. These consist of:

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

- Response Boats: The larger Refinery oil spill response boats are kept in the water at the Martinez Marina and the engines are started at least monthly. Small shore recovery boats are kept in the warehouse at Tract 3 and they are put in the water and their engines started at least quarterly. If any mechanical problems are detected, they will be repaired in a timely manner.

- Miscellaneous Equipment: Other response equipment identified in this plan will be inventoried and inspected semi-annually 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 at the Facility. .

- Effective Daily Recovery Rate

  The Tesoro Refinery relies on MSRC and other response contractors for skimming capabilities. Tesoro has immediately available more than 500 packages of sweep, pads, and sausage booms. This material is used to absorb oily products from the water and shorelines, and to protect shorelines and marshy areas. Contract vacuum trucks are available to vacuum up oil where roads are accessible to contaminated areas.

  Our primary Oil Spill Response contractor (MSRC) maintains sufficient recovery equipment and capability within the area to exceed the required daily recovery rates and response times for a reasonable worst case discharge. MSRC also maintains sufficient equipment and capability to effect shoreline protection strategies commensurate with the shoreline response planning volume dictated by the reasonable worst case discharge volume. The equipment is appropriate for implementation of shoreline protections strategies as identified within the ACP for the potentially affected Geographic Response Areas.

FIGURE 7.1
TESORO LIST OF RESPONSE EQUIPMENT

Type/Model	Quantity	Size	Deployment Time (Hours)		Location
			To Avon	To Amorco	
Boom Trailer	(b) (7)(F), (b) (3) [redacted]		N/A	1	(b) (7)(F), (b) (3) [redacted]
Containment boom w/ universal connectors			N/A	1	
Misc. hand tools			N/A	1	
Personal Protective Equipment Trailer (Model No. C122)			N/A	1	
Portable Generator (Model No. EX-1000)			N/A	1	
Jon boat (Vessel No. CF 4344 JY)			N/A	1	
Johnson outboard motor w/ gas tank			N/A	1	
Johnson outboard motor w/gas tank			N/A	1	
Misc. Hand tools			N/A	1	
Misc. PPE			N/A	1	
Miscellaneous Equipment/Absorbents					
Misc. Hand tools			1 - 4	1 - 4	
Boat, V-hull w/ trailer			1 - 4	1 - 4	
Jon Boat			2 - 4	1 - 4	
Boat motor			1 - 4	1 - 4	
Boat motor			1 - 4	1 - 4	
Boat motor			1 - 4	1 - 4	
Containment Boom w/ universal connections			--	2 - 4	
Containment Boom w/ universal connections			2 - 4	--	
Containment Boom w/ universal connections			1 - 4	1 - 4	
PetroMesh/oil snares (cases)			1 - 4	1 - 4	
Type 270 sorbent sausage			1 - 4	1 - 4	
Type 270 sorbent sausage			--	1 – 4	
Type 270 sorbent sausage			1 - 4	--	
Type 151 sorbent sheets			1 - 4	1 - 4	
Type 151 sorbent sheets			--	1 – 4	
Type 151 sorbent sheets			1 - 4	--	

FIGURE 7.1, CONTINUED
TESORO LIST OF RESPONSE EQUIPMENT

Type/Model	Quantity	Size	Deployment Time (Hours) To Avon	Deployment Time (Hours) To Amorco	Location
Type 126 sorbent sweeps	(b) (7)(F), (b) (3) [redacted]	[redacted]	1 - 4	1 - 4	(b) (7)(F), (b) (3) [redacted]
Type 126 sorbent sweeps	[redacted]	[redacted]	--	1 – 4	[redacted]
Type 126 sorbent sweeps	[redacted]	[redacted]	1 - 4	--	[redacted]
Type 100 absorbent rolls	[redacted]	[redacted]	1 - 4	1 – 4	[redacted]
Type 100 absorbent rolls	[redacted]	[redacted]	1 – 4	--	[redacted]
Type 100 absorbent rolls	[redacted]	[redacted]	1 – 4	--	[redacted]
Vessels "Avon I" Munson Hammerhead Serial No. ALF Volvo/Penta AQAD 42/290 single prop motors. Motor Serial Nos. 2204132960 Stern Drive Serial Nos. 3102051898 Volvo/Penta AQAD 42/290 single prop motors. Motor Serial Nos. 2204132936 Stern Drive Serial Nos. 3102051897	[redacted]	[redacted]	1	1	[redacted]
Avon II, Make: Kvichak 24 foot work boat	[redacted]	[redacted]	1	1	[redacted]
Pacific Trailer, Serial No. 40R1A2LJ49A028795. License No. 4KR3764	[redacted]	[redacted]	1	1	[redacted]
Yamaha 150 TXRX, Serial Nos. 6G4X-050267 & 6 KOX-297780 Motor Serial Nos. G03110184 & G03110162 (1999)	[redacted]	[redacted]	1	1	[redacted]
Whaler III, Make: Boston Whaler (1979), Model: BWCC 7220, 17-foot. Vessel No. C9091 GK. Work Order No. 88482. (Back-up for Avon I, II or IV when out for service.)	[redacted]	[redacted]	--1	2	[redacted]
Pacific Boat Trailer (2011). Serial No. 40R1Q1GD2CA029968	[redacted]	[redacted]	--1-4	2	[redacted]
Johnson 50. 50 hp (1990)	[redacted]	[redacted]	--	2	[redacted]

FIGURE 7.1, CONTINUED
TESORO LIST OF RESPONSE EQUIPMENT

Type/Model	Quantity	Size	Deployment Time (Hours)		Location
			To Avon	To Amorco	
SV I, Make: Avon (1992), Model S4. 65 RIBS, 4.64 meter Vessel No. CF4908 JZ. Work Order No. 86649	(b) (7)(F), (b)(3) [redacted]		2	2	(b) (7)(F), (b)(3) [redacted]
Calkins Trailer, License No. 1DW9210	[redacted]		2	2	[redacted]
SV II, Make: Avon (1992), Model S4. 65 RIBS, 4.64 meter Vessel No. CF5089 ND. Work Order No. 86647	[redacted]		2	2	[redacted]
E-Z Loader Trailer, Model EZ14-16, License No. 1DX5714	[redacted]		2	2	[redacted]

7.1.3 Contractor Equipment and Manpower

A description of Tesoro's contractors is provided in Appendix B. Equipment lists for Tesoro's primary OSRO, MSRC, are available online at www.msrc.org.

7.1.4 Command Post

The company will maintain an Emergency Operations Center (EOC) during a spill event. Additional mobile command post(s) may be set up in the vicinity, as needed. The EOC has ample phones, fax machines, copy machines and administrative supplies available to support an oil spill response operation.

The primary EOC is currently in the upstairs in the Central Maintenance Building – Room number 296; the secondary is in the old Environmental Building.

If needed during an extended response, the down stairs Multi-Purpose room of the Central Maintenance may be used by the Spill Management Team. Other office space & meeting rooms may prove valuable for privacy, meetings, or extra telephones. Specific offices have been suggested for certain ICS roles.

Reference Material

The primary EOC contains useful reference materials that may be needed during an emergency response (and key items are duplicated at the alternate EOC location). The reference materials include an emergency response manual, technical reference documents, procedures and guides. It is the responsibility of the Manager, Emergency Response, to ensure that all reference materials are maintained at EOC. The following is a catalog of reference material in EOC:

- Tesoro Golden Eagle Refinery Oil Spill Contingency/Response Plan
- Tesoro Golden Eagle Refinery Emergency Response Plan
- Tesoro Golden Eagle Refinery Shift Superintendent Emergency Response Guidebook
- Tesoro Golden Eagle Refinery Security Control Emergency Response Procedures
- Tesoro Golden Eagle Spill Prevention, Control and Countermeasure (SPCC) Plan
- Coast Guard Area Contingency Plan
- Petro-Chemical Mutual Aid Organization (PMAO) Manual
- DOT Emergency Response Guidebook

- Foster Wheeler Safety Handbook
- Foster Wheeler Emergency Response Plan
- Hazardous Material Warning Sheets (HMWS) Manuals
- MSDS Manual (also available online)
- Safety Officer Manual
- Local Community Maps
- Local Telephone Books
- Refinery Telephone Directories
- ATC (Applied Technology Council) publication titled “ Procedures for Post
- Earthquake Safety Evaluation of Buildings,” ACT-20 (1989 edition).
- “Dangerous Properties of Industrial Materials” – SAX
- “Pocket Guide to Chemical Hazards” – NIOSH/OSHA
- Refinery Maps
- Tide Tables

7.1.5 Communications Equipment

Proper communication is vital to effective ICS functioning. The Refinery maintains a radio system with channels designated for emergency response traffic. A refinery phone system and computer based paging system (text capability to pagers and cell phones) supplements radio communications.

Cell Phones

Key Emergency Response & Management personnel are partially reimbursed for the monthly cost of their Cell phones; some Job positions have cell phones that stay in the facility. In addition, many cell numbers are noted in the facility email “outlook Properties”.

Radio System

The typical communications mode for primary response organizations is the Refinery’s Trunked Radio System, with designated Health & Safety and spill response team channels. The Health and Safety channel 1 on the radio system is the primary channel for general emergency response communication. Additional Channels (H&S 2, SRT 1, SRT 2) are available for tactical operations, and for dividing the field response in to geographical Divisions. A small cache of radios is maintained in the EOC for initially responding command staff. Additional radios caches are maintained at the Fire Station and the Tract 3 Boathouse. Finally, individual responders utilize the radios that they assigned for normal refinery work. Typical radio Channel assignments are listed below.

FIGURE 7.2
RADIO SYSTEM FREQUENCIES

(b) (7)(F), (b) (3)

SYSTEM/CACHE	CHANNEL	FUNCTION	FREQUENCY	ASSIGNMENT	REMARKS
[redacted]					
					Oil Spill Frequency
					Oil Spill Frequency

Emergency Notification

All qualified personnel on the Spill Response Team and Spill Management Team are included in the SendWordNow Emergency Notification System. SendWordNow has the ability to include multiple contact devices (pagers, cell phones, home phones, text and email messages). Each team member is assigned at least one company provided mobile device (pager or cell phone) as their primary contact device. Notification tests are conducted weekly to verify system functionality.

CWS Terminal

There are Community Warning System terminals in the EOC, Shift Superintendent's work Station at the Central Control Building, and Security Control that allow messaging with all agency dispatch centers in Contra Costa County, Contra Costa County Health Services and Office of Emergency Services, other large industrial facilities, Coast Guard, and the Bay Area Air Quality Management District. This system is a digital computerized communication system (not dependent on phone lines) with emergency back-up power supplied.

Leasing Additional Equipment

Additional communications equipment may be leased from a communications company in the area. Such equipment might include:

(b) (7)(F), (b) (3)

[redacted]

Communication Matrix

The communication matrix in **FIGURE 7.3** describes communications equipment available for each SMT position in the event of an oil spill, including Incident Commander, Section Chief, Field Supervisor, Work Crew Leader, and Incident Command Control. Typical channels and frequencies for the primary response organizations are as follows:

FIGURE 7.3
COMMUNICATION MATRIX

POSITION / COMMUNICATIONS EQUIPMENT						
TO FROM	**INCIDENT COMMANDER** Cellular/ Landline Phone Radio-Multi Freq.	**SECTION CHIEF** Cellular/ Landline Phone	**FIELD SUPERVISOR** Cellular/Short Range Radio	**WORK CREW LEADER** Short Range Radio	**INCIDENT COMMAND CONTROL** Landline Cellular Multi Freq. Radio	**MSRC** Radio Cellular/ Landline Phone Marine Radio
INCIDENT COMMANDER Cellular/ Landline Phone Radio-Multi. Freq	Verbal Landline Phone	Verbal Landline Phone Cellular	Cellular Telephone Radio	____________	Landline Phone Radio (Repeater or Trunk) or Cellular /	Landline Telephone Cellular Phone MSRC Radio
SECTION CHIEF Cellular/ Landline Phone	Verbal Landline Telephone Cellular	Verbal Landline Phone Cellular	Cellular	____________	Landline Phone Radio (Repeater or Trunk) or Cellular Phone	Landline Telephone Cellular Phone
FIELD SUPERVISOR Cellular/Short Range Radio	Cellular Telephone	Cellular Telephone	Cellular Telephone	____________	Cellular Telephone	____________
WORK CREW LEADER Short Range Radio	____________	____________	Short Range Radio	Short Range Radio	____________	____________
INCIDENT COMMAND CONTROL	Landline Phone Radio (Repeater or Trunk) or Cellular	Landline Phone Radio (Repeater or Trunk) or Cellular/	Cellular Telephone	____________		Landline Telephone Cellular Phone MSRC Radio
MSRC Cellular MSRC Radio Landline Phone Marine Radio	Landline Phone MSRC Radio Cellular/	Landline Telephone Cellular Phone	Cellular Phone	____________	Landline Telephone Cellular Phone MSRC Radio	Landline Phone Cellular MSRC Radio Marine Radio

FIGURE 7.4
COMMUNICATIONS CHECKLIST

Setup Communications			
Develop communications plan			
Ensure adequate phone lines per staff element – contact local provider			
Ensure adequate fax lines - contact local provider			
Internet access necessary			
Ensure recharging stations for cellular phones			
VHF radio communications: *establish frequencies *assign call signs *distribute radios *establish communications schedule			
Ensure recharging stations for VHF radios			
Determine need for VHF repeaters			
Ensure copy machine available			
Ensure communications resource accountability			

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

7.2 SITE SECURITY MEASURES

(b) (7)(F), (b) (3)

[redacted]

FIGURE 7.5
SITE SECURITY CHECKLIST

(b) (7)(F), (b) (3)

[redacted]

(b) (7)(F), (b) (3)

[redacted]

(b) (7)(F), (b) (3)
[redacted]

7.3 OIL HANDLING AND DISPOSAL

The Tesoro Refinery is responsible for the appropriate storage, treatment, and disposal of recovered oil and wastes. There are complex federal and state criteria for determining the appropriate hazard class of a waste. In addition, the San Francisco Bay Conservation and Development Commission and the California Coastal Commission have created the Joint CCC/BCDC Oil Spill Program to respond to oil spill related matters in the San Francisco Bay Area and along the coast. This program acts as the single point of contact and requests for emergency permits should be directed to the Joint CCC/BCDC Oil Spill Program Staff.

Contacts for the Joint CCC/BCDC Oil Spill Program are as follows:

Joint CCC/BCDC Oil Spill Program	
Jonathon Bishop	(415) 904-5247 (office)
45 Fremont Street, Suite 2000	(b) (6) [redacted] (cellular)
San Francisco, CA 94105-2291	(415) 904-5400 (fax)

For the purposes of initial response and this plan, waste must always be considered "hazardous waste" until authorized personnel have categorized it as "non-hazardous" waste.

One or more temporary storage areas will be established to receive, contain, and safely accumulate waste associated with oil spill recovery and cleanup operations. These temporary facilities will be available at onshore locations nearest the recovery operations. Storage capacity must be adequate to accommodate oil recovery rates and waste generating procedures. Specific tanks for temporary storage of recovered oil are as follows:

FIGURE 7.6
TOTAL DAILY CAPACITY FOR STORAGE AND DISPOSAL OF RECOVERED OIL

Tank Number	Volume (bbls)*
642	(b) (7)(F), (b) (3) [redacted]
896	
137	
601	

* Based on ½ of tank max capacity

The recovered oil (slops) can be loaded daily either from the wharf slop lines or vacuum trucks. Temporary portable tanks would also be utilized for storage. Additional temporary storage can be provided for MSRC.

Training

Personnel who may handle waste are provided with the appropriate hazardous waste management and health and safety training, depending on job assignments.

Packaging

Once a waste is generated, it must be properly packaged immediately. Typically in a response, plastic bags, roll-off boxes, vacuum trucks and drums are used to contain waste to be shipped to the appropriate permitted facility for disposal. Containers for disposal at the refinery may be obtained from the Maintenance Department's Waste Handling Group by **dialing 3000**. Use only the containers that are obtained from the Waste Handling Group to dispose of waste. The following issues should be considered when packaging waste:

- Always put a plastic liner in a container prior to filling with a waste, unless the Waste Handling Group indicates otherwise.
- Keep the container securely covered when not actually filling it, emptying it, sampling the waste in it, or inspecting its contents.
- Never put incompatible wastes in the same container.
- For damp or drippy wastes, add absorbent liberally (top, bottom, throughout).

Marking

- Knowing the contents of all containers in the refinery and during an incident is critical to the safety of personnel. As a result, the contents of each container must be marked on the container. When packaging a hazardous waste, a **Hazardous Waste Label** must be filled out and applied to container.

- When packaging a waste, the following steps must be completed:
  1. Assume the waste is a **Hazardous Waste**, unless the Waste Handling Group indicates otherwise.
  2. The Hazardous Waste Label must be completed properly.
  3. The Hazardous Waste Label must be attached to the side of the container.

- The following information is required on the label:

  1. **Accumulation Start Date:** This is the day that waste is first put into the container. **Month, day and year** must be given.
  2. **Contents, Composition:** Three pieces of information are required:
     - *Waste Description* - Give common name or short description (i.e. Oily Rags and Debris, Oily Dirt, etc.)
     - *Point of Generation* - Identify unit or location where waste was generated (i.e. Tank 690, 50 Unit, etc.)
     - *An Individual Waste Tracking Number assigned by the Waste Handling Group* - If there is more than one container of waste, along with the corresponding waste number, give each contain a unique number.
  3. **Physical State:** Mark the appropriate box on label. Mark only one box. If you see any free liquids, mark the “liquid box”.
  4. **Hazardous Properties:** Mark one or more boxes. Consult *Hazardous Waste Contingency Plan* for listing.
     - Remember that your markings must be **indelible** and **legible**.

Waste Transfer

After completing the Packaging and Marking of the waste, it must be immediately moved to the appropriate accumulation area. The Waste Handling Group will arrange to have the waste picked up and transferred to the appropriate location.

Waste Minimization

Waste minimization is either the reduction of waste at the source prior to its generation (referred to as source reduction) or the on-site/off-site recycling of waste after generation (referred to as recycling). Waste minimization is a requirement of federal and state law, and incorporated into the refinery's waste management program.

A few overall waste minimization guidelines are:

- Prevent leaks and spills.
- Practice good housekeeping.
- Segregate waste types. If you mix a hazardous waste with a non-hazardous waste, the entire mix becomes hazardous waste. For example, if it is necessary to cut vegetation as part of cleanup operations, separate the clean vegetation from the oiled vegetation.
- Choose, wherever practical, chemicals or processes which produce less hazardous waste.
- Recycle or save in good condition for later use.
- Prevent oils and solids from entering the sewer system.

For more information regarding waste handling, disposal and transportation, consult with the Environmental Department, or see *the Hazardous Waste Area Contingency Plan (ACP)*.

7.4 PUBLIC RELATIONS

This section contains guidelines for dealing with the media and public during an emergency. The initial Incident Commander (Operations Shift Superintendent) will play a key role in providing the initial public assessment and taking the first steps to categorize the incident and provide information for use in preparing the Company's information released to the public. The Public Information Officer from the Public Relations Department will be notified via the call list **(SECTION 3)** and will assume this responsibility.

Information in this section includes:

- Guidelines for dealing with the media,
- Incident Fact Sheet (**FIGURE 7.7**),
- List of Potential Questions (**FIGURE 7.8**), and
- Initial Standby Statement (**FIGURE 7.9**).

7.4.1 GUIDELINES FOR DEALING WITH THE MEDIA

- If you don't answer the reporters' questions, they will look elsewhere to find out what happened. However, if you do not have this information or are not prepared to answer a particular question, say so. Then say when they can expect the answers to their questions (i.e. one hour, etc.).

- It is important to be courteous to all media representatives and to provide a safe place for them to wait until a company representative can meet them. You may need to provide an initial statement.

DO PROVIDE:

- A brief, general description of what happened.
- Steps being taken to handle the emergency.

DON'T PROVIDE:

- Names of deceased or seriously injured employees until the next of kin have been notified.
- Speculation about the cause of the emergency.
- Any statement implying personal or company negligence.
- Cost estimates of damage.

OTHER CONSIDERATIONS:

- Safety considerations should always receive priority in determining access to company property.
- **Anticipate likely questions:**

  There are only six questions that can be asked about any subject: Who, What, When, Where, Why and How.

- **Keep answers short and understandable. Answer only the question that is asked by the reporter.**
- **Give the most important facts first.**
- **Talk to the public's concern about the incident.**

  Are there deaths or injuries, is there an immediate threat to the public. Is there any danger of explosion, is the fire under control, can it be controlled?

- **If you don't know the answer to a question, don't be afraid to say "I don't know".**

Make note of the question and tell the reporter that you will try to get the answer - then do it.

- **Don't be defensive.**

- **There is no such thing as "Talking off the record".**

  Assume that anything and everything you say to a reporter is going to be printed or used in the story.

- **Avoid "What If" or speculative questions.**

  These questions should be answered with a restatement of the problem and what is being done to control it.

- **Don’t speculate about the cause of the incident.**

- **Don’t minimize the situation.**

FIGURE 7.7
INCIDENT FACT SHEET

What occurred____

When (Time)____

Where (Location)____

What are hazards____

How is the situation being handled______________________________

____

How many people involved______________________________

Confirmed injuries/fatalities______________________________

How/Where being treated______________________________

Name of injured (release only after next of kin are notified) ____________

____

Name of fatalities (release only after next of kin are notified) ____________

____

What agencies have been notified? ______________________________
On scene? (Yes/No) _________

Who is in charge ______________________________

Has outside help been requested_______ Who______________________
On scene? (Yes/No) _________

Is there danger to the plant______________________________

Is there danger to the community__________________ What ____________

____

Is there an environmental hazard ______________________________

What is the environmental hazard______________________________

What is being done to minimize environmental threat__________________

____

Is there a need for evacuation ______________________________

FIGURE 7.8
LIST OF POTENTIAL QUESTIONS

Questions

1. How big is the spill? (approximately)______________________________________

2. How did it happen? ____

3. When did it happen? Date:_______________ Time:________________________

4. What is Tesoro doing to clean up the spill and prevent other spills?

   ____

   ____

   ____

5. What if the spill hit the beach, residential or recreational areas, or environmentally sensitive areas?____

   ____

   ____

6. Is the material hazardous and/or toxic?____________________________________

7. Has any fish or wildlife been affected?______________________________________

   ____

8. What was the last occurrence of this nature? ______________________________

   ____

9. What is Tesoro’s environmental policy?

   ____

   ____

   ____

FIGURE 7.9
INITIAL STANDBY STATEMENT

(Approved for use by Designated Spokesperson to handle media inquires)

I am __________________________ (name and title) representing ________________.

At approximately ________________________ (time and date) we had a (characterize incident)

____

____

____

at _________________. Cleanup and containment personnel have been dispatched to the site and are working to bring the incident under control. (Note: If the incident is under control, say it is under control.) The cause of the incident has not yet been determined, and an investigation will be initiated as soon as practical. Note: If you have confirmed injury information, state “There are no injuries associated with the incident” (OR) “There have been __________ (number) injuries and the injured are being (treated on-scene, en route to hospital) _________________________ at this time.” DO NOT IDENTIFY INJURED.

At this time, our primary concern is for the safety and welfare of employees, personnel, the community, and the environment. We are working to contain and control this incident. That is all the information I have at this time. We will provide you updated information as it becomes available.

NOTE: Do not speculate. If you do not know the answer to a question, say “I do not know” and offer to get back to the person with more information.

THIS PAGE INTENTIONALLY LEFT BLANK.

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

Demobilization is one of the areas that the Company can reduce costs in considerably with proper planning. 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

During and after a spill, equipment and personnel will need to be washed and decontaminated after being exposed to oil or hazardous substances. In addition, private property such as power and sailboats may also need to be decontaminated which could generate large amounts of wash water. All wash water from these procedures must be contained. A permit must be obtained from either the sanitary sewer or San Francisco Bay Regional Water Quality Central Board (SFBRWQCB before the water is discharged. The sewer agency should be contacted first since their permits can typically be processed quickly. The SFBRWQCB should be contacted only if the sewer agency refuses to accept the water. The sewer agency or SFBRWQCB may require treatment such as oil-water separation prior to discharge. A sample decontamination plan is provided in **SECTION 5.6**.

FIGURE 8.1
DEMOBILIZATION CHECKLIST

Demobilization Checklist			
Assign personnel to identify surplus resources and probable release times			
Establish demobilization priorities			
Develop decontamination procedures			
Initiate of equipment repair and maintenance			
Develop Disposal Plan			
Identify shipping needs			
Identify personnel travel needs			
Develop impact assessment and statements			
Obtain concurrence of Planning and Operations prior to release of personnel or equipment			

FIGURE 8.2
DEMOBILIZATION PLAN

Incident Name: ______________ **Plan Location: __________________________**

Effective Date of Plan: ___________________ **Effective Time Period of Plan: ____________**

Spill Location: ________________________________ **Plan Prepared By: ______ _________________**

1. Demobilization Procedures

- Division Supervisors will determine which resources are ready for release from a specific collection site. The Demobilization Unit Leader will provide guidance on release priorities and demobilization recommendations. Information maintained by the Resource and Situation Unit Leaders 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.
- Division Supervisors will document all demobilization and decontamination activities.
- Equipment designated for re-assignment will be mobilized to the appropriate staging area.
- The Division Supervisor will maintain a log documenting that proper decontamination procedures are performed for each piece of equipment.
- The Operations Section Chief will ensure that redeployed personnel receive proper rest prior to return to duty. The Demobilization Unit Leader 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 REVIEW

All facility personnel involved in the incident shall be debriefed (by the Documentation Unit Leader) within two weeks after termination of operations. A standard debriefing form is provided in **FIGURE 8.2**. The primary purpose of the post-spill review is to identify actual or potential deficiencies in the response 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. This type of information is very helpful in the development of a functional response plan by eliminating or modifying those response procedures that are less effective and emphasizing those that are highly effective. This process should also be used for evaluating training drills or exercises. Key agency personnel that were involved in the response will be invited to attend the post-spill review.

FIGURE 8.3
STANDARD DEBRIEFING FORM

Name of Incident:____

Date:____

PERSONNEL DEBRIEFED

Name:____

Normal Duty:____

Duties performed during incident (list date, time, and location):____________________

____

____

Summary of duties performed:

____

____

____

____

Personal comments of observations on incident:

____

____

____

Name:____

Title:____

Signature:____

8.2.1 Final Spill Cleanup Report

A final, comprehensive report will be prepared by the Incident Commander or his designee after completion of spill cleanup activities for internal use. It should be written in the narrative form, including all appropriate information listed below:

1. Time, location, and date of discharge.
2. Type of material discharged.
3. Quantity discharged (indicate volume, color, length and width of slick, and rate of release if continuous).
4. Source of spill (tank, flowline, etc.) in which the oil was originally contained, and path of discharge downgradient and/or into water.
5. Detailed description of what actually caused the discharge and actions taken to control or stop the discharge.
6. Description of damage to the environment.
7. Steps that Company or contractors took to clean up the spilled oil, and dates and times steps were taken.
8. The equipment used to remove the spilled oil, dates, and number of hours equipment was used.
9. The number of persons employed in the removal of oil from each location, including their identity, employer, and the number of hours worked at that location.
10. Actions by the Company or contractors to mitigate damage to the environment.
11. Measures taken by the Company or contractors to prevent future spills.
12. The federal and state agencies to which the Company or contractors reported the discharge. Show the agency, its location, the date and time of notification, and the official contacted.
13. Description of the effectiveness of equipment and cleanup techniques and recommendations for improvement.

14. The names, addresses, and titles of people who played a major role in responding to the event.

15. A section identifying problems and deficiencies noted during the response event. A follow-up section should include recommended procedure modifications to make a future response more effective and efficient.

16. All other relative information.

17. A final signature as follows:

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

Name:

Title:

Signature:

Date:

THIS PAGE INTENTIONALLY LEFT BLANK.

APPENDIX A TRAINING AND EXERCISES

A.1 EXERCISE REQUIREMENTS AND SCHEDULES

The Company participates in the National Preparedness for Response Exercise Program (PREP) in order to satisfy the exercise requirements of the EPA, USCG, and OSPR.

A listing of all PREP exercise requirements to be completed within the three-year (triennial) cycle is listed in **FIGURE A.1.** The company also strives to maintain compliance with the regulations regarding training requirements of OSHA, USCG, OSPR and State Land Commission (SLC). This training includes:

- Emergency response;
- Hazardous waste;
- Oil Spill Response; and
- Health and Safety and Emergency Response Training

Response drills will be designed to:

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

The Manager, Emergency Response and Preparedness, is responsible for scheduling, maintaining records, implementing and evaluating this drill program, and ensuring that post-drill evaluation improvements are implemented.

Spill Response Exercises will take four forms as described in Figure A.1.

FIGURE A.1
Type and Frequency of Spill Response Exercises

Type of Exercise	Frequency
Facility and Qualified Individual (QI) Notification Drills	Quarterly
Tabletop exercises where plan is discussed and each person reviews their role or where team simulates response activities	Annually
Facility Response Equipment Deployment Exercise	Semi-Annually
Facility Emergency Procedures Exercises	Quarterly

Descriptions of these exercises are as follows:

A.1.1 Facility and QI Notification Exercises

The Company will conduct QI Notification Drills on a quarterly basis. The notification drill will consist of someone from the Facility initiating a mock spill notification to the QI. The Manager, Emergency Response and Preparedness, is responsible for ensuring documentation of who was called, the time and date of the notification, and the phone numbers called during the drill.

A.1.2 Equipment Deployment Exercises

Golden Eagle maintains and trains its employees in the use of the oil spill response and cleanup equipment located at the refinery. Contracted OSROs conduct maintenance and training activities for their equipment and personnel that would be employed in an oil spill response cleanup. The Facility will conduct semi-annual equipment deployment exercises as per PREP guidelines. The Company will also verify that the response contractors identified in this Plan participate in annual equipment deployment exercises.

A.1.3 Facility Emergency Procedure Exercises

The Facility will conduct a quarterly facility emergency procedure drill to ensure personnel knowledge of actions to be taken to mitigate a spill and meet the PREP option for unannounced facility drills. The exercise may be a walk-through of actions to report a spill and safely isolate equipment contributing oil to the spill.

A.1.4 Spill Management Team Tabletop Exercises

The Company will conduct SMT Tabletop Exercises in order to test the SMT knowledge of spill response activities and responsibilities as outlined in the Plan. The tabletop exercises will either be announced or unannounced and will involve discussion of each team member's role in a typical spill response. The exercise will document the effectiveness of the Plan and the responsibilities of SMT Members in a simulated spill scenario. Every three years, all components of the entire response plan will be exercised. **FIGURE A.3** contains a form to document these tabletop exercises. The drill program is indicated in **FIGURE A.4.**

A.1.5 Unannounced Exercises

If quarterly emergency procedures drills are not conducted, then an unannounced SMT tabletop exercise, a facility equipment deployment exercise, or a facility emergency procedures exercise will be conducted .

The Company will ensure that the spill response contractors named in this plan participate in an annual unannounced drill.

In the event that the Company participates in an unannounced drill initiated by a Federal or State agency that meets PREP requirements, the Company will document and take credit for the agency initiated unannounced drill in lieu of the drill as required by PREP guidelines.

A.1.6 Area Exercises

The Company understands that area exercises will be conducted throughout the area and will determine which exercises are appropriate to participate in, whether agency or industry lead.

A.1.7 Drill Program Evaluation Procedures

The Company conducts post exercise critiques to discuss positive items, areas for improvement and to develop an action item checklist to be implemented at a later date.

Records of Drills

The Company will maintain records of all drills for a period of five years following the completion of each drill. These records are located on site and will be made available for agency inspection through the Health & Safety Department. In addition, the Company will verify that appropriate drill records are kept for each response contractor named in this Plan for spill response activities as required by PREP guidelines. This includes response contractors participating in annual equipment deployment drills; with at least one unannounced drill every three years.

A.1.8 Safety Training

Refinery employees receive regulatory compliance training in areas applicable to their jobs. Training includes classroom training, field training and computer based modules. These records are maintained by the Training Department.

A.1.9 Response Equipment Inspections

Equipment inspections are conducted quarterly. Equipment inspection logs are maintained on file at the Golden Eagle refinery in the PREP documentation binder.

FIGURE A.2
NATIONAL PREPAREDNESS FOR RESPONSE EXERCISE PROGRAM (PREP) TRIENNIAL CYCLE INTERNAL EXERCISE PROGRAM

In the triennial cycle the following internal exercises must be conducted:

- 12 qualified individual notification exercises;
- 3 spill management team tabletop exercises one must involve a worst case discharge scenario;
- 3 unannounced exercises any of the exercises, with the exception of the qualified individual notification exercise, if conducted unannounced, would satisfy this requirement;
- Equipment deployment exercises as described below:
    - For facilities with facility-owned and operated equipment

      6 facility-owned and operated equipment deployment exercises (for facilities with facility-owned and operated equipment identified in their response plan).
    - For vessels and facilities with OSROs identified for response equipment

      3 OSRO equipment deployment exercises.
- Triennial Exercise of Entire Response Plan - Each component of the response plan must be exercised at least once in the triennial cycle.

FIGURE A.3
INTERNAL EXERCISE DOCUMENTATION FORM

SMT Tabletop Exercise

Retain this form for a minimum of 3 years (for USCG/RSPA/MMS) and 5 years (for EPA)

1. Date(s) performed:

2. Exercise or actual response? ____

   If an exercise, announced or unannounced? ______________________________

3. Location of tabletop: ____

4. Time started: ______________________Time completed: ________________

5. Response plan scenario used (check one)

   _____ Average most probable discharge
   _____ Maximum most probable discharge
   _____ Worst case discharge

   Size of (simulated) spill: ____

6. Describe how the following objectives were exercised:

   Spill management teams knowledge of oil-spill response plan:

   ____
   ____
   ____
   ____

   Proper notifications:

   ____
   ____
   ____
   ____
   ____
   ____

   Communications system:

   ____
   ____
   ____
   ____
   ____

FIGURE A.3, Continued
INTERNAL EXERCISE DOCUMENTATION FORM

Spill Management Team's ability to access contracted Oil Spill Removal Organizations (OSROs):

____
____
____
____
____
____

Spill Management Team's ability to coordinate spill response with On-Scene Coordinator, State and. applicable agencies:

____
____
____
____
____
____

Spill Management Team's ability to access sensitive site and resource information in the Area Contingency Plan:

____
____
____
____
____
____

7. Identify which of the 15 core components of your response plan were exercised during this particular exercise:

	YES	NO
A. Organizational Design		
1. Notifications		
2. Staff Mobilization		
3. Ability to operate within the response management system described in the plan		

FIGURE A.3, Continued
INTERNAL EXERCISE DOCUMENTATION FORM

	YES	NO
B. Organizational Design		
4. Discharge Control		
5. Assessment of discharge		
6. Containment of discharge		
7. Recovery of spilled material		
8. Protection of sensitive areas		
9. Disposal of recovered material and contaminated debris		
C. Response Support		
10. Communications		
11. Transportation		
12. Personnel support		
13. Equipment maintenance and support		
14. Procurement		
15. Documentation		

8. Description of lesson(s) learned and person(s) responsible for follow-up of corrective measures.

Lessons Learned	Person Responsible for Follow-up of Corrective Measures

Certifying Signature

Confirm that an exercise (1) was completed; (2) was conducted in accordance with the PREP guidelines, the response or contingency plan, meeting all objectives listed; and (3) was evaluated using a mechanism that appraised the effectiveness of the response or contingency plan.

A.2 TRAINING PROGRAM

A.2.1 Training in the use of the Oil Spill Plan

All field personnel will be trained in the proper procedures for the reporting and monitoring of spills. Included in this training are procedures for contacting the Qualified Individual on a 24-hour basis, and procedures and telephone numbers for contacting the National Response Center. A copy of the Facility Response Plan will also be made available to all personnel on the SMT.

At least once each calendar year the oil spill plan will be reviewed with field personnel and responders. In addition, they will review procedures on how and where to place materials depending on where the spill occurs and various seasonal conditions. **Records of all training activities are maintained for at least five years following completion of training.** The Company will maintain training records for each individual as long as those individuals are assigned duties in this Plan.

A.2.2 Training for Qualified Individuals (QIs)

Training will be conducted for the Qualified Individuals listed in this Plan. The training elements to be presented are listed in **FIGURE A.4.**

A.2.3 Training for Spill Response Team

All Company personnel that are designated within this Plan will be trained according to the program identified in **FIGURE A.4.**

Oil spill responders are required to adhere to the training and safety requirements outlined in the OSHA's Hazardous Waste Operations and Emergency Response regulations in 29 CFR 1910.120. Laborers, having a potential for minimal exposure to a hazardous substance are required to have 24 hours of initial oil-spill response instruction and 8 hours of actual field experience. Those spill responders having potential exposure to a hazardous substance at levels exceeding the permissible exposure limits (generally, those situations requiring the use of a respirator and protective clothing) are required to have 40 hours of initial training off site and 24 hours of actual field experience.

On-site management and supervisors are required to receive the same amount of training as the equipment operators and general laborers, with the additional specialized training in hazardous waste management.

A.2.4 Training for Spill Management Team Personnel

Golden eagle conducts annual training on the Oil Spill Contingency Plan and Incident Command System for Spill Management Team Members. Members of the SMT are expected to be familiar with their role within this response plan. The Spill Recovery Team receives monthly hands-on response training (i.e., boat handling, boom deployment, classroom). In addition, the team receives HAZWOPER training for the HazMat Technician level.

A.2.5 Training for Casual Laborers or Volunteers

Spill Response Personnel

Trained spill response cleanup personnel will be provided by spill response contractors provided in this Plan.

The Company does not intend to use casual laborers or volunteers for spill response operations requiring HAZWOPER training.

Wildlife Rescue and Rehabilitation Volunteers

The Company will rely upon the recommendations of both the USFWS and the California Fish and Wildlife in dealing with oiled wildlife. Only trained personnel, approved by these agencies will be utilized to respond to incidents involving oiled wildlife. Locally, the Oiled Wildlife Care Network will be utilized to assist with and coordinate care for wildlife impacted by an oil spill. Volunteers will be directed to offer their services to the Oiled Wildlife Care Network within the limits that can be absorbed by that organization.

A.2.6 Training Documentation and Record Maintenance

Spill response personnel training records will be maintained for five years. The Training Department is responsible for maintaining all training records. Records include:

- Documentation of yearly training associated with the Facility Oil Spill Response Plan as provided to SMT and Facility personnel.

- Records of personnel training in accordance with CaI-OSHA 8 CCR 5192 regulations. Training records of instructors are also maintained.

Records of training provided for response contractor personnel will be maintained at the respective contractor's office and will be verified by Tesoro on an annual basis.

FIGURE A.4
TRAINING PROGRAM MATRIX

Training Element	Qualified Individual (QI)	Spill Management Team (SMT)	Facility Personnel
Captain of the Port (COTP) Zones or Environmental Protection Agency (EPA) regions in which the facility is located.	x	x	X
Notification procedures and requirements for facility owners or operators; internal response organizations; federal and state agencies; and contracted oil spill removal organizations (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 fire fighting procedures.	x	x	X
Procedures the facility personnel may use to mitigate or prevent any discharger or a substantial threat of a discharge or oil resulting from facility operational activities associated with internal or external cargo transfers, storage, or use.	x		
Facility personnel responsibilities and procedures for use of facility equipment, which may be available to mitigate or prevent an oil discharge.	x	x	X
Operational capabilities of the contracted OSRO's to respond to the following: • Average most probable discharge (small discharge); • Maximum most probable discharge (medium discharge); and • Worst case discharge.	x	x	x
Responsibilities and authority of the Qualified Individual as described in the facility response plan and company response organization.	x	x	x
The organizational structure that will be used to manage the response actions including: • Command and control; • Public information; • Safety; • Liaison with government agencies; • Spill response operations; • Planning; • Logistics support; and • Finance.	x	x	x
The responsibilities and duties of each oil spill management team within the organizational structure.	x	x	
The drill and exercise program to meet federal and state regulations as required under OPA.	x	x	x
The role of the Qualified Individual in the post discharge review of the plan to evaluate and validate its effectiveness.	x		
The Area Contingency Plan (ACP) for the area in which the facility is located.	x	x	x
The National Contingency Plan (NCP).	x	x	x
Roles and responsibilities of federal and state agencies in pollution response.	x	x	x
Available response resources identified in response plan.	x	x	
Contracting and ordering procedures to acquire oil spill removal organization resources identified in the response plan.	x	x	

FIGURE A.4
TRAINING PROGRAM MATRIX

OSHA requirements for worker health and safety (20 CFR 1910.120).	x	x	x
Incident Command System/Unified Command System.	x	x	
Public Affairs.	x	x	
Crisis management.	x	x	
Procedures for obtaining approval for dispersant use or in-situ burning of the spill.	x		
Oil spill trajectory analyses.	x		
Sensitive biological areas.	x	x	
This training procedure as described in the response plan for members of the spill management team.		x	
Procedures for the post discharge review of the plan to evaluate and validate its effectiveness.		x	
Basic information on spill operations and oil spill clean-up technology including: • Oil containment; • Oil recovery methods and devices; • Equipment limitations and uses; • Shoreline clean-up and protection; • Spill trajectory analysis; • Use of dispersants, in-situ burning bioremediation; and • Waste storage and disposal considerations.		x	
Hazard recognition and evaluation.		x	
Site safety and security procedures.		x	
Personnel management, as applicable to designated job responsibilities.		x	
Procedures for directing the deployment and use of spill response equipment, as applicable to designated job responsibilities.		x	
Specific procedures to shut down affected operations.			x
Specific procedures to follow in the event of discharge, potential discharge, or emergency involving the following equipment or scenarios: • Tank overfill; • Tank rupture; • Piping or pipeline rupture; • Piping or pipeline leak, both under pressure or not under pressure, if applicable; • Explosion or fire; • Equipment failure; and • Failure of secondary containment system.			x
Name of the Qualified Individual and how to contact.			x

THIS PAGE INTENTIONALLY LEFT BLANK.

APPENDIX B CONTRACTOR RESPONSE EQUIPMENT

B.1 CONTRACTOR EQUIPMENT AND MANPOWER

Tesoro's primary response contractors and telephone numbers for the facility are noted in **SECTION 3**. These contractors can provide oil spill response equipment and personnel in the event of a spill at the facility. 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, including meeting daily recovery rate and shoreline protection planning requirements.

SECTION 3 also contains a list of additional contractors in the area who provide equipment and services that may be needed during a spill response operation. Equipment lists for MSRC are available online at www.msrc.org. The response equipment lists include 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

FIGURE B.1 provides response contractor responsibilities. Contractors 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, along with supervising response personnel.
- Interfacing with company 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.

B.2 MARINE SPILL RESPONSE CORPORATION (MSRC)

Tesoro is a member of MSRC. Evidence of membership is provided in **FIGURE B.2**. A list of MSRC equipment is available online at www.msrc.org.

B.3 BAY AREA SHIP SERVICES

Bay Area Ship Services provides standby booming during the vessel transfer operations. A copy of the first two pages of the agreement with Ship Services describing the coverage is presented in **FIGURE B.3.** . Bay Area Ship Services equipment list is presented in Figure B.4.

B.4 OTHER CONTRACTORS

Other contractors available are listed in **Section 3**. In addition, there is a comprehensive listing of contractors services in the EOC storage cabinet and in the Maintenance Planning Supervisor's office. The list is arranged alphabetically by type of service needed (e.g. valve, repair look under "V"). MSRC contractors including Ecology Control, Inc. (ECI), Phillips Services Corporation (PSC), Universal Environmental, Inc. (UE), Clean Harbors, and others will provide shoreline cleanup.

FIGURE B.1
RESPONSE CONTRACTOR RESPONSIBILITIES

SUPERVISOR

- ASSESS IMMEDIATE INCIDENT INFORMATION.
- NOTIFY OPERATIONS PERSONNEL OF THE INCIDENT AND DIRECT THEM TO CARRY OUT THEIR ASSIGNED RESPONSIBILITIES.
- PROCEED TO SPILL SITE.
- ATTEND MEETINGS HELD BY THE ON-SCENE COORDINATOR.
- INTERFACE WITH REGULATORY OFFICIALS.
- DEVELOP RESPONSE STRATEGIES.
- SUPERVISE RESPONSE ACTIVITIES.
- CONDUCT AND PLAN BRIEFINGS FOR CONTRACTOR RESPONSE PERSONNEL.
- ASSESS WHAT RESOURCES WILL BE REQUIRED DURING THE IMMEDIATE RESPONSE AND EARLY CONTAINMENT, COUNTERMEASURES AND RECOVERY PHASES.
- CARRY OUT OTHER ASSIGNED TASKS.

FOREMAN

- CONDUCT COMMUNICATION CHECKS WITH FACILITY AND CONTRACTOR PERSONNEL.
- NOTIFY PERSONNEL OF LOCATION TO ASSEMBLE.
- ASSESS RESPONSE ACTIONS TAKEN BEFORE ARRIVAL.
- REDIRECT RESPONSE ACTIVITIES, IF NECESSARY.
- DEVELOP SAFETY PLAN.
- SUPERVISE WORK CREWS.
- INFORM SUPERVISOR OF WORK PROGRESS.
- CARRY OUT APPROVED COST ACCOUNTING DOCUMENTATION.
- ADDITIONAL TASKS MAY BE ASSIGNED.

OPERATOR/SPILL TECHNICIAN

- DIRECTS RESPONSE VANS TO IMMEDIATELY PROCEED TO SPILL SITE.
- ARRIVE AT INCIDENT.
- ADVISE ON-SCENE COORDINATOR THAT RESPONSE CONTRACTOR IS ON-SITE.
- INITIATE RESPONSE PROCEDURES, IF FIRST TO ARRIVE.
- PROVIDE EARLY CONTAINMENT AND SKIMMING OPERATIONS.
- NOTIFY MANAGEMENT OF MAGNITUDE OF INCIDENT.
- WORK AS DIRECTED, ENSURING PERSONNEL SAFETY.
- ASSUME OTHER TASKS AS NEEDED.
-

FIGURE B.2
MSRC MEMBERSHIP CERTIFICATE

MARINE SPILL RESPONSE CORPORATION
SERVICE AGREEMENT

EXECUTION INSTRUMENT

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

Tesoro Petroleum Corporation
[Name of **COMPANY**]

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

with its principal offices located at 8700 Tesoro Drive, San Antonio, Texas 78217

(the "**COMPANY**"), and **MARINE SPILL RESPONSE CORPORATION**, a nonprofit corporation organized under the laws of Tennessee ("**MSRC**"), and shall be identified as

SERVICE AGREEMENT No. LMPA 090 [This is to be provided by **MSRC**.]

IN WITNESS WHEREOF, the parties hereto each have caused this Agreement to be duly executed and effective as of June 3, ~~1998~~ 99

Tesoro Petroleum Corporation [**COMPANY**]

By: James C Reed Jr [signature]

James C. Reed, Jr. [print name]

Title: Executive Vice President,
General Counsel and Secretary

Address: 8700 Tesoro Drive
San Antonio, Texas 78217

Telephone: 210-828-8484 Fax: 210-283-2400

MARINE SPILL RESPONSE CORPORATION:

By: Judith A. Roos
Judith A. Roos
Marketing & Customer Service Manager
455 Spring Park Place, Suite 200
Herndon, Virginia 20170

703/326-5617; Fax: 703/326-5660

FIGURE B.3
BAY AREA SHIP SERVICES CONTRACT

TESORO REFINING AND MARKETING COMPANY

SERVICE ORDER 4501402738

TESORO

Contractor: 219045

SO CAL SHIP SERVICES
971 SO SEASIDE AVE
TERMINAL ISLAND CA 90731

Contact:	DOUG MALIN/TONY MANDA
Tele:	310-519-8411
Fax:	310-519-4016
Others:	310-519-8411

P.O.Date	Int. Change No.	Modified on
01/06/2009	4	10/14/2009
Contact Person		Telephone
Jill Haeni		925-372-3131
Email		Fax
jill.m.haeni@tsocorp.com		925-470-2310
Work Order	Cost Center	WBS Element
	18966	

Send Invoice To:

PO BOX 599701
San Antonio TX 78259-9701

OR E-mail invoice to:
apayable@tsocorp.com

Display the following information on invoice

P.O.Number	Vendor	Cost Assmnt
4501402738	219045	18966

For all AP inquiries contact
877-TSO-PAYS (877-876-7297)
tsolutions@tsocorp.com

Deliver To:

GOLDEN EAGLE REFINERY
TESORO REFINING & MARKETING COMPANY
150 SOLANO WAY
MARTINEZ CA 94553

Please include PO number on Delivery note

Delivery Date	Incoterms
12/31/2009	

Payment Terms / Currency:

Net 30 from Invoice Date / USD

AMENDED SERVICE ORDER TO REFLECT THE CORRECT MONTHLY BILLING PRICING AND THE SPILLS AND DRILLS PRICING - JMM 2/29/2008

AMENDMENT NO.: 01 3/11/2008 JMM
AGREEMENT NO.: Z00729
LABOR RATES EFFECTIVE DATE: JUNE 2007
START DATE: 7/1/2007
END DATE: 12/31/2010
COMPANY #: 0800
GENERAL LEDGER #: 766205
COST CENTER #: 18966
REVIEWED BY: KLR

For any questions regarding the taxability of the purchase order please contact the Tesoro Business Service Center at 1-866-876-2455 or TSolutions@tsocorp.com. For all other questions please contact your purchasing contact listed.

We require an order acknowledgment for the following items:

Item	Material	Description	Quantity	UM	Price Per UM	Net Value
10		2009 Ship Services Standby Booming	1.00	PU	348,000.00	348,000.00
						NonTaxable
			Total net value excl.tax USD			348,000.00

FIGURE B.3 CONTINUED
BAY AREA SHIP SERVICES CONTRACT

CONTRACTOR: 219045
SO CAL SHIP SERVICES

PO number/date
4501402738 / 01/06/2009

Page
2 of 2

AGREED AND ACCEPTED:

CONTRACTOR:		COMPANY:	
Signature:	______________	Signature:	______________
Printed Name:	______________	Printed Name:	______________
Title:	______________	Title:	______________
Date:	______________	Date:	______________

FIGURE B.4
BAY AREA SHIP SERVICES EQUIPMENT LIST

BAY AREA SHIP SERVICES
MARINE SPILL RESPONSE/VESSEL SUPPORT

BASS SF Bay Area Equipment

August 23, 2012

Vessel/Equipment	Location	Boom	Equipment
M/V HAMMERHEAD	BASS Dock	600 feet of 8 inch universal connection	4 anchor systems, 6 tow bridals
M/V THRESHER	BASS Dock	600 feet of 8 inch Universal connection	4 anchor systems, 6 tow bridals
M/V SCULPIN	BASS Dock	600 feet of 8 inch Universal connection	4 anchor systems, 6 tow bridals
LCM BOOMER	BASS Dock	6500' feet of 18 inch Universal connection	14 BBL temporary storage. 6 Tow Bridles, Drum skimmer
Reserve Boom	BASS Yard	2400' feet of 8 inch Universal connection	
14' Punt	BASS Yard		
12' Punt	BASS Yard		
20' Utility Trailer	BASS Yard		
Ford F-150 Truck	BASS Yard		

THIS PAGE INTENTIONALLY LEFT BLANK.

APPENDIX C FACILITY DESCRIPTION

C.1 OVERVIEW

For the purposes of this Plan, the Tesoro Refining & Marketing Company LLC and Tesoro Logistics, LLC facilities are divided into four jurisdictional areas subject to the regulatory authorities of the EPA, USCG, DOT (PHMSA) and OSPR. Collectively, the areas are referred to as the Complex. The Complex is an onshore oil refining and storage facility that primarily refines crude oil to produce a variety of petroleum products. The main products include gasoline and diesel fuels along with liquefied petroleum gas (LPG), fuel oil, and petroleum coke.

The non-transportation-related portions of the Complex, subject to EPA regulations, include Tracts 1, 2, 3, 4 and 6 (as identified in **Figure 1.4**), and oil storage areas at the Amorco Terminal. Tracts 1 and 2 contain the refining units and storage tanks, while Tracts 4 and 6 are primarily oil storage areas. These portions of the Complex, under EPA regulation, are referred to as the Refinery and the Amorco Terminal respectively.

The Marine terminals include the marine transportation-related portions of the Complex that extend from the oil transfer hose connections to the first onshore isolation valve inside secondary containment. Tesoro operates two marine facilities as part of this Complex, the Amorco Wharf and the Avon Wharf. The Amorco Wharf is used primarily as a receiving facility for crude from tank vessels, and the Avon Wharf primarily loads petroleum products, including diesel, gasoline blends, and fuel oil onto tankers. The Avon Wharf is located in Tract 3, and the Amorco Wharf is located two miles west of this location. The marine terminals are subject to the regulatory authorities of the U.S. Coast Guard, OSPR and State Lands Commission.

There are two crude oil pipelines running between the Refinery and Amorco Terminal regulated by DOT, the California State Fire Marshal and OSPR. These pipelines originate in the storage tank area near the Amorco terminal and extend east, above ground, for approximately two and one-half miles through off-site properties to the storage area at the Refinery. In addition, there is a clean products line that runs between the neighboring Shore Terminal to Avon, and a recovered oil and water line (non-jurisdictional) that runs between Amorco and Avon. They are collectively known as the Onshore Oil Pipelines.

C.2 DESIGN AND OPERATIONS

The marine terminal facilities design and operation is described in detail in the *Marine Terminal Operations Manual*. A summary of pertinent facility features is described below.

C.2.1 Piping and Instrumentation Diagram

P&ID's for the Complex are located in the drafting department of the Engineering Building. General operating procedures and basic P&ID's for the unit can be found in the *Procedures Manual* for each operating unit. The general unit boundary and area locations within the facility have been identified in **FIGURES 1.5 through 1.8**. Simplified schematic diagrams for the wharves show typical loading/unloading lines, slop lines, and valves from the tanker/wharf connection to the inland block valves. The Avon Pipeline System Schematic is presented in **FIGURE 1.9,** and **FIGURE 1.14** shows the Amorco Wharf Flow Diagram.

C.2.2 Pumps, Valves, Vents and Lines

(b) (3), (b) (7)(F)

[redacted]

(b) (3), (b) (7)(F)

[redacted]

C.2.3 Number, Type, Oil Storage Capacity, and Type of Oil for Each Structure

The bulk of petroleum products and crude oil at the Refinery is stored in aboveground storage tanks. **FIGURE D.5** lists Tesoro's tanks by number, size and contents.

The oil-containing structures on the Marine Terminals include a 500-gallon slops tank, an 880 gallon diesel fuel tank, a 400 gallon fuel tank, and a 720-gallon diesel fuel tank at the Amorco Wharf, two 1100-gallon slops tanks and a 150-gallon diesel tank at the Avon Wharf, and the loading/unloading lines at both Marine Terminals. Refer to **FIGURES C.2 and C.3** for capacities of dock lines at the Amorco and Avon Wharves. The calculations for these volumes are based upon pipe diameters obtained from the *Operations Manuals* and an estimation of the line lengths from plot plans.

Crude oil is transported between Amorco and the refinery through the Onshore Oil Pipelines. Calculated volumes for crude and diesel lines are based on estimated pipeline lengths and nominal diameters. The results are tabulated in **FIGURE C.4**.

C.2.4 Secondary Containment Structures

Secondary containment for bulk storage installations is provided by a combination of spill prevention systems, including: dikes, berms, diversion canals, retention ponds and drainage systems. **FIGURES D.5 and C.1** list the storage tanks and identifies the secondary containment systems. They are intended only as a reference; due to the dynamic operating nature of the refinery, tank service changes frequently. The Gauging Department should be contacted at **extensions 3108 or 2204** for verification of current tank information.

- *Tracts 1 and 2* – secondary containment is provided mainly by the oily sewer system, though depressed pipeways would provide additional capacity.
- *Tract 3* – Also served by oily sewer system with additional containment furnished by an earthen berm around the perimeter.
- *Tract 4* – Secondary containment in Tract 4 consists of retention ponds, dikes, berms, and a diversion canal.
- *Tract 6* – Dikes around most tanks. Diversion canal and retention pond supply further containment.
- *Amorco Terminal* – In addition to oily sewer system, the Amorco Terminal is furnished with dikes, berms, and retention ponds for secondary containment.

A drip collection system at the Marine Terminals consists of funnels, basins, and manifold drains which drain by gravity into the slops tanks positioned under the wharf deck. These drip systems are located where hose and pipe connections are made or broken. Onshore tankage is dedicated to the handling of ballast and residue liquids. The oily waste is subsequently treated in the refinery's wastewater treatment system. Onshore Oil Pipelines are not provided with secondary containment structures.

C.2.5 Mooring Areas, Oil Transfer Locations, Control Stations, Safety Equipment and Drip Pans

Tank Truck/Tank Car Loading Rack

A truck loading rack located in Tract 3 is equipped with three bays for loading gasoline and diesel products. Additionally an unloading bay is equipped for receiving truck loads of ethanol for gasoline blending purposed. Drainage from this area is directed to the Refinery's oily water treatment system.

The truck loading rack and ethanol unloading bay are equipped with an automated foam fire suppression deluge sprinkler system and emergency shutdown system. Manual fire monitors and fire extinguishers are located in this area. In addition, absorbent materials are available at the Emergency Response Tract 3 Boat House.

Loading/unloading racks have paved slabs sloping to drain basins that drain directly into the oily water sewer system. Loading Spot No. 5 has a quick dump system where the truck contents can be quickly dumped and pumped directly to tankage. Sufficient capacity is provided for the contents of the largest tank truck loaded or unloaded at the plant.

Warning signs are prominently displayed at truck racks requiring drivers to set brakes and shut off motors. Drivers are instructed to be out of the truck while loading.

Filling nozzles at the gasoline truck loading racks will not operate unless the bottom-loading nozzle is sealed to the truck. If any emergency develops at the truck rack, barriers are lowered to stop all truck movement in the area.

When rail tank cars are spotted for loading or unloading, gates are swung shut and blue signal lights are turned on after dark, warning that cars are not to be moved until operations are complete and cars are cleared for removal. In addition, derailers are installed as a safety device to prevent collisions.

Avon Wharf

(b) (7)(F), (b) (3)

[redacted]

Loading hoses are used for the transfer of crude oil and product between the piping manifold and the tanker or barge. Hoses vary in size from 4 to 10 inches and are generally furnished by Tesoro. When reasonably possible, the hoses are connected to the wharf piping manifold prior to the arrival of the vessel.

The drip collection system at the Avon Wharf consists of funnels, basins, and manifold drains that drain by gravity into one of two tanks positioned beneath the wharf. These systems are located where hose pipe connections are made or broken up. Electronic gauging devices are provided to determine the level in the tank and a high level alarm will sound if the tank is overfilled.

The sump pumps are automatically activated as the level in the tanks rise. Auxiliary pumps are provided in case the primary pump fails. The slops are normally pumped to Tank 601. The personnel on duty are responsible to monitor the tank levels and pumps.

The maximum size of tank ships/vessels that can be handled at the Avon Wharf at any one time are as follows:

Berth No.	Weight (DWT)	Dimensions (ft.)
1	(b) (7)(F), (b) [redacted]	(b) (7)(F), (b) [redacted]

For information on draft, refer to Section 4.3.2 of the Avon Operations Manual.

Vessels to be loaded under vapor recovery use Berth No 1.

Amorco Wharf

(b) (7)(F), (b) (3) [redacted]

Loading hoses are used for the transfer of crude oil and products between the wharf piping manifold and the tanker or barge. Hoses, 10 inches in size, are furnished by Tesoro.

Drip pans are permanently installed under each manifold where the wharf hoses are connected. The drip pans discharge directly to the slop tank installed beneath the wharf (on the eastern end beneath the berth). This slop tank has a capacity of (b) (7)(F), (b) (3) [redacted]. A electronic gauging system is provided to determine the level in the tanks and a high alarm will sound if the tanks are overfilled.

The sump pump for the tank is automatically activated as the level in the tank rises. An auxiliary pump is provided in case the primary pump fails. Discharge from the tanks is either to the 20-inch crude pipeline or the Refinery waste water system. The personnel on duty are responsible to monitor the tank level and pumps.

Pipeline transfers are made by the gauging department. All pipelines are hard-piped into tanks, reducing the risk of leaks and spills. The pipeline transfers are monitored from the gauging department control room and periodically by manual tank gauging. The pipelines are subject to frequent visual inspection during and between transfers.

The maximum size of vessels that can be handled at the Amorco Wharf at any one time is as follows:

Berth No.	Weight (DWT)	Dimensions (ft.)
Amorco berth	[redacted] (b) (7)(F) (b)	[redacted] (b) (7)(F)

For information on draft, refer to Section 4.3.2 of the Amorco Operations Manual.

C.2.6 Types, Properties, Hazards, Capacity and Current Normal Daily Throughput of Oil Handled

The average daily throughput of crude oil in the Golden Eagle Refinery is approximately [redacted] (b) (7)(F), (b) (3). For a description of the properties and hazards of products carried by the pipeline and handled at the truck loading rack, refer to Material Safety Data Sheets (MSDS) and HMWS manuals located at each operating unit and the Industrial Hygiene Department. Property descriptions of products handled at the Marine Terminals are found in the Amorco and Avon *Operations Manuals*.

C.2.7 Normal Procedures for the Loading or Transfer of Oil by Pipeline, Tanker or Barge; Amount, Frequency, and Duration

Tank Truck/Tank Car Loading Rack

Procedures for loading and unloading of tank cars and tank trucks meets the minimum requirements established by the Department of Transportation.

Prior to filling and departure of any tank car or tank truck, the lowermost drain and all outlets of the vehicle are closely examined for leakage, and if necessary, tightened, adjusted, or replaced to prevent liquid leakage while in transit.

Marine Terminals

Flanged hoses are used between the wharf manifold and the vessel for all cargo transfers. There are no mechanical loading arms at either the Avon or Amorco Wharves. The hoses vary between 4, 6, 8, and 10 inches in size. Hoses in service are bolted to the manifold flanges of the wharf, and kept suspended by a series of booms and rope falls. When not in use for transfers, all hoses are secured with a blind flange and bolts and gasket. They are kept drained when not in use.

The vessel crew is responsible for connecting the hose to the vessel manifold. The hose shall be connected using fresh gaskets and a full set of bolts at each of the flange connections.

Prior to Arrival of Vessel

1. The wharf Terminal Person in Charge (TPIC) reviews the discharge and mooring plans.
2. Review the pipelines to be used and communicate with the guagers to ensure that the lineups are proper.
3. Check to see that sample valves, drains and bleeders are closed.
4. Assure that slop tank is pumped out in preparation for the transfer.

Upon Vessel Arrival

1. Spot vessel in proper location.
2. Check that mooring lines are adequate in number and meet minimum mooring requirements. The master of the tank vessel is responsible for the safe mooring and safety of the vessel while at the wharf.
3. Once minimum facility mooring rquirements have been met, additional moorings may be utilized at the request of the vessel master.
4. Mooring lines should be kept taunt at all times, and it is the responsibility of the tank vessel crew. The wharf personnel will assist in monitoring moorings.
5. Have gangplank set so it can be used safely.
6. The TPIC will board vessel and prepare the Declaration of Inspection.
7. Conduct pre-transfer conference to discuss the cargo to be transferred, and the various pipeline systems, procedures, limitations and controls to be used during the transfer. Emergency procedures shall be discussed prior to each transfer.

8. During cargo transfer conference, discuss communications and emergency signals. Both tank vessel and wharf personnel are to be in continuous communication via two-way hand-held radios.
9. Have the tank vessel connect hoses using new gaskets and full set of bolts at each flange connection on their manifolds.
10. Ensure that there is a drip pan under each cargo hose flange at the wharf manifold connection.

Refer to the Amorco and Avon Operations Manuals for specific unloading procedures for tank vessels and barges.

The TPIC will closely monitor the final oil transfer activity, with constant contact with the vessel person in charge and the gauger controlling the shore tanks to assure that no valves are closed prematurely, which could cause excessive pressure build-up. All parties involved will be notified by the TPIC when the valves are properly closed and the system is secure. Once the transfer operation is properly shut down, the hose will be drained into the vessel as much as possible, and the remainder in the hose will be drained into the wharf drain system. All valves will then be closed, after which the vessel will blind the hose where it is disconnected from the vessel manifold. The hose is left connected to the wharf manifold and properly stored on the wharf, with care taken not to kink the hose.

Once the hose is disconnected and stored, get the handling booms clear of the vessel, disconnect any ground wires, and remove communications equipment from vessels. Release mooring lines as directed by the vessel's crew.

Emergency Shutdown

Should an emergency occur while a vessel is discharging, the TPIC will use radio, voice communication, or air horn to notify the tank vessel to immediately shut down transfer pumps and close valves on board the vessel. The wharfinger will close the MOVs (motor operated valves) on the crude transfer line at the wharf manifold, and the "Y". The MOVs can be activated from the local control panel at the transfer berth or the galley/office.

The wharf manifold gate valves will be closed.

After shutdown of the wharf and vessel system, the Wharfinger will notify the shore Gauger by telephone or radio to close the MOVs on the individual tank fill lines, as appropriate.

The Amorco Wharf has two boom reels, one on the east and one on the west end of the Wharf. Each reel contains 1200 ft of 8"x 24" containment boom with universal connections. (b) (7)(F), (b) (3) [redacted] contain a spill. Also available at the wharves and in the refinery are containment and cleanup equipment and materials such as Sorbent Boom, Sorbent Sweep and Sorbent Pads.

<u>On-shore Oil Pipelines</u>

The On-Shore Pipelines are operated by the shipping & gauging department as described in the *Pipeline Operations and Maintenance Manual.*

The pipelines functionally operate on demand to meet the requirements of the Tesoro oil movement schedule. The Dispatcher coordinates all oil movements with the field operations group. In addition, the zone gaugers and wharf personnel interface with various vessels to safely start-up and shutdown the Pipelines.

System Start-Up and Shut-Down

The Dispatcher, zone gaugers and wharf personnel are responsible for the safe operation of the Pipelines while performing daily refinery oil movements. However, the Dispatcher can monitor and control some of the equipment, but not all. Therefore the gaugers and wharf personnel [redacted] (b) (3), (b) (7)(F)

Prior to the commencement of any oil movement, the Dispatcher and field operational personnel will communicate and agree as to who will control

(b) (3), (b) (7)(F) [redacted]

- the marine vessels delivering into the Pipelines will start their own on-board pumping units.

The Dispatcher will direct the wharfinger and gauging personnel as to which valve alignments to make prior to the commencement of any oil movement. Once the field personnel have aligned the system for the intended oil movement, and communicated the same to all involved personnel, the appropriate pumps may be started. As the appropriate pumps are started, the wharf personnel and gaugers are responsible for closely monitoring the pressure on the Pipelines to insure operating conditions do not exceed the maximum operating pressure (MOP) of the Pipelines.

Once the operations have stabilized, the field shall continue to periodically monitor the pressure on the Pipelines. During the oil movements, the Dispatcher will be responsible for monitoring the bulk movement of the liquids into and out of the Pipelines. This is accomplished by monitoring the rise and fall of the facility tank gauges. During any oil movement, it is normal for the Pipelines to be switched into additional tankage. The Dispatcher will direct the field operations personnel to make the needed valve alignments to accomplish the tank switch. The Dispatcher shall insure that the flow is established into the new delivery tank prior to directing the field operations to switch out of the active delivery tank. During any oil movement, it is normal for the Pipelines to shut-down for any number of reasons (product sampling, line flushing, etc.). It is the responsibility of the personnel in charge of pump starts/stops (Dispatchers, zone gaugers, wharf personnel, and marine vessel) to communicate his intentions with the other operating parties involved prior to executing any start/stop. Any re-starts of the Pipelines shall be monitored closely until operations have stabilized once again.

As the oil movement nears completion, the Dispatcher will closely coordinate with the field (the wharfinger will coordinate with the marine vessel if applicable) to safely shut down the Pipelines. The wharf personnel and zone gaugers will increase their system surveillance to insure the safe operation of the Pipelines. If required, the dispatcher will direct the field operations personnel to shut-down the pumping units. The field will insure that all pumping units have been shut-down prior to performing any of the necessary valve alignments to secure the Pipelines from active operation.

Any unusual operating scenarios to be utilized on the Pipelines shall be thoroughly discussed between the operating and dispatching groups prior to implementation. If the complexity of the proposed scenario warrants a written operating plan, one shall be developed and reviewed with all operating personnel involved.

Maintaining Operating Pressure Data

The Refinery, Avon and Amorco Terminal, and various marine vessels' pumping units discharge into the Pipelines. Tesoro's provides a means to record the discharge pressure of the pumps into the Pipelines whenever the lines are in operation. The recording of pressure shall be performed by any generally accepted method provided the data recorded can be filed and reviewed for a period of three years. The records shall be maintained in a location designated by the Health & Safety Manager.

Communication

Communication of operating information between the Dispatcher and the field operations personnel is critical for the safe operation of the Pipelines. The safe operation of the Pipelines requires reliable communications in three forms:

- data communications via phone lines for tank levels, and some pump start/stop controls;
- voice communications of field monitored and controlled operating information via portable radio (also used to communicate with marine vessels); and
- voice communications of field monitored and controlled operating information via telephone system.

The Dispatcher has access to only a limited amount of operational data. This data is limited to the above mentioned tank gauges and some pump starts/stops. The Dispatcher uses the tank gauge data to monitor the intended movement of products/crude into and out of the Pipelines. The Dispatcher shares the responsibility of monitoring the other operationally vital data of the Pipelines with the field operations personnel. The Dispatcher relies on the field to monitor the operating pressure of the Pipelines.

C.2.8 Hours of Operation

The Complex is in continuous operation. All truck, tanker, barge, and pipeline transfers are intermittent and may occur at any time during a 24-hour day.

C.2.9 Description of the Well Field, Gathering Lines, Storage Tanks and Processing Facilities

The Complex contains no well fields or gathering lines. Storage tank information is presented in **FIGURE D.5**. Storage tanks on the docks include: residue drain tanks, a(b) (7)(F), (b) (3) [redacted] diesel tanks on the Amorco Wharf, and a [redacted] diesel tank on the Avon Wharf to fuel emergency fire pumps. The diesel tanks are equipped with secondary containment. Refer to facility SPCC Plan for descriptions of the processing facilities.

FIGURE C.1
BULK OIL ABOVE GROUND OIL STORAGE TANKS AND SECONDARY CONTAINMENT SYSTEMS

Tank Number	Secondary Containment System*
TRACT 1	
258	1,2
406	1,2
429	1,4
432	1,2
513	1,2
517	1,2
585	1,2
620	1,2
621	1,2
622	1,2
650	1,2
651	1,2
699	1,2
717	1,2,4
876	1,2
877	1,2
895	1,2
943	1,2

Tank Number	Secondary Containment System*
TRACT 2	
134	1,2
137	1,2
532	1,2,4
642	1,2
896	1,2,4

Tank Number	Secondary Containment System*
TRACT 3	
26	1,2,3
217	1,2,3
601	1,2,3
612	1,2,3
631	1,2,3
692	1,2,3
696	1,2,3
711	1,2,3
932	1,2,3

Tank Number	Secondary Containment System*
TRACT 4	
690	4,6(RP-B&C)
694	4,6(RP-B&C)
701	4,6 (RP)
705	4,6 (RP)
706	4
707	5
708	4, 6 (RP-A)
709	5
866	4, 5
867	4, 5
871	4,5
872	4,5

Tank Number	Secondary Containment System*
TRACT 6	
270	4,8
272	4,8
274	4,8
637	4,8
638	4,8
639	4,8
640	4,8
641	4,8
664	4,8
702	4,8
710	4,8
849	4,8
868	4,8
870	4/8
893	4,8
894	4,8
904	4,8
905	4,8

Tank Number	Secondary Containment System*
AMORCO TERMINAL	
B-19	9,10
B-21	9,10
B-30	4,10
B-49	4,10
B-50	4,10

FIGURE C.1, CONTINUED
BULK OIL ABOVE GROUND OIL STORAGE TANKS AND SECONDARY CONTAINMENT SYSTEMS

NOTES: The previous table is intended to be used as a reference. Due to the dynamic operating nature of the refinery, tank service changes frequently. Tanks that are out of service and not listed may contain some oily residue. The table may not be all-inclusive or up to date. The Gaugers should be contacted at Extension 3108 or 2204, for up-to-date, specific tank information. When new oil storage tanks at the Golden Eagle Refinery are constructed, they will be added to this table as they are brought into service.

Secondary containment for bulk storage tank installations is provided by a combination of spill prevention systems. The combined capacity of these systems is sufficient to contain the contents of the largest single tank plus precipitation. The systems listed below are referenced as 1 through 6 on the previous table:

*Secondary Containment Systems	Approximate Capacity
(b) (7)(F), (b) (3) [redacted]	(b) (7)(F), (b) (3) [redacted]

FIGURE C.2
ESTIMATED LINE VOLUMES AT AVON WHARF

(b) (7)(F), (b) (3)
[redacted]

FIGURE C.3
ESTIMATED VOLUMES OF IN-SERVICE LINES AT AMORCO WHARF

(b) (7)(F), (b) (3)
[redacted]

Volumes calculated to first valves in secondary containment (five valves inside tank containment).

FIGURE C.4
CAPACITIES OF IN-SERVICE REFINERY TO AMORCO PIPELINES

Pipeline	Normal Diameter (in.)	Length (ft)	Est. Volume (bbls)
(b) (7)(F), (b) (3) [redacted]			

*The 200 and 63 lines from Amorco combine into one 24" crude in Shell Chemical pipeway north of Waterfront Road and separate again just west of Peyton Hill.. The separate lines function as one line even when separated.

C.3 FACILITY SITE AND SURROUNDING AREA

The facility site and surrounding area is described in **SECTION 1**, including maps and drawings.

C.3.1 Sewers, Storm Drains, Catchment, Containment Diversion Systems Basins, Oil/Water Separators

(b) (7)(F), (b) (3)

[redacted]

C.3.2 Watercourses into Which Surface Runoff from the Facility Drains

Receiving waters for storm water runoff include (b) (7)(F), (b) (3) [redacted]. **FIGURES 2.3 and 2.4** are included to illustrate where surface runoff and treated water discharges from the Refinery.

C.3.3 Vicinity Maps

Vicinity maps and drawings contained in this Plan provide a visual description of the surrounding area and depict Refinery and equipment information relative to the area; such areas and equipment are described below:

- **Access to the Facility**
  (b) (7)(F), (b) (3) [redacted]

- **Nearby Areas**
  (b) (7)(F), (b) (3) [redacted]

- **Private Access to Land**
  The Facility does not maintain pre-arranged agreements to access private lands in the event of an oil spill. The facility is mainly surrounded by government-owned property.

- **Cultural Resources**
  Historic assets, within the impact zone of a spill from this facility, are not included in vicinity maps and drawings. These assets are available with the California Office of Historic Preservation. In the event of a spill, this office should be notified. Notification information is in **SECTION 3**.

C.3.4 Hydrographic and Climatic Conditions

This section describes prevailing conditions in the San Francisco and San Pablo Bay area that may be relevant to oil spill response planning.

- **Wind**
  The prevailing wind direction is from the northwest. However, on the water, the wind is generally channeled through the Carquinez Strait.

- **Temperature**
  The San Francisco and San Pablo Bay areas have a mild Mediterranean climate, with temperatures moderated by the waters of the bays. Temperatures rarely exceed 100^{o}F and rarely fall below 32^{o}F.

- **Tides and Currents**
  A table of tides and currents is provided in the front pocket of this plan.

- **Local Visibility Problems**
  Low-lying fog is a frequent visibility problem in the area. Both marine terminals are equipped with fog horns.

C.3.5 Geographic Features

Refer to the USGS topographic map, included at the end of this Plan for regional topography. Refer to NOAA Nautical Chart 18656, also included at the end of this Plan, for water depths in the area of the marine terminal. For the most current depths at the berthing areas, see depth soundings chart located in the *Marine Terminal Operations Manual*. Additional geographic features are described in the ACP.

- **Bathymetry**

  The bathymetry of the Suisun Bay area varies greatly, consisting of large shallow areas and well-defined deeper channels used for shipping. The fringes of the bay are comprised of shallow areas grading into mud flats and marshes. Shallow areas and bars are also found in the central part of the bay. The Amorco wharf is located along the Suisun Point Reach channel. The Avon Wharf is located along the east Bulls Head channel. The maximum permissible docking draft varies according to the latest sounding data referenced to mean lower low water (MLLW). Vessels must maintain a minimum under keel clearance at the berth of 2-feet through all phases of the tide.

- **Navigational Hazards**

  Navigational hazards in the Suisun Bay area include the Carquinez and Benicia-Martinez Bridges. These hazards as well as others such as rocks, shallows (see above), points, and platforms are marked with the appropriate lights and audible devices. Further information is listed in the ACP.

- **Traffic Patterns**

  Traffic in the area is monitored by the U.S. Coast Guard. The shipping channels are defined with the appropriate buoys, and vessel traffic separation schemes (TSS), corridors, and precautionary areas have been established where warranted. In [redacted] all tank vessels carrying more than [redacted] of oil are required to be accompanied by tug escorts through the Carquinez Strait north on the Sacramento Shipping Channel to one mile beyond the Ryer Island Ferry Terminal. Further information is listed in the ACP.

APPENDIX D HAZARD EVALUATION/RISK ANALYSIS

D.1 INTRODUCTION

Hazard evaluations have been performed at the Refinery to evaluate spill risks associated with the operation of the facility, identify and implement spill prevention and risk reduction measures, facilitate emergency response planning and reduce impacts from releases. These initial Hazard Evaluations were prepared in response to the following regulations:

- California Code of Regulations, Title 14, Division 1, Subdivision 4, Office of Oil Spill Prevention and Response, Chapter 2, Oil Spill Prevention and Response Planning, Subchapter 3. Contingency Plans, Section 817.02(c)(1), Risk and Hazard Analysis.
- Code of Federal Regulations, 40 CFR Part 112.20(h), EPA Facility Response Plans.
- Cal-OSHA 8 CCR 5189 “Process Safety Management of Acutely Hazardous Materials” (e) “Process Hazard Analysis.”

Since the final reports were issued for the initial studies in 1993, additional regulations have become effective requiring Hazard Analysis.

- Cal-OES 19 CCR Division 2 Chapter 4.5 “California Accidental Release Prevention Program,” Section 2760.2, “Process Hazard Analysis.”
- Contra Costa County Ordinance Number 98-48 (Industrial Safety Ordinance) Chapter 450-8, “Risk Management.”

The risk and hazard analyses conducted specifically for the Refinery Complex utilized the Hazard and Operability Study (HazOp) method, identified by the American Institute of Chemical Engineers (AIChE). The initial analysis was performed when the facility was under different ownership. The study records have remained at the facility under Tesoro’s ownership. The most recent revalidations of the Process Hazard Analyses were completed for the Amorco and Avon Wharves In2012 and 2011 respectively.

For the Amorco Wharf, the HAZOP and “what-if” techniques were conducted on a line-by line analysis of the unit. In addition to the line by line analysis, general discussions of “Other Issues” were held to ensure that general safety issues that might affect the health and safety of employees were adequately investigated. Other Issues covered included: Safety/Fire protection, Emergency Response, Procedures, Loss of Utilities, Facility Siting, Previous Incidents, Human Factors, Testing and Inspection, Maintenance, External Events.

The HAZOP procedures include review of all potential hazards as identified in the summary. The reviews included a discussion of potential oil spills as a result of each identified hazard based on the owner's knowledge of safeguards that included operational procedures, reaction times, inspections, and frequency of use.

The Hazard evaluation addresses the potential for crude oil and petroleum product releases and can assist in the identification and implementation of spill prevention measures, planning for potential spills, and reduction of spill impacts.

D.2 CALIFORNIA OSPR RISK AND HAZARD ANALYSIS 817.02

D.2.1 History of Significant Spills 817.02(c)(1)(A)

Spills associated with the facility from 1991 onward are summarized in **FIGURE D.6,** based in part on information provided by the previous owner.

D.2.2 Risk and Hazard Analysis 817.02(c)(1)(B)

The following analysis is a summary of the Hazard and Operability (HazOp) study, which was performed on the Avon and Amorco Wharves and the pipelines which link Amorco Wharf to the refinery. A reasonable worst case incident was outlined along with the probability of its occurrence. Using this reasonable worst case incident, a consequence analysis was performed to identify the impact and size of the incident. Complete documentation of the HazOp Study is on file at the facility in accordance with δ817.02(c)(1(E).

D.2.3 Expertise of the Risk and Hazards Analysis Group 817.02(c)(1)(C)(1)

Personnel who performed the studies and their qualifications are provided in **FIGURE D.1 and FIGURE D.2**.

FIGURE D.1
HAZARD ANALYSIS WORKING GROUP QUALIFICATIONS
AVON WHARF

2011 Avon Wharf HAZOP Revalidation (Most recent)		
NAME	TITLE AT TIME OF HAZOP	EXPERIENCE AT TIME OF HAZOP
Scott Stansbury	SIS TECH Solutions Fabricator/Scribe	33 Years refining/chemical operations PHA Team Leader
Surinder Singh	Avon Wharf Operator	35 Years Refinery Operations PHA Participant
Brian Kirmse	Operations Engineer	3 Years Process engineering in refining PHA Participant

FIGURE D.2
HAZARD ANALYSIS WORKING GROUP QUALIFICATIONS
AMORCO WHARF

2012 Amorco Wharf HAZOP Revalidation (Most Recent)		
NAME	**TITLE AT TIME OF HAZOP**	**EXPERIENCE AT TIME OF HAZOP**
Scott Stansbury	SIS TECH Solutions Facilitator/Scribe	33 Years refining/chemical operations PHA Team Leader
Kristin Norton, PE CFSE	Risk Management Professionals Facilitator/Scribe	9 Years Engineering PHA Team Leader
Surinder Singh	Avon Wharf Operator	35 Years Refinery Operations PHA Participant
Amanda Paffrath	Operations Engineer	6 Years Engineering PHA Participant
John Beutel	Refinery Health & Safety	31 Years Refinery Operations PHA Participant
Curt Albrecht	Refinery Operations	21 Years Refinery Operations PHA Participant

D.2.4 Demonstration that the Analysis is Appropriate and Adequate 817.02(c)(1)(C)(2)

The OSPR-required analysis was conducted in accordance with 29 CFR 1910 standards. It included scenarios resulting from unanticipated shutdowns, interruption to cargo operations, or impact on cargo handling rates. The review was conducted for normal operations (including startup and shutdown) and maintenance operations such as line flushing. Hazards discussed included discharge of petroleum cargoes that could contain benzene or hydrogen sulfide in concentrations sufficient to affect employees, facilities, or the environment; the discharge of oil onshore or to the water; and other hazards such as burns from release of hot materials.

D.2.5 Summary of Risk and Hazard Analysis 817.02 (c)(1)(D)2 and 3

Researchers considered the “likelihood” and “severity” of the incident as shown on **FIGURE D.3** and defined on **FIGURE D.4**. Likelihoods of greater than 3 (occurring once every 20 years or greater), and severities of greater than 3 (moderate or greater injuries, localized or greater environmental damage) were considered. This decision was based on the past operating record of the facility.

Complete documentation of the HazOp studies are on file at the facility in accordance with §817.02(c)(1)(E). The results of the HazOp studies are summarized in the following subsections: The summary and inventory of the hazards identified (deviations, causes and consequences), an analysis of the potential oil discharges (severity [S], likelihood [L] and risk ranking

[R] and control measures, or prevention measures, that will be used to eliminate or mitigate the hazards (recommendations).

A consequence analysis was done for the Amorco and Avon wharves in the original studies. Based on a reasonable worst case incident (as outlined in the HazOp Study) a scenario was developed.

FIGURE D.3
PROCESS HAZARD ANALYSIS
QUALITATIVE RISK MATRIX

			SEVERITY				
			1	**2**	**3**	**4**	**5**
Personnel/Safety			Fatality(ies)	Disabling Injury	Lost Work Day(s) Injury	Recordable Injury	No Injury to First Aid
Environment			Extensive	Major	Localized	Minor	Negligible
Community Reputation			National Impact	Local to State Impact	Community Impact	Minor	Negligible
LIKELIHOOD	**1**	Event is likely to occur within one year	**1**	**1**	**2**	**3**	**3**
	2	Event is likely to occur within 5 years	**1**	**2**	**2**	**3**	**4**
	3	Event is likely to occur within 20 years	**1**	**2**	**3**	**4**	**4**
	4	Event is likely to occur within 50 years (over plan lifetime)	**3**	**3**	**4**	**4**	**4**
	5	Event is not likely to occur over plan lifetime	**3**	**4**	**4**	**4**	**4**

"Likely" = 50 % + probability

Note: Cross-hatched area represents scenarios that may result in a Major Chemical Accident or Release (MCAR).

RISK CATEGORIES		
1	High Risk	Immediate action required for determining appropriate mitigation requirements. Should be mitigated with engineering and/or administrative controls to a risk ranking of 3 or less.
2	Moderate Risk	Should be mitigated with engineering and/or administrative controls to a risk ranking of 3 or less.
3	Low Risk	Procedures or controls should be verified to be in place or developed and documented within specified time period.
4	Negligible Risk	No mitigation required or expected.

Severity: Excludes implemented mitigations and existing safeguards.

Likelihood: Includes implemented mitigations and existing safeguards.

<u>Safeguards</u>

1 Ranked Items	May require at least 2 independent means of detection/mitigations/preventions; at least 1 does not require human intervention.
2 Ranked Items	May require at least 2 independent means of detection/mitigations/preventions that may require human intervention.
3 Ranked Items	May require at least 1 independent means of detection/mitigations/preventions that may require human intervention.

FIGURE D.4
PROCESS HAZARD ANALYSIS
SEVERITY, LIKELIHOOD, AND RANKING LEVELS

Employee/Contractor/Personnel Safety		To estimate the personnel consequence of an event, consider the following extensions of the keywords given in the margin of the risk matrix.		
Fatality(ies)	**Disabling Injury**	**Lost Work Day(s) Injury**	**Recordable Injury**	**First Aid**
• An event resulting in one or more fatalities • Public Injury	• An event resulting in at least one permanent disability or multiple partial disabilities. The occurrence of the event may result in irreversible health damage but not in the loss of life.Event requiring hospitalization of 2 or more employees	• An event expected to result in multiple recordable injuries or illnesses or from one to three lost time cases. However, no disabling injury or illness will occur.	• An event affecting work performance in such a way that we may expect to have one to three recordable or multiple first aid cases. However, no lost time from work is expected.Worker injury with or without restricted duties.	• At most one or two first aid cases will result from the event. No lost time from work is anticipated. No recordable incident is expected.

Environmental		To estimate the personnel consequence of an event, consider the following extensions of the keywords given in the margin of the risk matrix.		
Extensive	**Major**	**Localized**	**Minor**	**Negligible**
• This is an event with the potential for severe environmental consequences extending outside the refinery boundary. Major financial exposure is also likely for the company • Incident with multiple agency involvement. • Potential for significant citations.	• This is an event resulting in significant environmental impact extending outside the refinery boundary. The refinery is required to take extensive measures to clean up or restore the environment to the condition prior to the event. • Incident with local agency • Community Concern	• This results from multiple exceedances of a statutory (or prescr bed) limit. It may also be a release or event requiring clean up but contained within the refinery property. • Reportable release or spill with violations and/or potential citations.	• This is a single exceedance of a statutory (or prescribed) limit and is confined to within the system or unit. No permanent environmental impact results. • Reportable release or spill, no violations. • Community awareness but no lasting impact.	• This is at most a localized event not requiring reporting to a governmental agency or not representing an exceedance of a statutory (or prescribed) limit. • Non-reportable release. • No environmental impact.

Company Reputation/Community		To estimate the personnel consequence of an event, consider the following extensions of the keywords given in the margin of the risk matrix.		
National Impact	**Local to State Impact**	**Community Impact**	**Minor**	**Negligible**
• National public concern is evidenced. There is extensive adverse attention in the national media with the mobilization of action groups and discussions of government intervention or action. We could expect to see national policies with potentially severe impact on refinery or entire company operations. • Public Injury	• There is statewide public concern with extensive adverse attention in the state media but with slight national media concern. There may be an adverse stance of local government and/or political action groups. • Public impact.	• There is some local public concern with some local media or political attention, which is potentially adverse to refinery operations. The concern does not extend beyond the surrounding community. • Public nuisance	• There is some local public concern with the possibility of local media attention, but the concern is unl kely to adversely affect refinery operations. The concern does not extend beyond the immediate community. • Transient, low level awareness by community.	• No public concern is evidenced. Public awareness may exist, but there is no concern.

D.2.6 Proposed Control Measures 817.02(c)(1)(D)4

Recommendations resulting from the initial studies and revalidations are included on record with the current Engineering Department.

All recommendations were handled in the following manner:

- The recommendations were reviewed to determine whether there was merit in continuing the investigation (i.e., to ensure that the Unit Supervisor has been allowed to share additional information that may not have been available to the HAZOP group).
- The recommendations were then assigned to a refinery department to either further develop or mitigate them.
- The Operations Department set priorities for completing the items.
- All items were tracked and status updated periodically. These are on record with the current Engineering Department.

The most recent HAZOP Revalidations conducted for Avon (2011) and Amorco(2012) Wharfs identified no new recommendations.

D.3 HAZARD EVALUATION AND IDENTIFICATION (EPA)

The hazard identification, as defined by 40 CFR Part 112, requires a list of 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 the normal daily throughput for the facility.

D.3.1 Bulk Storage Tanks

The bulk storage tanks are listed in **FIGURE D.5**. The figure is intended only as a reference; due to the dynamic operating nature of the refinery, tank service changes frequently. The Gauging Department should be contacted at **extensions 3108 or 2204** for verification of current tank information.

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. Impoundments are shown on the facility diagrams **FIGURES 1.5 through 1.8**.

D.3.3 Tank Car and Tank Truck Racks

The Refinery operates railroad tank car and tank truck loading/unloading racks at the facility. The railroad tank rack loads butane and propane. The truck racks load propane, butane, gasoline, diesel and coke. The racks have pipelines, hoses, and valves that are utilized for transfer operations. The rack areas have berms, sumps and process water sewers. All drains and sumps are checked for leakage and corrected if necessary before filling any tank car or tank truck before and after the vehicle departs.

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 refinery may process 170,000 barrels per day. 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. The majority of underground pipelines at the facility have been replaced with aboveground lines in open trenches in recent years. Remaining underground lines will be daylighted in future years for replacement and inspection purposes.

D.3.5 Secondary Containment

The Refinery has containment equipment and/or diversionary structures to prevent discharged oil from reaching a navigable water course. These structures consist of such items as dikes, berms, retaining walls, curbing, drainage systems, weirs, in-plant treating systems, spill diversion ponds, etc.

Most containment areas (excluding Tract 6) have drains that lead to the process sewer at the facility. The loading rack containment systems can contain 100 percent of the capacity of the car or truck being loaded. Process sewer drains and emergency sumps are located in each area. Refer to **FIGURE C.1** for listing of bulk hydrocarbon storage tanks and associated secondary containment systems.

D.3.6 Materials Handled

Material Safety Data Sheets (MSDS) summarizing the best available information about chemicals and materials used at the Refinery are available online at the refinery or in hard copy in the Industrial Hygiene Department. 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.

FIGURE D.5
REFINERY TANK LIST

Tank Number	Current Service	Dia Feet	Max Fill, Feet	Max Fill, Bbls	Safe Fill, Bbls	Year Const	Roof Type
			Tract 1				
TK258	Cutter Stock	(b) (7)(F), (b) (3) [redacted]	[redacted]	[redacted]	[redacted]	1954	Cone
TK406	Cutter Stock	[redacted]	[redacted]	[redacted]	[redacted]	1931	Cone
TK429	Recovered Oil	[redacted]	[redacted]	[redacted]	[redacted]	1962	Cone
TK432	5 Gas splitter Bottoms	[redacted]	[redacted]	[redacted]	[redacted]	1955	Cone
TK513	Recov Oil	[redacted]	[redacted]	[redacted]	[redacted]	1940	Cone
TK517	Desulf Cat Charge	[redacted]	[redacted]	[redacted]	[redacted]	1940	Cone
TK585	Gasoline	[redacted]	[redacted]	[redacted]	[redacted]	1944	Cone
TK620	Fuel Oil	[redacted]	[redacted]	[redacted]	[redacted]	1951	Cone
TK621	HDC Feed	[redacted]	[redacted]	[redacted]	[redacted]	1951	Ext. Float
TK622	2 HDS Feed	[redacted]	[redacted]	[redacted]	[redacted]	1951	Cone
TK650	Recov Oil	[redacted]	[redacted]	[redacted]	[redacted]	1956	Ext. Float
TK651	Recov Oil	[redacted]	[redacted]	[redacted]	[redacted]	1956	Ext. Float
TK699	API Recovered	[redacted]	[redacted]	[redacted]	[redacted]	1969	Cone

FIGURE D.5
REFINERY TANK LIST

Tank Number	Current Service	Dia Feet	Max Fill, Feet	Max Fill, Bbls	Safe Fill, Bbls	Year Const	Roof Type
	Oil						
TK717	3 HDS Cold Feed	(b) (7)(F), (b) (3) [redacted]				1982	Cone
TK 876	Gasoline Blendstock	[redacted]				2005	Cone
Tk 877	Spent Caustic	[redacted]				2005	Cone
TK 895	Hvy Coker Gas Oil	[redacted]				2005	Cone
TK943	Desul Cat Charge	[redacted]				2009	Cone
			Tract 2				
TK134	Recov Oil	(b) (7)(F), (b) (3) [redacted]				1958	Cone
TK137	Recov Oil	[redacted]				1955	Cone
TK532	Recov Oil	[redacted]				1940	Cone
TK642	Recovered Oil	[redacted]				1954	External Floater
TK896	Recovered Oil	[redacted]				2008	External Floater
			Tract 3				
TK026	Gasoline	(b) (7)(F), (b) (3) [redacted]				1956	Ext. Float
TK217	Gasoline	[redacted]				1958	Ext. Float
TK601	Recov Oil	[redacted]				1948	Cone Int.
TK 612	Ethanol	[redacted]				1949	Cone Int.
TK631	Desulf Cat Charge	[redacted]				1954	Ext. Float

FIGURE D.5
REFINERY TANK LIST

Tank Number	Current Service	Dia Feet	Max Fill, Feet	Max Fill, Bbls	Safe Fill, Bbls	Year Const	Roof Type
TK692	Gasoline	(b) (7)(F), (b) (3) [redacted]				1965	Ext. Float
TK696	Gasoline					1969	Cone Int
TK711	Gasoline					1979	Ext. Float
TK 932	Diesel					2009	Cone
Tract 4							
TK690	Crude	(b) (7)(F), (b) (3) [redacted]				1963	Ext. Float
TK694	Crude					1969	Ext. Float
TK701	Crude					1972	Ext. Float
TK705	Crude					1978	Ext. Float
TK706	Crude					1978	Ext. Float
TK707	Crude					1979	Ext. Float
TK708	Crude					1979	Ext. Float
TK709	Crude					1979	Ext. Float
TK866	SJVH					2001	Ext. Float
TK867	LSVGO					2001	Ext. Float
TK 871	Oriente Crude					2005	Ext. Float

FIGURE D.5
REFINERY TANK LIST

Tank Number	Current Service	Dia Feet	Max Fill, Feet	Max Fill, Bbls	Safe Fill, Bbls	Year Const	Roof Type
TK 872	Desulf Cat Charge	(b) (7)(F), (b) (3) [redacted]	[redacted]	[redacted]	[redacted]	2005	Ext. Float
Tract 6							
TK270	CARB Diesel	(b) (7)(F), (b) (3) [redacted]	[redacted]	[redacted]	[redacted]	1923	Flat
TK272	CARB Diesel	[redacted]	[redacted]	[redacted]	[redacted]	1924	Flat
TK274	EPA Diesel	[redacted]	[redacted]	[redacted]	[redacted]	1924	Cone
TK637	Gasoline Blendstock	[redacted]	[redacted]	[redacted]	[redacted]	1954	Ext. Float
TK638	Reformer Feed	[redacted]	[redacted]	[redacted]	[redacted]	1954	Ext. Float
TK639	Hvy Hydrocrakat	[redacted]	[redacted]	[redacted]	[redacted]	1954	Ext. Float
TK640	Hvy Hydrocrakat	[redacted]	[redacted]	[redacted]	[redacted]	1954	Ext. Float
TK641	Reformer Feed	[redacted]	[redacted]	[redacted]	[redacted]	1954	Ext. Float
TK664	Gasoline	[redacted]	[redacted]	[redacted]	[redacted]	1957	Ext. Float
TK702	Gasoline	[redacted]	[redacted]	[redacted]	[redacted]	1973	Ext. Float
TK710	4 HDS - CAT	[redacted]	[redacted]	[redacted]	[redacted]	1979	Ext. Float
TK849	Gasoline	[redacted]	[redacted]	[redacted]	[redacted]	1994	Cone Int/Flt
TK868	HDA Diesel Blend stock	[redacted]	[redacted]	[redacted]	[redacted]	2001	Ext. Float
TK869	HDA Diesel Blend stock	[redacted]	[redacted]	[redacted]	[redacted]	2001	Ext. Float
TK870	Reformate Splitter	[redacted]	[redacted]	[redacted]	[redacted]	2004	Int Float

FIGURE D.5
REFINERY TANK LIST

Tank Number	Current Service	Dia Feet	Max Fill, Feet	Max Fill, Bbls	Safe Fill, Bbls	Year Const	Roof Type
TK893	Gasoline Blend stock	(b) (7)(F), (b) (3) [redacted]				2007	Ext. Floater
TK894	Alkylate					2007	Ext. Floater
TK904	Gasoline					2008	Ext. Floater
TK905	Diesel					2008	Int. Floater
Amorco Terminal							
TKB19	Crude	(b) (7)(F), (b) (3) [redacted]				1924	Ext. Float
TKB21	Crude					1924	Ext. Float
TKB30	Crude					1927	Ext. Float
TKB49	Crude					1954	Ext. Float
TKB50	Crude					1955	Ext. Float

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.

Available oil spill information at this facility is recorded in **FIGURE D.6** . The PSM Coordinator can generate a current spill history list utilizing the Incident Investigation System Database as required.

FIGURE D.6
SPILL HISTORY

*Volumes are approximate

DATE	MATERIAL	SIZE* (BBL)	SOURCE/ LOCATION	CAUSE	IMPACT	MITIGATION
24 Sep 91	Oil/Water Mixture	<1	6" Pipeline/Avon Wharf	Pinhole Leak	Release to water	Repair and clean-up
25 May 92	Diesel/Water Mixture	<1	6" Pipeline/Avon Wharf	Pinhole Leak	Release to water	Repair and clean-up
30 July 92	Oil/Water Mixture	<2	1" Nipple/Avon Wharf	Broken nipple when ship hit dock	Release to water	Repair and clean-up
07 Oct 93	Gas Oil	60	Flash Pot	Overfill	Release to soil	Repair and clean-up
16 Mar 95	Gasoline	30	Tract 6	Pipeline Leak	Release to soil	Repair and clean-up
10 Apr 95	Crude Oil	8	Tract 4	Pipeline leak to a pipeway	Release to soil	Repair and clean-up
13 Jan 96	Gasoline	32	Tract 6	Flange leak	Release to soil	Repair and clean-up
12 Feb 96	Alkylate	13	Tract 6	Pipeline leak	Release to soil	Repair and clean-up
03 Jun 96	Crude Oil	30	Tract 4	Pipeline nipple failure	Release to soil	Repair and clean-up
27 Feb 97	Crude Oil	5	Tract 4	Flange Leak	Release to soil	Repair and clean-up
09 Jun 97	Gasoline	475	206 Line	Underground Line Leak	Release to soil	Repair and clean-up
10 Jun 97	Gasoline	250	Tank 33	Underground Line Leak	Release to soil	Repair and clean-up
13 Aug 98	Crude Oil	600	Tank 690	Leaking roof drain; valve left open	Release to soil	Repair and clean-up
21 Aug 98	Fuel Oil	3800	Tank 2	Overfill	Release to soil	Clean-up
28 Nov 98	HC	50-100	Tank 620	Overfill	Release to soil	Clean-up
21 Feb 99	Heavy Reformate	15	66 Line	Pipeline Leak	Release to soil	Repair and clean-up
31 Aug 99	Cutter Stock	<1	14 Line/Avon Wharf	Pipeline leak due to defective weld	Release to water	Repair and clean-up
11 Nov 99	MTBE		60 Line	Pipeline Leak	Release to soil	Repair and clean-up
10 Oct 99	Medium Reformate		Tank 278 Suction Line	Line Leak	Release to soil	Repair and clean-up

FIGURE D.6
SPILL HISTORY

*Volumes are approximate

DATE	MATERIAL	SIZE* (BBL)	SOURCE/ LOCATION	CAUSE	IMPACT	MITIGATION
15 Oct 99	Cutter Stock	<1	135 Line	Pipeline Leak	Release to soil (pipe trench)	Repair and clean-up
16 Nov 99		< 1	TK-A1 Circulation Line	Flanges Opened		Repair and clean-up
3 Dec 99	Diesel	< 1	Tank 272 Sample Pump Flange	Leaky Flange	Release to soil	Repair and clean-up
15 Dec 99	Cutter Stock		224 Heater Line	Plugged Line	Release to soil	Repair and clean-up
19 Jan 2000	Gasoline		63 Line		Release to soil	Repair and clean-up
4 Feb 2000	Gasoline/ Diesel	<1	D Line Amorco	Pipeline Leak	Release to water	Line out of service/ clean-up
23 Feb 2000	Diesel		Old Recirculating Line near Speeder Tracks	Line Leak	Release to soil	Repair and clean-up
2 Mar 2000			5 Line	Line Leak	Release to soil	Repair and clean-up
15 Mar 2000	Gasoline		12" Suction Line off Tank 26	Line Leak	Release to soil	Repair and clean-up
17 Mar 2000	Reformate		Tank 280	Plug Leak	Release to soil	Repair and clean-up
3 Apr 2000			Line 44	Pipeline Leak	Release to soil	Repair and clean-up
24 Apr 2000	Diesel	2	Portable Diesel Tote	Forklift Accident	Release to soil	Clean-up
25 Apr 2000	Alkylate		2" Drain Line/Tank 313	Wrong pump capacity resulted in overflow	Release to soil/concrete culvert	Repair and clean-up
22 May 2000	Hydraulic Fluid	< 1	6 Boiler/Crane	Equipment checks not performed, swing lock broken	Release to soil	Repair and clean-up
23 May 2000	Diesel		2 HDS ¾" Vent Line	Line Leak - Inadequate pipe support (Root Cause – lack of policy and failure to follow procedures)	Release to soil	Repair and clean-up Addressed Root Causes
21 June 2000	Gasoline		65 Cat Gasoline Header Line	Check Valve Failure	Release to soil	Repair and clean-up

FIGURE D.6
SPILL HISTORY

*Volumes are approximate

DATE	MATERIAL	SIZE* (BBL)	SOURCE/ LOCATION	CAUSE	IMPACT	MITIGATION
20 July 2000	Diesel Type		100 Line South of 50 Unit Charge Pumps	Line Leak	Release to soil	Repair and clean-up
22 July 2000			Wet Gas Line at No. 3 Reformer Plot Limit	Leaking Clamp	Release to soil	Repair and clean-up
18 Aug 2000	Jet Diesel	1,061	Transfer Line west of Tank 242	Pipeline “T” Fitting failure	Release to soil	Repair and clean-up
18 Aug 2000	LSWR	< 1	Tank 226	Tank Leak	Release to soil	Tank removed from service
6 April 2000	Oil	<10 gallons	1 inch line	Line corrosion, no secondary containment	Oil to wetlands	ORT response - leak patched
17 Nov 2000	Gasoline	< 3 barrels	5 pump bypass line- flange leak	Flange leak during line expansion	Gasoline to soil	Flange repaired
18 Nov 2000	Jet fuel	< 3 barrels	63 line at 707/708 pumps- drain hose	Pressure surge broken hose tiedown, hose whipped	Diesel to soil	Procedure changed
19 Jan 2001	Light iso	< 3 barrels	Leak on 72 line tract 6	Line corrosion in non-daylighted section	Soil contamination	Cleaned spill and patched leak
31 Jan 2001	Oil	<30 barrels	150 line north of railroad	Line corrosion in non-daylighted section	Soil contamination	Cleaned spill and patched leak
3 Feb 2001	Med. Reformate	5-10 barrels	Tk 639 Transfer Pump	Pump Seal Failure	Soil contamination inside tank berm	Cleaned spill and repaired pump seal
6 May 2001	Slops oil	< 5 gallons	Slops oil header at leak detection platform	Flange leak	Oil to wetlands	Flange repaired
11 Oct 2001	Diesel	3> <30 bbls	West side Tr 4 near pump 248 manifold	PSV lifted on line	Soil contamination	Cleaned up spill. Removed pump from service permanently.
20 Nov 2001	Oil	~20 bbls	North east corner tract 4 pipe way near Deacon’s pond	Line leak	Soil contamination	Cleaned up spill. Clamped line leak. Repaired line.

FIGURE D.6
SPILL HISTORY

*Volumes are approximate

DATE	MATERIAL	SIZE* (BBL)	SOURCE/ LOCATION	CAUSE	IMPACT	MITIGATION
14 Dec 2001	Diesel	~ 2 Bbl	Diesel Blend Line	Diesel Blend line on 5th street between C & D	Soil Contamination	Cleaned up spill. Clamped line leak. Repaired line
27 Dec 2001	Black Oil	1Gallon< <1 bbl	Pacheco Slough north of Waterfront Road	Decommissioning of under pipes under way when high tide submerged end of open pipe and floated oil out	Small amount of black oil to water and tules in area.	Spill response team activated. Absorbent booms deployed to capture oil. Area cleaned up. Old lines secured and filled with concrete after cleaning.
12 Mar 2002	Diesel range material	~120 Bbls oil /water	Sewer Line at 5th & J near MTBE control room	Sewer line failed allowing contents to leak	Soil Contamination	Cleaned / vacuumed up spill. Repaired sewer line w/ concrete patch.
5 Apr 2002	Oil Mix	2 bbls	Sewer backup near Deacons pond	Sewer backed up during heavy rain, floating oil out	Soil Contamination	Cleaned up spill.
20 Nov 2002	Slop oil	3 bbls	6" Slops line north of Tank 405	Pipe leak	Soil contamination	Cleaned up spill. Repaired line.
10 Dec 2002	Heavy Oil	45 bbls	50 Unit blowdown tower	Unit shutdown due to power failure. Heavy oil sprayed from blowdown tower during steamout of furnace	Soil Contamination	Cleaned up spill. Secured unit. Additional training and review of emergency procedures.
4 Mar 2003	Oil	< 3 bbl	68 line in Tract 3	Leak developed due to external corrosion on buried line	Soil Contamination	Spill cleaned up. Line excavated and clamped.
11 Mar 2003	Gasoline	>3 < 30 bbls	Pipe in ditch East side TK 711	Leak developed due to external corrosion of buried line	Soil contamination	Spill cleaned up. Line excavated and clamped. Line scheduled for replacement.
21 Mar 2003	Reformate	3 bbl	Pipeway near 5th & E	Uncertain. Initially thought to be sewer backup	Soil Contamination	Spill Cleaned up. Unable to locate leak

FIGURE D.6
SPILL HISTORY

*Volumes are approximate

DATE	MATERIAL	SIZE* (BBL)	SOURCE/ LOCATION	CAUSE	IMPACT	MITIGATION
25 Apr 2003	Reformate	2 bbl	Buried Line under bridge near 5th & E	Line leak	Soil Contamination	Spill Cleaned up. Excavated and clamped leak.
29 May 2003	Gasoline		357 line in Tr 3 near booster pumphouse	Line Leak	Soil Contamination	Spill Cleaned Up. Clamped line
19 June 2003	Slop oil	10-15 bbls	Tract 3 Slops line near north gate	Pipe failure	Soil contamination	Spill cleaned up. Line clamped.
16 Aug 2003	Diesel	3< < 30 bbls	117 Line flange north side 5th an C street	Line overpressured blowing gasket	Soil contamination	Spill cleaned up. Line manually depressured. Flange tightened. Thermal Relief valve replaced
30 Oct 2003	Diesel material	< 1 bbl	Tk 620 drain box	Valve not fully closed after draining water from tank bottom. Oil backed up in drain box	Soil Contamination	Cleaned up spill. Coaching session with individual involved re: job awareness.
29 Feb 2004	Oil	2 bbl	68 Line between Tks 217 and 357	External corrosion of line underneath roadway.	Soil contamination	Cleaned up spill. Plan to eliminate dead leg section of line with new jumpover.
29 Mar 2004	Oil	30> < 500 bbls	60 line leaked east of 7 boiler	Underground line corrosion	Soil contamination	Cleaned up spill. Excavate line and clamped. Recommended to excavate entire line for inspection
29 Mar 2004	Oil	<3 bbl	65 Line leaking underground near Tract 6 drainage canal	External corrosion of buried line	Soil Contamination and oil in concrete drainage ditch	Cleaned up spill. Line clamped at leak. Section of line to be replaced.
24 Sept 2004	Oil & Cutter stock	5-10 bbls	Bin staging pad north tract 1	Baker tank overflowed	Soil contamination	Cleaned up spill. Changed procedure requiring vacuum truck drivers to verify tank level before offloading into a tank.

FIGURE D.6
SPILL HISTORY

*Volumes are approximate

DATE	MATERIAL	SIZE* (BBL)	SOURCE/ LOCATION	CAUSE	IMPACT	MITIGATION
30 Nov 2004	Gasoline	<1 bbl	Flange leak on UCO line in tract 3, north of north gate	Thermal cycling of line loosened bolts	Soil contamination	Cleaned up spill. Tightened bolts on flange.
14 Dec 2004	Hydraulic oil	7 -12 drops	Hydraulic Hose Leak on boom reels during boom deployment drill	Flexing of hose due to relative movement between two portions of wharf	7-12 drops oil to water	Immediately Boomed area –recovered oil with sorbent pads. Replaced hose with different style.
12 Jan 2005	Diesel	>1 Gall < 1 bbl	18 Line to Avon Wharf	While lifting pipeline off cross support to conduct inspection at contact point small leak developed	Minor amount of product on support structure and some in to water	Pipeline was immediately clamped at leak point and spill response team responded to mitigate release
3 March 2005	Diesel	~ 5 Gallons	Temporary portable diesel powered pump at Cardox Pond	While delivering and setting up temporary diesel powered water pump, fuel was observed leaking from tubing connector	Soil contamination	Vacuum truck used to recover spilled fuel, and Solid waste group responded to clean up contaminated soil
2 July 2005	Hydrocarbon 28 Deg API Gravity	~10 gallons	Out of service buried section of 8" domestic line near TK 315	Leak came from existing buried clamp on out of service line when line expanded from midday temperature	Soil contamination	Repaired clamp to stop leak. Removed hydrocarbon from out of service line
15 Sept 2005	SJV crude oil	< 3 bbls	Underground line near tk 231 gear pump	External corrosion	Soil contamination	Excavated and clamped line, cleaned up area. Removed line from service with new tank 871, 872 project.
9 November 2005	Gasoline	Unknown but small	Barge 450-11	Crack / hole in center compartment (#1 center) of barge 450-11. Discovered while loading barge	Sheen to water.	Barge pumped down to stop leak. Divers called to inspect barge. Barge removed from service.

FIGURE D.6
SPILL HISTORY

*Volumes are approximate

DATE	MATERIAL	SIZE* (BBL)	SOURCE/ LOCATION	CAUSE	IMPACT	MITIGATION
30 November 2005	Diesel	~ 1 bbl	Pressure switch on Pump 8925	Pressure switch on PU 8925 failed.	Oil to containment sump	Replaced failed pressure switch. Cleaned up containment area.
10 March 2006	Medium reformate (gasoline blend stock)	< 3 bbls	67 line south east of old reservoir in Tr 6	Corrosion in underground line	Contaminated soil, sheen on water in containment canal.	Placed sorbent boom across containment canal. Excavated line and installed temporary clamp. Replaced line. Cleaned up contaminated soil
18 June 2006	Crude oil	< 2bbls	Threaded tee downstream of thermal relief valve 150' northwest of Tr 4 crude pumps	Thermal PSV lifted prematurely. Downstream threaded connection leaked.	Soil Contamination	Blocked in leaking thermal relief valve to slow leak. Vacuumed up oil. Replaced PSV and replaced threaded union. Cleaned up soil.
29 July 2006	Diesel	< 3 bbls	6" stove oil line southwest TK 692	External Corrosion on underground 6" stove oil line	Soil Contamination	Excavate line and installed temporary clamp. Cleaned up contaminated soil. Removed deadleg section of line that leaked.
14 August 2006	Crude oil	< 3bbls	Spill back valve CV-1865 flange near Amorco Crude pumps	Loose bolts on spillback valve flange	Soil contamination	Shell employee built small containment dam to control leak. Tightened flange bolts. Cleaned up contaminated soil.
17 August 2006	Crude Oil	< RQ	Flange near spill back valve 1865	Leak at flange face	Soil Contamination	Wire wrapped flange and injected with sealant. Replace spill back valve. Cleaned up contaminated soil.

FIGURE D.6
SPILL HISTORY

*Volumes are approximate

DATE	MATERIAL	SIZE* (BBL)	SOURCE/ LOCATION	CAUSE	IMPACT	MITIGATION
30 Sept 2006	Diesel	>30 bbls, < 500 bbls	Ruptured 4" transfer hose at TK 709	Contractors were circulating diesel through TK 709 to clean sludge from tank bottom. 4" circulation hose ruptured, allowing product in Tk 709 to drain.	Soil contamination	Shut down temporary pump and blocked in leaking hose. Recovered 3 vacuum truck loads from containment trench. Cleaned up contaminated soil. Replaced transfer hose with steel pipe to complete tank cleaning.
11 October 2006	Lubricating oil	< 1 quart	Stern tube seal on vessel "Puget Sound"	Stern tube seal on vessel compromised by monofilament intrusion.	Sheen on water	Ship Services (standby booming contractor), and Tesoro Spill response team deployed containment boom around vessel. Adjusted trim on vessel and replaced stern tube seal.
24 October 2006	Crude oil	> 3bbls, < 30 bbls	Santa Fe Pump Station sump	Sump pump tripped off while water tender was draining tanks in Tract 4 to Deacons pond sump. Sump backed up and overflowed to crude blend area and sewers along Solano Way.	Contaminated soil and pavement	Cleaned up contaminated soil and area. Reset sump pump breaker. Repaired sump pump alarm and indication lights.
29 November 2006	Crude Oil	< 3 bbls	Tank mixer seal on southwest mixer of tank 867	Failed seal on tank mixer.	Soil contamination	Lowered level in tank. Installed repair clamp on mixer seal. New seal ordered. Cleaned up contaminated soil.
26 December 2006	Crude Oil	1-2 bbls	Cargo Hose connection on Cabo Pilar	Motor Operated Valve on Cargo line not fully closed when attempt was made to disconnect hose	Oil to deck of ship	Blocked in line. Cleaned deck of ship. Multiple corrective actions to ensure line completely isolated and drain hose prior to disconnect.

FIGURE D.6
SPILL HISTORY

*Volumes are approximate

DATE	MATERIAL	SIZE* (BBL)	SOURCE/ LOCATION	CAUSE	IMPACT	MITIGATION
26 December 2006	Crude Oil	>30 bbls <500	Open bleeder on pressure relief line to Tk 871	Bleeder valve was inadvertently left open when commissioning Tank 871. When pressure relief valve operated, oil discharged from valve.	Contaminated Soil in containment	Blocked in valve. Cleaned up contaminated soil.
9 January 2007	Crude Oil	20-40 bbls	Vacuum Truck offloading hose	Contractor vacuum truck operator raised the bed of vacuum truck to facilitate unloading. When tilted too far, coupling struck bumper and failed releasing product	Contaminated soil and pavement	Transfer hose shut down and contaminated area cleaned up
23 January 2007	Diesel	>1 gallon, < 1 bbl	Tank 10 in Tract 2	Tank leak at base of tank 10	Soil contamination	Tank contents transferred out. Contaminated soil cleaned up. Tank has since been removed from service.
31 January 2007	Reformate	>30 bbls, <500 bbls	Leak in underground portion of 67 line near Cat Slurry Settler	Underground corrosion in line	Contaminated soil.	Line was excavated and clamped. Contaminated soil cleaned up.
9 February 2007	Crude Oil	< 1 gallon	Gasket on cargo hose on vessel Polar California	A torn gasket on a flange connection on transfer system leaked when Motor Operated Valve on ship did not hold.	Minor amount of oil to containment pan on vessel	Oil cleaned up on containment area. New gasket installed.
17 April 2007	Fuel Oil	< 3 bbls	Sewer line backed up	Sump pump for tank drain box did not keep up with drain rate. Sewer line from sump backed up releasing oil to area	Contaminated soil, sheen on water	Cleaned up contaminated soil and recovered product.
22 May 2007	Fuel Oil	Droplets	Sample Point for 26 line	26 line overpressured causing thermal relief valve to operate. In an attempt to reduce pressure, operator opened 26 line sample point. Sample point blew out with force, causing droplets to spray on adjacent piping. No sheen of oil visible in water.	Contaminated piping surfaces	Closed sample point. Expanded 26 line to tank to relieve pressure. Cleaned up residual oil on piping.

FIGURE D.6
SPILL HISTORY

*Volumes are approximate

DATE	MATERIAL	SIZE* (BBL)	SOURCE/ LOCATION	CAUSE	IMPACT	MITIGATION
31 May 2007	Coker Gas Oil	< 3 bbls	PSV on Amroco pump exchanger near Tk 430	PSV on Amorco Pump exchanger operated and put oil to sump which overflowed to soil	Soil contamination	Stopped transfer through pump. Isolated line, cleaned up area. Removed exchangers from service.
13 June 2007	Gasoline	< 2 bbls	Mixer on west side of tank 692	Leak developed on mixer assembly on TK 692. Bolting had loosened up on flanged connection	Soil Contamination	Emergency response team responded, applied foam for vapor suppression and tightened bolts on flange.
13 September 2007	Diesel	~ 20 bbls	High Pour line 5th and C Streets	External corrosion of bottom of pipe.	Contaminated soil	Set product to Tk 622 and isolated line. Cleaned up area. Replaced pipe.
24 September 2007	Gasoline	~ 40 gallons	Loading arm detached from customer truck at loading rack	Incorrect line up of connections by driver.	Spill to concrete containment	Loading rack shut down. Spill washed to oily sewer.
13 December 2007	Fuel Oil	~ 30 gallons	Seal leak developed on Pump 3089 in Cracking Area	Seal Failure, possible contribution of pipe strain on pump.	Contaminated soil	Pump shut down and vacuum truck recovered spilled material. Pump removed to shop for seal replacement.
14 May 2008	Gasoline	~10-15 gallons	Tug Boat “independence”ran into Dock	Multiple pipelines damaged/ ruptured	Spill to water	Closed isolation valves, major wharf repair
29 May 2008	Fuel Oil	<1 bbl	Pipe Trench at 3rd & L	Fuel Oil leak in pipe trench	Contaminated Soil	Intermittent Leak source not yet identified. Vacuum truck cleaned up area.
13 December 2008	Crude oil	>1 bbl	Tract 4	A discharge pressure piping nipple on the 8849 pump developed a crack at the piping tee spraying crude oil on the cement dike and gravel area.	To containment	Clean up contaminated area and shutdown pump and replaced tee.

FIGURE D.6
SPILL HISTORY

*Volumes are approximate

DATE	MATERIAL	SIZE* (BBL)	SOURCE/ LOCATION	CAUSE	IMPACT	MITIGATION
01 April 2009	Oily water	60 bbls	Tract 1	While doing a flush of an old line that was being demolished about 60 bbls of oily water leaked to soil	Contaminated soil	Cleaned up Contaminated soil and removed pipeline.
03 September 2009	Gasoline	72 bbls	Tract 6	A leak to soil was discovered in Tract 6 on the tank 278 suction line	Contaminated soil	Cleaned up soil and demolish tank 278
28 September 2009	Diesel	<1 bbl	Tract 3 Off plot	Reported a leak of <1bbl of diesel to Contra Costa County on 44 line.	Contaminated Soil	Cleaning up contaminated soil and it was taken out of service
04 August 2010	Gasoline range material	>200 bbls	Tract 3	Slops line from tank 601 ERT responded and a clamp was placed on the line	Contaminated soil	Cleaning up contaminated soil and repaired line.
24 August 2010	Gasoline range material	>3 bbls	Tract 6	The 72 line developed a leak due to corrosion.	Contaminated Soil	Cleaning up soil and repaired line.
02 August 2011	Biodegradable Hydraulic Oil	droplets	Avon Wharf	CS Marine was positioning the American Piledriving Equipment Tandem 400 Vibro Hammer unit into position for the first use on the project.	A small amount of Environlogic 146 and settled on the dock surface	Emergency Responded. Area cleaned up
05 January 2012	Gasoline range material	>1 bbls	Tract 3	Oily sewer was not connected to sewer system	Onging clean up of contamined area	Filled in drain and posted and signs were posted at the site to prevent draining of product there.

Note: Tesoro Refining and Marketing Co. acquired the refinery on Sept. 1, 2000. Information regarding events prior to that date compiled by previous owner.
Note: In December 2012 Tesoro Refining and Marketing Co. was reincorporated as Tesoro Refining & Marketing Company LLC.

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.

The Refinery is in an industrial area. The nearest schools, medical facilities, and residential areas are west of Pacheco Creek in Martinez and Vine Hill. Pacheco Creek would intercept oil, excluding it from these areas.

Businesses are primarily in Martinez and Vine Hill with a few businesses south of the Tesoro Refinery along Highway 4. Concord Buchanan Field (airport) is located approximately 2 miles south of the refinery between Interstate 680, Highway 242 and Highway 4.

The Amorco Wharf is isolated from residential areas, homes, and schools by another refinery that is immediately south of Amorco and is at a higher elevation. Oil from a potential spill would be contained on or north of that refinery's property.

The pipeline running between Amorco and Avon has a minimal potential to reach residential areas south of the pipeline. Oil discharge from the pipeline could spill onto Waterfront Rd.

All vulnerabilities impacted, as determined from trajectory analysis, are identified and listed in **SECTION 6**. The trajectory analysis is presented in **SECTION D.9**. Additional information of resources that could be at risk from an oil spill from the facility are described in the ACP.

D.6 ANALYSIS OF THE POTENTIAL FOR A SPILL

The potential sources of significant oil spills at the Refinery are the tank farms, pipelines, and the tank truck and railcar loading racks. A general layout of the facility is shown in **FIGURES 1.4 through 1.8**. 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 2**.

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. Second, there is a potential for overfilling a tank during delivery. Third, a catastrophic tank failure of a tank might occur. Fourth, due to corrosion or fatigue, small leaks can develop in pipelines or in the side or bottom of a tank that could, over a long period of time, discharge measurable quantities of product. Finally, for external floating-roof tanks, failure of a roof drain hose could create a spill during roof draining.

D.6.2 Tank Car/Truck Loading Racks

The possibility for a spill at the product loading rack is primarily due to the potential for overfilling a compartment on a vehicle, although the probability of such an occurrence 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 counter these possible modes of a spill.

There are other operations and equipment at the Refinery that may cause a spill such as the transfer of additive, and pump back transfer of product from tank truck or railcar to storage tanks. However, the probability of a spill associated with these is considered to be less than the specific areas noted above. Overall, based on the qualitative analysis of the potential for a spill, it is judged that the probability is low for an uncontrolled release to occur at the Refinery.

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**

  Refinery personnel are on duty 24 hours per day, 7 days per week. On-duty workers inspect their work areas daily. Any discharges noted initiate the mitigation procedures noted in **SECTION 2.2**. Pipeline discharges would be noted 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**

  Tesoro has no automated discharge detection systems.

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 Carquinez Strait and Suisun Bay.

D.6.5 Vulnerability to Natural Disasters

This facility is vulnerable to a spill that could occur as the result of a natural disaster. The most likely spill scenario would be the result of an earthquake that compromised tank or equipment integrity, resulting in failure. Other possible scenarios include flooding or lighting strikes.

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.

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 and Medium 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 OSPR 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:

FIGURE D.7
FACILITY OPERATIONS AND CORRESPONDING COMPONENTS

(b) (7)(F), (b) (3) [redacted]

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 will be related to 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 marine terminal, or those that may escape the secondary containment and enter the bay, will be subject to transportation by winds and currents. They would follow the same general trajectory as described for the worst case discharge (refer to **APPENDIX D.9**) in the following subsection, although small and medium discharges would not be expected to travel as far.

Tesoro's primary spill response organization, MSRC, would be activated in the event of a significant spill to water, with arrival time within 1 to 1.5 hours of notification. Containment booming and recovery would be initiated, weather permitting. In the case of a very minor release, Ship Services would be contacted to respond.

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. This information provides a general information on small, medium and large discharges. Trajectory analysis and mass balance is presented in **APPENDIX D.9**.

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 most reasonable worst case scenario is assumed to be a release of approximately [redacted] of crude oil from the Amorco Marine Terminal.

While the subject marine facility has secondary containment structures, 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 waters of the bay.

Upon discovery of a spill, the following procedures would be followed:

1. The spill to water observer would notify 2222 in accordance with **FIGURE 2.1**.
2. Security activates notification of local team via refinery radio all-call channel and PA system, and the SendWordNow emergency callout notification system.
3. The Shift Superintendent would perform initial notifications as indicated in **FIGURE 2.1.**
4. The Shift Superintendent would assume the role of Incident Commander until relieved and would initiate response actions and notifications in accordance with **SECTIONS 2** and **3**. If this were a small spill, the Superintendent 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 2.1**.
   - Direct facility responders to shut down ignition sources.
   - Direct facility personnel to deploy containment boom in accordance with **SECTION 2**.
   - Complete spill report form in accordance with **SECTION 3** and notify Qualified Individual.
   - Notify regulatory agencies in accordance with **SECTION 3**.
5. If this were a very small spill, the Shift Superintendent may elect to remain as the Incident Commander and address the spill with

available resources. However, for other than a small spill, the Shift Superintendent would assume the role of initial Incident Commander and would activate Spill Management Team in accordance with activation procedures described in **SECTION 4**.

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 establish incident priorities and objectives and to brief staff accordingly. A listing of MSRC equipment and personnel is provided in **APPENDIX B**.

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
   - Incident Action
   - Disposal
   - Site security
   - Decontamination
   - Wildlife rehabilitation
   - Alternative response strategies.

   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

Typical behavior of the spilled material for the worst case (Alaskan North Slope Crude) projected over time is discussed in **APPENDIX D.9**. Calculations suggest for persistent crude oils, like Alaskan North Slope, between 15% to 20% of the oil assuming no cleanup, will still be present at the water's surface after one day. After two days, only 1% of the oil remains at the surface.

Spilled oil will be subject to movement in response to wind and currents. In the worst case discharge scenario, a significant portion of Suisun Bay or Carquinez Strait could potentially be exposed to oiling, as suggested in the trajectory projections provided in **APPENDIX D.9**. The small and medium spill scenarios would tend to follow the same general trajectory as far as the worst case discharge, but would not be expected to travel as far or expose resources to the same level of impact.

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 table on the following page:

FIGURE D.8
DESCRIPTION OF FACTORS AFFECTING RESPONSE EFFORTS

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 downgradient water intakes	• Type of water system (e.g. river, lake, etc.) • Presence of any water intakes or wellhead protection areas • Pathway 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 spill • Secondary containment devices
Location of material spilled	• Does the product float or sink when in contact with water? • Is the product volatile? • Water solubility (does it mix in water?) • Does vapor tend to gather in low-lying areas?
Material discharged	• Typically condensate or diesel fuel • 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	• Tactic (Land farm remediation, do nothing, aerate) • Availability • Location of equipment • Type of equipment required
Probability of a chain reaction or failures	• Processes affected • Potential to compound incident (e.g. oil spill progressing to fire or explosion)
Direction of spill pathway	• Tidal cycle • Sensitivities impacted downstream (e.g. public, environmental, water intakes) • Natural containment areas • Wind direction and speed

D.8.5 Discharge Planning Volumes

Under OPA 90, the facility is regulated by EPA (non-transportation-related), DOT and the USCG (transportation-related marine terminal). The marine terminal and on-shore pipelines are also regulated by OSPR under California's Oil Spill Prevention and Response Act (OSPRA). The regulations published by each respective agency use different criteria for determination of the Worst Case Discharge. Therefore, the worst case discharge planning volumes have been calculated separately for the transportation-related marine terminal and the non-transportation-related facility. Calculations are presented in **FIGURE D.9**. Worksheet for determining appropriate response resources is provided in **FIGURE D.10**. The assumptions used in applying the guidance are that the worst case discharge is a Group 3 oil, the facility is considered “nearshore” and Carquinez Strait/Suisun Bay is part of the San Francisco Bay high volume port area.

For the purposes of this Plan, the terms “Worst Case Discharge” (as defined under OPA 90) and “Reasonable Worst Case Spill” (as defined under OSPRA) are considered synonymous.

D.8.6 Daily Recovery Rates

Daily Recovery Rates have been calculated to address the requirements of both OPA 90 and OSPRA. Recovery rates for both transportation-related and non-transportation-related portions of the facility are presented in **APPENDIX D.8.7**. Because the facility meets the definition of a Complex under OPA 90, The Company maintains sufficient response resources under contract to meet daily response capability caps for the lesser of the amounts calculated for each component of the facility (refer **to SECTION 7 and APPENDIX B**). The capabilities of MSRC are listed in Attachement 4 of MSRC’s California OSRO Rating Application. Additional response resources (including MSRC) are listed in the ACP. Because Tesoro maintains and can immediately deploy containment equipment for a spill of 10% of the reasonable worst case discharge, the initial recovery capability can be on-scene within 3 hours, as per Section 817.02(d)(3)(B)(1)(ii).

D.8.7 Total Equipment Required

The total amount of on-water containment and recovery equipment and services required by contract shall be the lesser of the amount necessary to address the Response Planning Volume determined in California Code of Regulations (CCR) Section 817.02(d)(2)(C) (Refer to **FIGURE D.10**) or the daily recovery rate established by Section 817.02(d)(3)(B) as described below.

Because this facility is located in a high volume port, the following parameters apply:

(b) (7)(F), (b) (3)

[redacted]

Therefore, since the amount of equipment required by Section 817.02(d)(2)(C) is less, numbers from **FIGURE D.10** will be utilized.

In addition, facility and transfer points within high volume port areas must have 3,125 barrels/day or 10% of the reasonable worst case discharge volume, whichever is less, of on-water recovery capability which can be on-scene within two hours of notification.

The Company maintains at least 10% of the reasonable worst case discharge volume on-site, and therefore, as per 817.02(d)(3)(B)(1)(ii), this equipment can be on-scene in three hours rather than two.

Our primary Oil Spill Response contractor (MSRC) maintains sufficient recovery equipment and capability within the area to exceed the required daily recovery rates and response times for a reasonable worst case discharge.

D.8.8 Shoreline Response Planning Volume

The amount of equipment and services necessary, to address the response strategies appropriate to address each shoreline which could potentially become impacted, is calculated as follows:

(b) (7)(F), (b) (3)

[redacted]

The total amount of equipment required to respond to the volume above is equal to the planning volume calculated for the nearshore/inland environment. Equipment and services to respond to shoreline impact are provided in **SECTION 7** and **APPENDIX B**.

Our primary Oil Spill Response contractor (MSRC) maintains sufficient equipment and capability to effect shoreline protection strategies commensurate with the shoreline response planning volume dictated by the reasonable worst case discharge volume. The equipment is appropriate for implementation of shoreline protections strategies as identified within the ACP for the potentially affected Geographic Response Areas.

D.8.9 Average and Most Probable Discharges from the Marine Facilities

Based on the worst case discharge of (b) (7)(F), (b) (3) [redacted] from the Amorco Marine Terminal, the ***average most probable*** discharge would be 50 barrels (the lesser of 50 barrels or one percent of the worst case discharge). (b) (7)(F), (b) (3) [redacted]

FIGURE D.9
OIL SPILL WORST CASE DISCHARGE SUMMARY

1. Transportation Related Scenarios

Amorco Wharf

Pipeline Number or Designation	Type(s) of Products Transferred	Max. Drain down Capacity (bbls)	Max Flow Rate (bbls/hr)	Time Discovery & S/D	Potential Spill Volume
20 in. Crude Line	Crude Oil	(b) (7)(F), (b) (3) [redacted]			

Note from Wharf to manifold to Tank 50.

Avon Wharf (Berth 1 & 5)

Pipeline Number or Designation	Type(s) of Products Transferred	Max. Drain down Capacity (bbls)	Max Flow Rate (bbls/hr)	Time Discovery & S/D	Potential Spill Volume
28 Line	Gasoline	(b) (7)(F), (b) (3) [redacted]			
26 Line Black Oil Line	Fuel Oil, VGO, Black Oil				
24 Line	Gasoline				
16 Line	Group I Carb Diesel				
14 Line	Cutter Stock Diesel				
10 Line	Slops				

* Note: 28 Line and 26 Line could be transferring at the same time under current operations at Avon. WCD is considered to be the sum of individual spill volumes for these lines. The 16 line, 24 line could also be operated in combination with the 26 line; however, the spill volumes for these lines would be less. All other lines are operated individually and not combined.

FIGURE D.9 CONTINUED
OIL SPILL WORST CASE DISCHARGE SUMMARY

Pipelines DOT/ OSPR

Pipeline Number or Designation	Type(s) of Products Transferred	Max. Drain down Capacity (bbls)	Max Flow Rate (bbls/hr)	Time Discovery & S/D	Potential Spill Volume (bbls)
Line 63 (16 in. line)	Crude Oil	(b) (7)(F), (b) (3) [redacted]			
Line 200 (12 in. line)	Crude Oil				
24 in. Crude	Crude Oil				
(Amorco to Fairview Manifold to Peyton Hill/ Shore Terminal) Note Line 63, Line 200, and the 24 in. Crude Line function together; however, spill volume is determined separate for each line. The lines are not co-located and would not be subject to a singular risk.					
Line 205 (Amorco to GER)	Slops	(b) (7)(F), (b) (3) [redacted]			
Line 203 (GER to Peyton Hill/ Shore Terminal)	Clean Products				
Note: 6 lines out of service, cleaned, and empty on south side of Waterfront road					

2. Non-transportation Related Scenario (EPA)

Tank Number or Designation	Type(s) of Products Stored	Max Capacity	Adequate Secondary Containment	Potential Spill Volume
Tank 694	Crude Oil	(b) (7)(F), (b) (3) [redacted]		
Refer to Tank Table for capacity of all facility tanks.				
			(b) (7)(F), (b) (3) [redacted]	

FIGURE D.10
WORKSHEET FOR DETERMINING PLANNING VOLUME FOR RESPONSE RESOURCES

SPILL PLANNING VOLUMES CALCULATIONS
WORST CASE DISCHARGE (WCD)

USCG - Transportation Related Scenario
Scenario: Amorco Wharf 20 in. Crude Line
Products: Crude Oil **Oil Group 3**
Geographic Area: Nearshore/ Inland

Spill Volume 10,757 bbls.	Spill Volume WCD (bbls)	Persistence (see note)	Emulsification (see note)	Planning Volume (bbls)
On-Water	(b) (7)(F), (b) (3) [redacted]			
Tier 1 (.15)				
Tier 2 (.25)				
Tier 3 (.4)				
On-Shore				

CA OSPR RWCD Scenario
Scenario Basis: Amorco Wharf 20 in. Crude Line
Products: Crude Oil **Oil Group 3**
Geographic Area: Nearshore/ Inland

Spill Volume 10,757 bbls.	Spill Volume WCD (bbls)	Persistence (see note)	Emulsification (see note)	Planning Volume (bbls)
On-Water	(b) (7)(F), (b) (3) [redacted]			
Tier 1 (.15)				
Tier 2 (.25)				
Tier 3 (.4)				
On-Shore				

FIGURE D.10 CONTINUED
WORKSHEET FOR DETERMINING PLANNING VOLUME FOR RESPONSE RESOURCES

EPA – Non Transportation Related Scenario
Scenario Basis: Tank 694
Products: Crude Oil **Oil Group 3**
Geographic Area: Nearshore/ Inland

Spill Volume 283,000 bbls.	Spill Volume WCD (bbls)	Persistence (see note)	Emulsification (see note)	Planning Volume (bbls)
On-Water	(b) (7)(F), (b) (3) [redacted]			
Tier 1 (.15)				
Tier 2 (.25)				
Tier 3 (.4)				
On-Shore				

DOT/ OSPR Pipeline Scenario
Scenario Basis: Line 63 (Section Peyton Hill to West Side of Pacheco Creek)
Products: Crude Oil **Oil Group 3**
Geographic Area: Nearshore/ Inland

Spill Volume 9,133 bbls.	Spill Volume WCD (bbls)	Persistence (see note)	Emulsification (see note)	Planning Volume (bbls)
On-Water	(b) (7)(F), (b) (3) [redacted]			
Tier 1 (.15)				
Tier 2 (.25)				
Tier 3 (.4)				
On-Shore				

Note: Persistence and Emulsification factors were determined from following reference:
33CFR Appendix C
Table 2 Removal Capacity Planning Table
Table 3 Emulsification Factor
Table 4 On water Oil Recovery Resource Mobilization Factor
CCR § 817.02 (e) Persistence and Emulsification Factors

D.9 OFFSITE CONSEQUENCES ANALYSIS

D.9.1 Introduction

This Offsite Consequence Analysis (OCA) is intended to supplement the Hazard Analysis for identifying the impact area from the Reasonable Worst Case Discharge (RWCD) at the facility. The Hazard Analyses, which is documented separately, focused on the identification of possible hazards that may result in an oil spill from the facility. Whereas, the goal of the OCA is to identify from a given spill scenario the credible impact area and the potentially impacted sensitive environmental sites over a 72 hour period.

The Offsite Consequence Analysis involved a progressive study of the spill site involving evaluation of the sensitivity of spill trajectories to pessimistic seasonal weather and environmental conditions, 72 hour spill trajectory for the identified pessimistic conditions, and identification of the area at risk from a spill and the potential impacted sensitive sites. This analysis was performed and documented by BlueWater & Associates, Novato, California using the “OILMAP” spill modeling software by ASA.

The results of the trajectory analyses are shown on color maps delineating time contours for the extent and impact of oil discharged from the terminal location. The trajectory plots display the differences with seasonal conditions and types of products.

The impact areas have been correlated to the sites identified by the San Francisco Bay Area Contingency Plan (ACP) (12/20085 ed.) The planned protection and recovery strategies would follow the recommendations for the sites at risk as described by ACP Section 9973 – GRP 3, 4, 5, 6, and 7. This information includes a description of the area, shoreline characteristics, identification of sensitive marine resources, and strategy for deployment of resources.

D.9.2 Spill Trajectory Analysis Approach and Spill Model

D.9.2.1 Analysis Approach

The offsite consequence analysis involved a progressive study for each site involving the following tasks:

a) Sensitivity analysis of spill trajectories to seasonal weather and environmental conditions
b) 72 hour spill trajectory for the identified pessimistic conditions

c) Identification of the area at risk from a spill and the potential impacted sensitive sites.

The area at risk from a release at site was evaluated using a trajectory and fates modeling analysis for potential RWCD spill volumes, which may result from oil transfer operations. A sensitivity analysis was performed on these results to evaluate possible seasonal environmental and weather impacts. This was performed using stochastic evaluation technique for trajectories over each seasonal period. The identified pessimistic conditions were used to develop trajectory plots depicting the projected areas of impact over a 72-hour period. These trajectories are based on specific type of products and have incorporated weathering and fates considerations for the oil.

The areas at risk of impact from the analysis have been compared to the sites identified in the Area Contingency Plan. California State representatives, USCG representatives, local city and county representatives, environmental groups, and industry representatives develop the ACP through a joint effort. The sites considered through the ACP process include:

- water intake
- lakes and streams
- fish and wildlife
- recreational areas
- endangered flora and fauna
- wetlands or other environmentally sensitive areas
- other areas of economic importance including sensitive terrestrial environments, aquatic environments, and unique habitats

D.9.2.2 Oil Spill Model

The analyses were completed using oil spill modeling software OILMAP for Windows V6 from Applied Science Associates (ASA). Several modeling modes within OILMAP were applied to the analysis. These modes were configured to address specific types of spill impact including assessment of different response scenarios on the spill fate, spill trajectory and weathering prediction, and statistical probabilities of shoreline impact of the spilled oil.

The oil spill trajectory analysis for support of the Offsite Consequence Analysis involved primarily the Trajectory and Fates, and Stochastic modes which are summarized below:

<u>Trajectory and Fates Mode</u>

The trajectory and fates mode of operation predicts both the movement and weathering of surface oil. The fate processes simulated are

spreading, evaporation, entrainment, emulsification and shoreline stranding.
Either instantaneous or continuous spills with a constant oil release rate can be simulated. Each spillet is transported and weathered independently. The oil composition, selected by the user from a library of oil types, is characterized by its boiling point curve. This characterization allows the model to accurately predict the weathering of a wide variety of crude and refined oil products.

Stochastic Mode

In the stochastic mode, a user-specified number of spill simulations are executed varying only the environmental conditions at the time of the spill. The stochastic model includes all the weathering processes in the trajectory and fate model.
The spill release occurs at random times over a period of time (by month to over an entire year). Historical wind records from regional meteorological stations can be used, or the model can generate wind time series from zero- or first-order statistical wind distributions.

The multiple trajectories predicted by the stochastic model are summarized as probability contours showing the probability of land and water areas being impacted by oil spilled at the specified release site. The probability contours form an envelope showing the direction(s) oil will move from the site and where it will impact land. Simulation results enable the user to assess potential extent of the area at risk for that seasonal period.

D.9.3 Application of OILMAP Model to Spill Scenarios

D.9.3.1 Oil Spill Scenario

The Reasonable Worst Case Discharge (RWCD) scenario identified by the Oil Spill Contingency Plan was used to evaluate the potential impact on the shoreline. The parameters of the spill are summarized below:

Figure D.11
MODELING SCENARIO INFORMATION

Product:	Crude Oil
Quantity	(b) (7)(F), (b) (3) [redacted]
Source Location:	Rupture of 20 " pipeline from Amorco dock to refinery
Seasonal Considerations:	Scenario in both summer and winter

Refer to Section D.8 of this plan for a discussion of the basis for the Relative Worst Case Discharge and factors determining the planning volume used in this analysis.
In the scenario, the spill was considered to be instantaneous discharge at the identified location. The model calculation time step was 10 minutes, with a dispersion factor of 1.5 m^2/sec. The simulations were run until the oil was fully dissipated from either evaporation, dissolution, or grounded on-shore over a period of 72 hours (3 days.)

D.9.3.2 Environmental Data

Hydrodynamic

Tidal current and river induced flows, providing input to OILMAP for San Pablo Bay, were derived from a three- dimensional, depth contoured, finite element hydrodynamic model of San Francisco Bay (ASA et al., 1998). The model generates equations for water motion predicted from the charted depth gradients and forcing conditions.

For development of the hydrodynamic model, the bay was represented by a finite element mesh consisting of three-dimensional (e.g., rectangular, triangular) and two-dimensional elements. The grid covers the entire bay from the entrance at Golden Gate Bridge and both the south and northern branches of the bay.

The model was forced by tidal elevation at the open boundary at the Golden Gate Bridge and river and freshwater flows from the Sacramento and San Joaquin Rivers. The resulting hydrodynamic output incorporates a net outflow long-term condition.

Wind

Wind data used in the model simulation was based on a regional statistical wind summary. Wind speed and direction time series for the Summer (July - August) and Winter (December - February) were created from summary data taken from the International Station Meteorological Climate Summary (NCDC, 1992) for the nearest recording site. Conditions were modified from the historical data from the Port Chicago meteorological station, located along the south shore of Suisun Bay, over the period of January 1995 to December 1996.

This wind data was compiled into monthly speed and direction probability tables. The tables are monthly statistical summaries of the probability of wind coming from a particular direction and within a range of speeds. The monthly data records generated are essentially a synthetic time series based on wind probabilities for the selected period.

D.9.4 Results

D.9.4.1 Sensitivity Analysis Results

Seasonal variations have been evaluated through the stochastic model. Historical winds for the period were categorized into summer and winter seasons. Wind velocity and direction vectors representative for the seasons were evaluated creating a range of probable spill trajectories.

Generally, the regional weather has two seasonal conditions, summer and winter. In the summer, winds are dominated by the prevailing west wind and thermal induction from the valley. In the early morning and evening, winds can be light and variable. In the winter or fall, the winds are generally light and variable, with occasional stronger winds representative of passing winter storm systems. Generally, a strong wind across the tidal flow tends to act as a driving function forcing the spill out of the main tidal flow. This can result in earlier grounding on the shoreline and may result in less travel and shoreline area impact.

The model incorporates weathering effects on the oil, loss by evaporation, and mixing with the water column. Shoreline grounding characteristics were negated to provide a more conservative analysis of extent of oiling from the scenario.
As illustrated in the following spill trajectory maps, the RWCD spill was tested for both summer and winter wind influences on the spill trajectory. It can be observed that the greatest shoreline impact occurs during the winter season with increased impact to the northern reaches of Honker, Suisun and Grizzly Bays and further propagation outside of Carquinez Straits into San Pablo Bay.

D.9.4.2 Spill Trajectory Results

The RWCD scenario trajectory analysis was modeled for both of the predominant seasonal conditions. The modeling time period was up to 72 hours (three days.)

The Spill Time Contour maps represent a summary of 100 iterations of spill trajectories from various states of tidal currents and seasonal environmental factors. These results are depicted on color maps delineating time contours in ¼ day (6 hour) increments. A legend to the color scale is provided on each map. Shoreline impacts are identified by red markings or by the overrun of the time contour across the shoreline. Either name or colored shoreline identifies key geographic and sensitive environmental site references. A legend of the color key is also provided on each map.

The results are displayed on the following trajectory maps for the summer season and winter season. Each trajectory is presented with information displaying the extent of oiling by time periods. In addition, a separate map describes the relative probability of oiling for those geographic areas identified to be at risk.

FIGURE D.12 - SPILL TIME CONTOUR MAP - SUMMER CONDITIONS

FIGURE D.13 - SPILL TIME CONTOUR MAP - WINTER CONDITIONS

FIGURE D.14 - SPILL PROBABILITY OF OILING MAP - SUMMER CONDITIONS

FIGURE D.15 - SPILL PROBABILITY OF OILING MAP – WINTER CONDITIONS

A summary of the relative rate of loss to the environment from the spill is provided in the **FIGURE D.16 - WEATHERING & FATES GRAPH**.

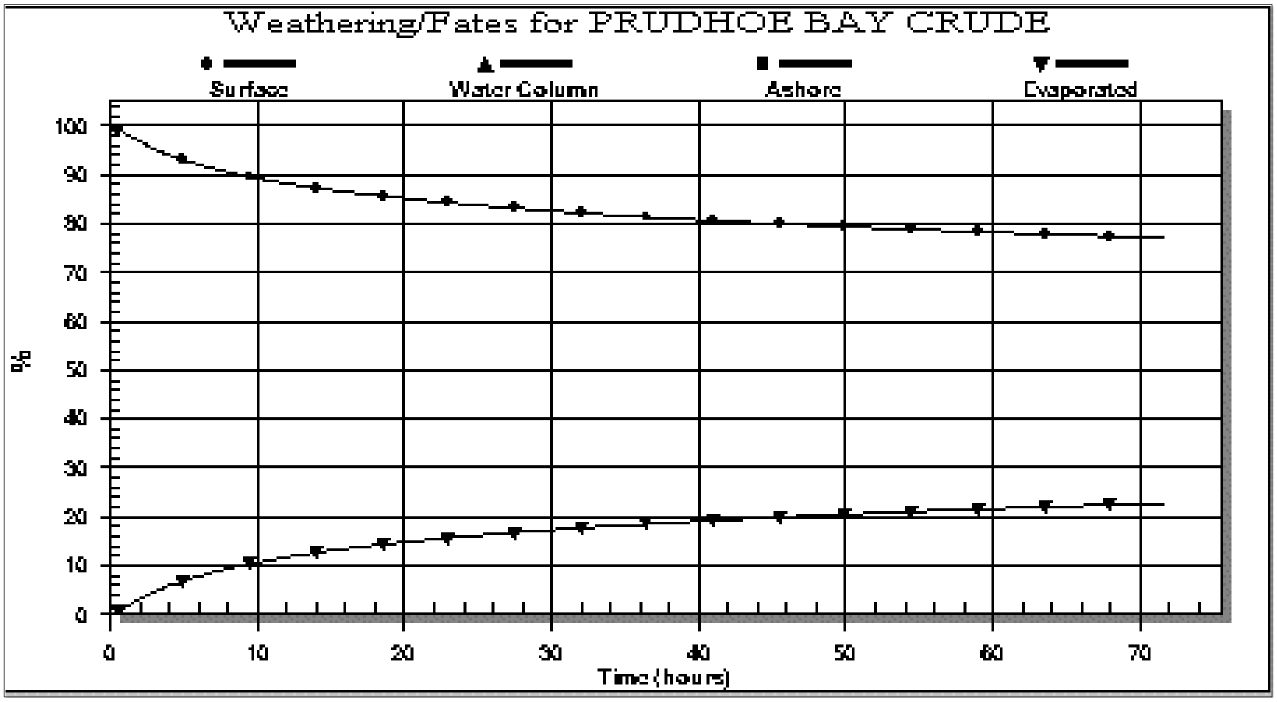
(b) (3), (b) (7)(F)

[redacted]

(b) (3), (b) (7)(F)

[redacted]

FIGURE D.16
WEATHERING AND FATES GRAPH



D.9.5 Fate and Persistence

There are no strict rules regarding the fate and persistence of petroleum hydrocarbons in the environment. The fate and persistence of materials potentially released from Tesoro facilities will vary significantly, depending on the specific material and factors including season and weather. However, the following guidelines can be used for approximation of potential fate and effects:

Non-Persistent Materials

Materials including gasoline and MTBE will generally evaporate very rapidly, and not present significant environmental threats in terms of persistence.

Group II Materials

Group II materials will also be subject to significant volumetric reduction and usually total loss due to evaporation, mechanical dispersion and other processes. In cases where fresh Group II materials soak into wetland substrate (especially peat) or are incorporated in muddy sediments in protected areas, extended persistence and subsequent impacts can be expected.

Group III Materials

Group III materials will also exhibit significant evaporative loss and typically demonstrate moderate persistence. They may exhibit persistence if incorporated in peat or fine-grained sediment. These materials may leave a residue that can be tar-like and adhere to surfaces. Unless buried, these materials typically persist for a season.

Group IV Materials

This group of petroleum hydrocarbons includes the more viscous crude oils and residuals. Evaporative loss is low and viscosity is high, a factor which typically reduces its tendency to penetrate into sediments. These materials tend to form stable emulsions and form asphalt-like pavement on shorelines. They are typically removed by mechanical dispersion although they may persist for significant periods of time in low energy environments. Group IV materials have specific gravities near that of water and may sink when weathered.

Group V Materials

Group V materials are heavier than water and will sink. Group V materials sinking off the Amorco Wharf will be subject to significant mechanical energy in the Carquinez straits and may be subject to considerable submarine movement. While degradation will be accelerated in the dispersed state, the ultimate fate of a sunken spill in this general area is uncertain, and certainly dependent on factors including the overall size of the spill. Note that the trajectories previously described do not necessarily reflect potential subsurface movement.

D.9.6 Toxic Effects

Toxic effects (and other mechanisms for ecological damage such as smothering, loss of insulation, etc.) are dependent on factors including the type of material spilled, its concentration, the nature of the environment and the organism impacted. A realistic evaluation of potential toxic effects requires investigations conducted at the time of the event.

For planning purposes, however, evaluation of relative effects which are probable satisfactory for setting protection and cleanup priorities can be based on the potential impact data presented in the ACP and RRM for various shoreline types, and sensitivity information provided in the ACP and RRM.

D.9.7 Resources at Risk

The trajectory analyses identifies a potential area at risk from a the RWCD spill over a 72 hour period to include parts of GRA 3, GRA 4, GRA 5, GRA 6, and GRA 7. It is recognized that the accepted guidance document for identification and prioritization of the environmental and economic sites is the San Francisco Bay Area Contingency Plan. Each GRA of the ACP provides a listing of the sites and identifies the response strategies for minimizing impact. An area map from Section 9840 is included in this plan for reference and can be found in Section 6, Figure 6.5.

THIS PAGE INTENTIONALLY LEFT BLANK.

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. Booms, skimmers and dispersants are the preferred methods. These methods can be used to control or contain floating oil slicks on the water away from marshes. Shoreline protection efforts include booms, sorbents and earthen barriers. 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 ACP and from the California Office of Historic Preservation

E.2 SHORELINE AND TERRESTRIAL CLEANUP

E.2.1 General

In the event that terrestrial areas do become oiled or that oil becomes stranded on a shoreline, 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, Tesoro personnel, and consultants can be utilized to determine the most appropriate cleanup method.

In most instances, cleanup efforts are not subject to the same time constraints as containment, recovery, and protection operations. As a result, better planning and greater attention to detail are possible. The exception is where there is a high probability of stranded oil becoming mobilized again and migrating to previously unaffected areas. In this case, implement cleanup operations as soon as possible. If time does permit, consider the following items in detail:

- Documentation of the location, degree, and/or extent of oil conditions, Evaluation of all environmental, cultural, economic, and political factors,
- Selection of optional cleanup technique,
- Mitigation of physical/environmental damage associated with cleanup operations,
- Cost-effectiveness,
- Net environmental benefit assessment.

The shoreline or terrestrial oil conditions can range from those which require immediate and thorough cleanup to lightly oiled areas where no cleanup may be the most environmentally sound option. Factors that influence technique selection and whether or not cleanup will be required include:

- Oil type and amount,
- Sensitivity,
- Substrate or shoreline type,
- Intrusive nature of the candidate techniques,
- Shoreline accessibility,
- Exposure.

Therefore, before initiating cleanup activities, an assessment of the net environmental benefits of a proposed cleanup operation should be performed for all affected shorelines.

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** and **FIGURE E.5.**

Since these response techniques do not consider cultural assets, make certain cultural sites are identified and that California Office of Historic Preservation provides direction prior to technique implementation

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^{o} slope), with very little width. • Sediment accumulations are uncommon and usually ephermeral, 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 bewhere 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 Platfoms	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 access ble, it may be feasible to remove heavy oil accumulations and oiled debris.

FIGURE E.1, CONTINUED
DESCRIPTION OF SHORELINE TYPES

TYPES	ESI #	DESCRIPTION	PREDICTED OIL IMPACT	RECOMMENDED CLEANUP ACTIVITY
Fine/Medium-Grained Sandy Beaches	3	• These beaches are generally flat, wide, and hard-packed. • They are commonly backed by dunes or seawalls along exposed, outer coasts. • Along sheltered bays, they are narrower, often fronted by tidal flats. • Upper beach fauna are scarce.	• Light oil accumulations will be deposited as oily swashes or bands along the upper intertidal zone. • Heavy oil accumulations will cover the entire beach surface, although the oil will be lifted off the lower beach with the rising tide. • Maximum penetration of oil into fine-grained sand will be 10 centimeters (cm). • Burial of oiled layers by clean sand within the first few weeks will be less than 30 cm along the upper beach face. • Organisms living in the beach sands may be killed either by smothering or by lethal oil concentrations in the interstitial water. • Shorebirds may be killed if oiled, though they may shift to clean sites.	• These beaches are among the easiest beach types to clean. • Cleanup should concentrate on the removal of oil from the upper swash zone after all oil has come ashore. • Removal of sand from the beach should be minimal to avoid erosion problems; special caution is necessary in areas backed by seawalls. • Activity through oiled and dune areas should be severely limited, to prevent contamination of clean areas. • Manual cleanup, rather than road graders and front-end loaders, is advised to minimize the volume of sand removed from the shore and requiring disposal. • All efforts should focus on preventing the mixture of oil being pushed deeper into the sediments by vehicle and foot traffic.
Coarse-Grained Sand/Gravel Beaches	4	• These beaches are moderate-to-steep, of variable width, and have soft sediments. • They are commonly backed by dunes seawalls along exposed, outer coasts. • Generally species density and diversity is low.	• Light oil will be deposited primarily as a band along the high-tide line. • Under very heavy accumulations, oil may spread across the entire beach face, though the oil will be lifted off the lower beach with the rising tide. • Penetration of oil into coarse-grained sand can reach 25 cm. • Burial of oil layers by clean sand can be rapid, and up to 60 cm or more. • Burial over one meter is possible if the oil comes ashore at the start of the disposition period. • Biological impacts include temporary declines in faunal populations, which can also affect feeding shorebirds.	• Remove oil primarily from the upper swash lines. • Removal of sediment should be limited to avoid erosion problems. • Mechanical reworking of the sediment into the surf zone may be used to release the oil without removal. • Activity in the oiled sand should be limited to prevent mixing oil deeper into the beach. • Use of heavy equipment for oil/sand removal may result in the removal of excessive amounts of sand; manual cleanup may be more effective.

FIGURE E.1, CONTINUED
DESCRIPTION OF SHORELINE TYPES

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 l ke 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 poss ble. • 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 poss ble. • 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.
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.

FIGURE E.1, CONTINUED
DESCRIPTION OF SHORELINE TYPES

TYPES	ESI #	DESCRIPTION	PREDICTED OIL IMPACT	RECOMMENDED CLEANUP ACTIVITY
Exposed Tidal Flats	7	• The are compose primarily of sand and mud. • The presence of sand indicates that tidal or wind-driven currents and waves are strong enough to mobilize the sediments. • They are always associated with another shoreline type on the landward side of the flat. • The sediments are water-saturated, with only the topographically higher ridges drying out during low tide. • Biological utilization can be very high, with large numbers of infauna and heavy use by birds for roosting and foraging.	• Oil does not usually adhere to the surface of exposed tidal flats, but rather moves across the flat and accumulates at the high-tide line. • Deposition of oil on the flat may occur on a falling tide if concentrations are heavy. • Oil does not penetrate the water-saturated sediments. • Biological damage may be severe, primarily to infauna, thereby reducing food sources for birds and other predators.	• Currents and waves can be very effective in natural removal of oil. • Cleanup is very difficult (and possible only during low tides). • The use of heavy machinery should be restricted to prevent mixing of oil into the sediments. • On sand flats, oil will be removed naturally from the flat and deposited on the adjacent beaches where cleanup is more feasible.
Sheltered Rocky Shores	8A	• They consist of bedrock shores of variable slope (from vertical cliffs to wide, rocky ledges) that are sheltered from exposure to most wave and tidal energy. • The wider shores may have some surface sediments, but the bedrock is the dominant substrate type. • Species density and diversity vary greatly, but barnacles, snails, mussels, clams, periwinkles, amphipods, polychaetes, rockweed, and crabs are often very abundant.	• On rocky shores, oil will adhere readily to the rough rocky surface, particularly along the high-tide line, formed a distinct oil band. • Fractures in the bedrock will be sites of pooling and oil persistence. • Even on wide ledges, the lower intertidal zones usually stays wet (particularly when algae covered), preventing oil from adhering to the rock surface. • Heavy and weathered oils can cover the upper zone with little impacts to the rich biological communities of the lower zone. • Where surface sediments are abundant, oil will penetrate into the crevices formed by the surface rubble and pool at the contact of the sediments and the surface. • Where the rubble is loosely packed, oil will penetrate deeply, causing long-term contamination of the subsurface sediments. • Fresh oil and light refined products have high acute toxicities that can affect attached organisms after even short exposures.	• Low- to high-pressure spraying at ambient water temperatures is most effective when the oil is fresh. • Extreme care must be taken not to spray in the biologically rich lower intertidal zone or when the tidal level reaches that zone. • Cutting of oiled, attached algae is not recommended; tidal action will eventually float this oil off, so sorbent booms should be deployed.

FIGURE E.1, CONTINUED
DESCRIPTION OF SHORELINE TYPES

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 an din burrows. • Light oils can penetrate the top few centimeters of sediments and deeply into burrows and cracks (up to one meter).	• Under light oiling, the best practice is to let the areas recover naturally. • Heavy accumulation of pooled oil can be removed by vacuum, sorbents, or low-pressure flushing. During flushing, care must be taken to prevent transporting oil to sensitive areas down slope or along shore. • Cleanup activities should be carefully supervised to avoid vegetation damage. • Any cleanup activity must not mix the oil deeper into the sediments. Trampling of the roots must be minimized. • Cutting of oiled vegetation should only be considered when other resources present are at great risk from leaving the oiled vegetation in place.

FIGURE E.1, CONTINUED
DESCRIPTION OF SHORELINE TYPES

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
ONSHORE	**METHOD**	**APPLICABILITY**
SORBENTS	Applied manually or mechanically to the beach before oil is stranded Oil/sorbent is then removed manually or mechanically	Prevents penetration of oil into substrate Sorbent pads preferable to loose-fiber materials for ease of collection Synthetic products have higher absorption capacity than natural materials Can be recycled and reused Usually a labor-intensive method
SURFACE TREATMENT AGENTS	Applied to shore zone before oil is stranded Prevents oil from adhering to the substrate	Applicability and effectiveness not yet fully assessed May be difficult to apply on long sections of shore Oil must be flushed from the shore and agent removed if it does not degrade naturally
COLLECTION AGENTS	Applied along water line before oil is stranded Reduces natural dispersion of oil	Reduces area of shoreline contamination Reduces penetration into beach
DIKES AND/OR DITCHES	Ditch up to 1.0 m deep dug parallel to shore at upper limit of wave action Sediment removed used to build dike on landward side of the ditch On pebble-cobble beaches can fill ditch with sorbents to collect oil and prevent oil penetration	Prevents oil being washed onto the backshore Can be constructed mechanically along long beach sections Ditch acts as a collector of oil which can be removed with buckets, hand pumps, or vacuum pumps
DAMS	Used for shallow streams where booms cannot be deployed	Acts as a boom for exclusion of oil Can be constructed to allow water to flow through dam
VISCOUS	Applied manually to the beach, rock jetties, etc.	Excellent with heavier oils Can be recycled and reused Reduces penetration into rocks

[2]Breuel, A. 1981. Oil Spill Cleanup and Protection Techniques for Shoreline and Marshland and Marshlands. Park Ridge, New Jersey, Noyes.

FIGURE E.3
RESPONSE OPTIONS FOR OIL OR SUBSTANCES WITH PHYSICAL AND CHEMICAL PROPERTIES SIMILAR TO OIL

	PROTECTION					CLEANING/MIXING				REMOVAL/DISPOSAL				ONSHORE DISPERSION				
ENVIRONMENT	DITCHES/DIKES	DISPERSANTS ON WATER	SINKING AGENTS	HERDING/GELLING AGENTS	BOOMS/SKIMMERS	BRACH CLEANING MACHINES	BURNING	MIXING	NATURAL CLEANING	MANUAL REMOVAL	MECHANICAL REMOVAL	VACUUM PUMPING	VEGETATION CROPPING	DISPERSANTS ON CROPPING	HIGH PRESSURE FLUSHING	LOW PRESSURE FLUSHING	SAND BLASTING	STEAM CLEANING
1. SEA GRASS BEDS		x	#	o	+				+	x			x	x		o		
2. MANGROVES		+		o	+		#		o	o	#	o	x	+	x	+		
3. MARSHES				o	+		#		+	#	#	o	x	o	#	+		#
4. SHELTERED TIDAL FLATS				o	+			#	+	o	#	o		x	#	+		
5. RIVER BANKS	o			o	+		x		+	+	o	o				o		
6. OYSTER REEFS				o	+				+			o		x		o		#
7. EXPOSED TIDAL FLATS	o	x		o	+				+					x				
8. DREDGE SPOIL BANKS	o			o	+			o	+	o	o							
9. BAY MARGINS	o			o	+	o		o	+	o	o	+				o		
10. 11. OPEN SAND BEACH	+			o		+	#	o	+	+	+	+		o	#	o		
12. MAN-MADE SHORE				o	+		x		+	o				o	o	o	o	o
13. EROSION SCARPS									+	+	x	+			x	o		
TIDAL INLETS		o		o	+				+									
LAGOONS BAYS			#	o	+				+		o							

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

FIGURE E.4, CONTINUED
SUMMARY OF SHORELINE AND TERRESTRIAL CLEANUP TECHNIQUES

Technique	Description	Primary Logistical Requirements[1]	Use Limitations[2]	Potential Environmental Effects
4. Vacuums/Pumps/ Skimmers	Pumps, vacuum trucks, skimmers are used to remove oil accumulations from land or relatively thick floating layers from the water.	Equipment 1-2 50- to 100-bbl Vacuum trucks w/hoses 1-2 nozzle screens or skimmer heads Personnel 2-6 workers plus truck operators	• Poor access • Thin oil accumulations or light sheens • Highly sensitive shoreline areas • Excessive suction lift required	• Typically does not remove all oil • Can remove some surface organisms, sediments, and vegetation
Washing				
5. Flooding	High volumes of water at low pressure are used to flood the oiled area to float oil off and out of sediments and back into the water or to a containment area where it can be recovered. Frequently used with flushing.	Equipment 1-5 100- to 200-gpm pumping systems 1 100-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

FIGURE E.4, CONTINUED
SUMMARY OF SHORELINE AND TERRESTRIAL CLEANUP TECHNIQUES

Technique	Description	Primary Logistical Requirements[1]	Use Limitations[2]	Potential Environmental Effects
7. Spot (High Pressure) Washing	High pressure water streams are used to remove oil coatings from hard surfaces in small areas where flushing is ineffective. Oil is directed back into water or collection point for subsequent recovery.	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
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

FIGURE E.4, CONTINUED
SUMMARY OF SHORELINE AND TERRESTRIAL CLEANUP TECHNIQUES

Technique	Description	Primary Logistical Requirements[1]	Use Limitations[2]	Potential Environmental Effects
11. Log/Debris Burning	Oiled logs, driftwood, vegetation, and debris are burned to minimize material handling and disposal requirements. Material should be stacked in tall piles and fans used to ensure a hot, clean burn.	Equipment 1 set of fire control equipment 2-4 fans 1 supply of combustion promoter Personnel 2-4 workers	• Local air quality regulations • Close proximity to populated areas • High wind conditions • Heavy precipitation	• Heat may impact local near-surface organisms • Substantial smoke may be generated • Heat may impact adjacent vegetation
12. Natural Recovery	No action is taken and oil is allowed to degrade naturally.	None required	• Heavy oil conditions • Highly sensitive shorelines • High oil remobilization potential	• Oil may persist for significant periods of time • Remobilized oil or sheens may impact other areas • Higher probability of impacting wildlife

1 - Per 1,000 feet of shoreline or oiled area. Potential sources of equipment are provided in Section 5 0.
2 - In addition to fire and explosion hazard.

FIGURE 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 vaccum 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 terminal, 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. A matrix showing the applicability of candidate cleanup techniques to selected oil conditions is also provided in **FIGURE E.7**.

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 including cultural resource trustees, if applicable, and the particular landowner(s) or manager(s) prior to implementation

FIGURE E.6
SHORELINE CLEANUP TECHNIQUE SELECTION GUIDE

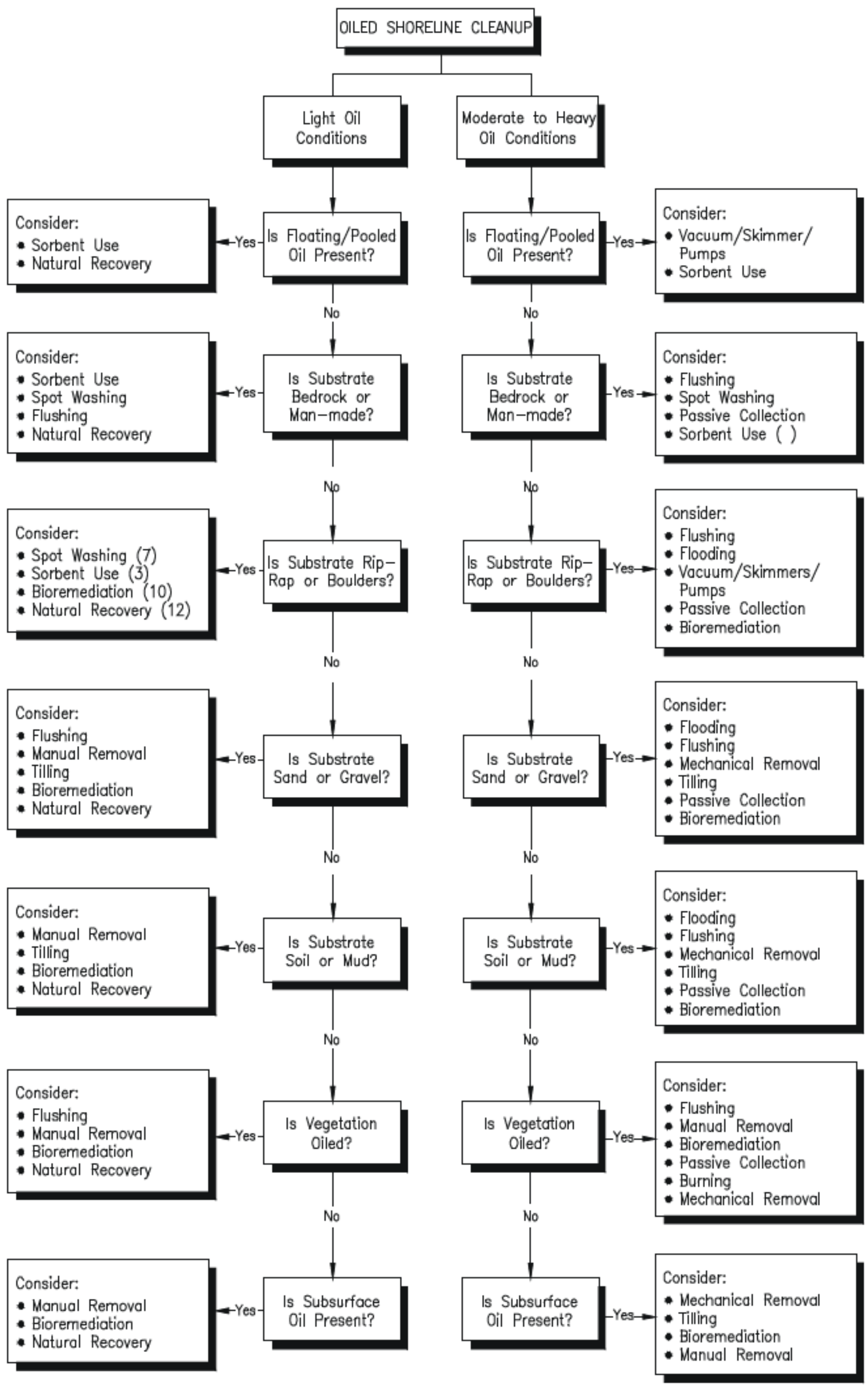


FIGURE E.7
SHORELINE CLEANUP TECHNIQUE APPLICABILITY MATRIX

LEGEND

P = Preferred
V = Viable under most circumstances
N = Not advisable in most cases
A = Avoid in all cases

Shoreline Type/Oil Conditions	Cleanup Technique*											
	1. Manual Removal	2. Mechanical Sedi–ment Removal	3. Sorbent Use	4. Vacuum/Pump/ Skimmers	5. Flooding	6. Flushing	7. Spot Washing (High Pressure)	8. Passive Collection	9. Sediment Tilling	10. In Situ Bioremediation	11. Log/Debris Burning	12. Natural Recovery
Light/Sporadic Oil Conditions												
Sand Shore	P	P	N	N	P	V	A	V	P	V	V	V
Sand Flats	P	V	N	N	V	N	A	V	V	V	V	V
Gravel Shore	V	P	V	N	P	P	N	V	V	V	V	V
Earthen/Mud Shore	P	P	N	N	V	N	A	V	P	V	V	V
Mud Flat	V	N	N	N	V	N	A	V	N	V	A	V
Rocky Shore	N	A	P	V	V	P	P	N	A	V	N	V
Rip–Rap Shore	N	N	P	V	P	P	P	V	A	V	N	V
Vegetated Shore	P	N	V	V	P	N	A	V	A	V	A	V
Marsh/Wetland	V	A	V	V	P	N	A	V	N	V	A	V
Moderate to Heavy Oil Conditions												
Sand Shore	V	P	N	N	P	V	A	V	N	V	V	V
Sand Flats	V	P	N	V	V	N	A	V	N	V	V	V
Gravel Shore	V	P	V	V	P	P	N	V	V	V	V	V
Earthen/Mud Shore	V	V	N	N	V	N	A	V	N	V	V	V
Mud Flat	N	N	N	V	V	N	A	V	N	V	A	V
Rocky Shore	V	A	V	N	P	P	P	V	A	N	N	V
Rip–Rap Shore	V	N	V	V	P	P	P	V	A	V	N	V
Vegetated Shore	V	V	V	N	P	V	A	V	N	V	A	V
Marsh/Wetland	V	A	V	V	P	V	A	V	A	V	A	V

Terrestrial

The following terrestrial cleanup technique guidelines should be consulted to assist in identifying the most appropriate technique(s).

Terrestrial cleanup technique selection is primarily dependent on the following factors:

- **Size** - Larger areas will generally require the use of mechanical methods, whereas manual techniques can be used for small areas.
- **Slope** - The use of heavy equipment is often restricted to gradually sloped areas, and manual techniques may be considered unsafe if used on steep terrain.
- **Sediment type** - Softer sediments may reduce trafficability for heavy equipment and the presence of coarser sediments and bedrock could also restrict the use of certain types of heavy equipment.
- **Penetration depth** - Significant penetration may require the use of heavy equipment or special subsurface remediation techniques.
- **Impacted groundwater** - Special subsurface remediation techniques would likely be required.
- **Accessibility** - Trees, large rocks, and other natural features may limit possible cleanup techniques

A terrestrial cleanup technique selection guide is provided in **FIGURE E.8**. A matrix showing the applicability of candidate cleanup techniques to selected oil conditions is provided in **FIGURE E.9**.

These figures should only be used as a guideline or starting point since the actual technique that is most applicable to a given situation, may differ due to the number of variables involved in a typical spill response.

E.2.3 Potential Impacts From Cleanup Techniques

Oil that comes in contact with a shoreline or terrestrial area has the potential for adversely affecting biological and physical processes. Consequently, various cleanup techniques have been developed to mitigate these impacts; however, these techniques often have their own impacts. In some situations, particularly if used improperly, the cleanup techniques can have a greater adverse impact than the oil itself. The environmental and physical consequences of using the various cleanup techniques should be considered during technique selection and implementation. The key potential impacts associated with each cleanup technique are included in **FIGURE E.4**.

The major physical impacts of cleanup usually result from removing sediment. Large-scale removal from a shoreline or steeply sloped terrestrial area can de-stabilize the beach or slope and result in erosion or landslides. Other techniques, such as flooding, flushing, spot washing, manual removal, etc., can also cause physical impacts including:

- Substrate disturbance and vegetation trampling from extensive manual activity,
- Recontamination by oil that is removed but not effectively recovered,
- Increasing turbidity and sedimentation by flushing fine sediments from a shoreline and into the water, and
- Deeper oil penetration from flushing and spot washing on shorelines and trenching and berm construction on terrestrial areas.

The biological impacts from cleanup can include:

- Removal of biota through sediment excavation, flushing, spot washing, etc.
- Extension of toxic effects due to re-oiling
- Habitat disruption by cleanup equipment, waste handling, or cleanup crews.
- Trampling of shoreline biota from manual and mechanical methods
- Wildlife disturbance due to noise and commotion created by cleanup crews

Cleanup techniques can indirectly affect organisms and vegetation outside the treatment area if appropriate measures are not taken to contain and recover the removed oil. Similarly, equipment and worker traffic can transport oil to clean areas or push it deeper into the substrate.

If shoreline oil conditions are light to very light and exposure to the elements is high, natural recovery should be seriously considered as it may have the least overall physical and biological impact. However, this consideration is very site- and circumstance-specific and often requires regulatory and land owner/manager approval.

FIGURE E.8
TERRESTRIAL SPILL CLEANUP TECHNIQUE SELECTION GUIDE

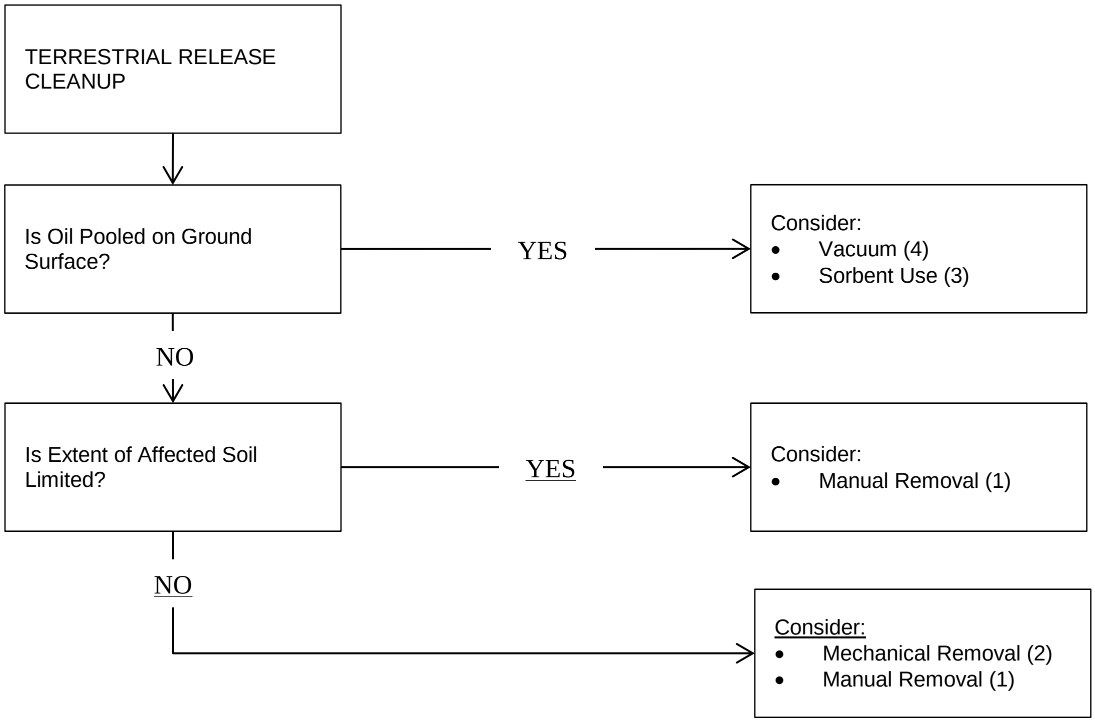


FIGURE E.9
TERRESTRIAL CLEANUP TECHNIQUE APPLICABILITY GUIDE

	Cleanup Technique			
Oil Conditions/Disposition	**Manual Removal**	**Mechanical Sediment Removal**	**Sorbent Use**	**Vacuum/ Pump**
Light/Sporadic Oil Conditions				
Surface Soils	P	P	N	A
Pooled Oil	P	A	P	V
Subsurface Soil	V	V	N	A
Moderate to Heavy Oil Conditions				
Surface Soils	V	P	N	A
Pooled Oil	V	A	V	P
Subsurface Soil	N	V	A	--

P = Preferred
V = Viable In Most Cases
N = Not Advisable In Most Cases
A = Avoid In All Cases
-- = Not Applicable

E.2.4 Net Environmental Benefit Assessment

When evaluating the need to clean up a given area or the extent to which cleanup should be implemented, conduct a net environmental benefit assessment (NEBA). In general terms, a NEBA involves comparing the potential impacts of a particular cleanup technique or program with the anticipated impacts or consequences of leaving the oil to natural degradation processes. A marine ecologist with oil spill experience typically performs the assessment, in conjunction with a coastal geologist if physical impacts are likely to occur from the cleanup and in conjunction with information from the State Historic Preservation Office (SHPO) if cultural resources are impacted.

Studies of historical spill cleanup operations have shown that the impacts associated with cleanup operations were often greater than the subsequent impacts resulting from leaving the oil in place. This is particularly relevant to marshes where vegetation trampling and substrate disturbance during cleanup operations created more of an impact and inhibited recovery to a much greater degree than if no actions were taken.

When conducting a NEBA for a terrestrial area or shoreline, the key factors to consider are:

- Safety of the cleanup workers,
- The existing impacts of the oil on the health of the local ecological community,
- The toxicity of the oil and the anticipated persistence of the toxic effects,
- The recruitment or recolonization potential of the affected area,
- The potential impacts of the candidate cleanup technique(s),
- The potential effectiveness of the cleanup operation, and
- The aesthetic impact of the oil.
- Cultural Assets.

The assessment of impacts on the ecological community both from the oil and the candidate cleanup technique(s) should focus on the key flora and fauna species considered to be important to the recovery of the community. The key species will vary from one location to the next and must be determined by a marine or terrestrial ecologist familiar with the general area. The cultural resources need to be determined by a preservation specialist from the SHPO.

If the oil had destroyed the majority of the key species or the shoreline ecological community itself, then the additional impacts by most cleanup techniques would usually be negligible although the removal of even dead or heavily stressed vegetation can, in some cases, delay recovery. Conversely, if the oil conditions are light and the oil itself is having little effect on the biota, implementing cleanup can have a greater overall impact.

Considerations must also be given to the human uses of the affected area as cleanup operations are often conducted for aesthetic reasons. If an area experiences high human use such as a park, boat anchorage, fishing or hiking area, etc., and the oil is not significantly impacting the ecological resources, the use of low intrusive techniques should be considered to reduce the visual impact of the oil.

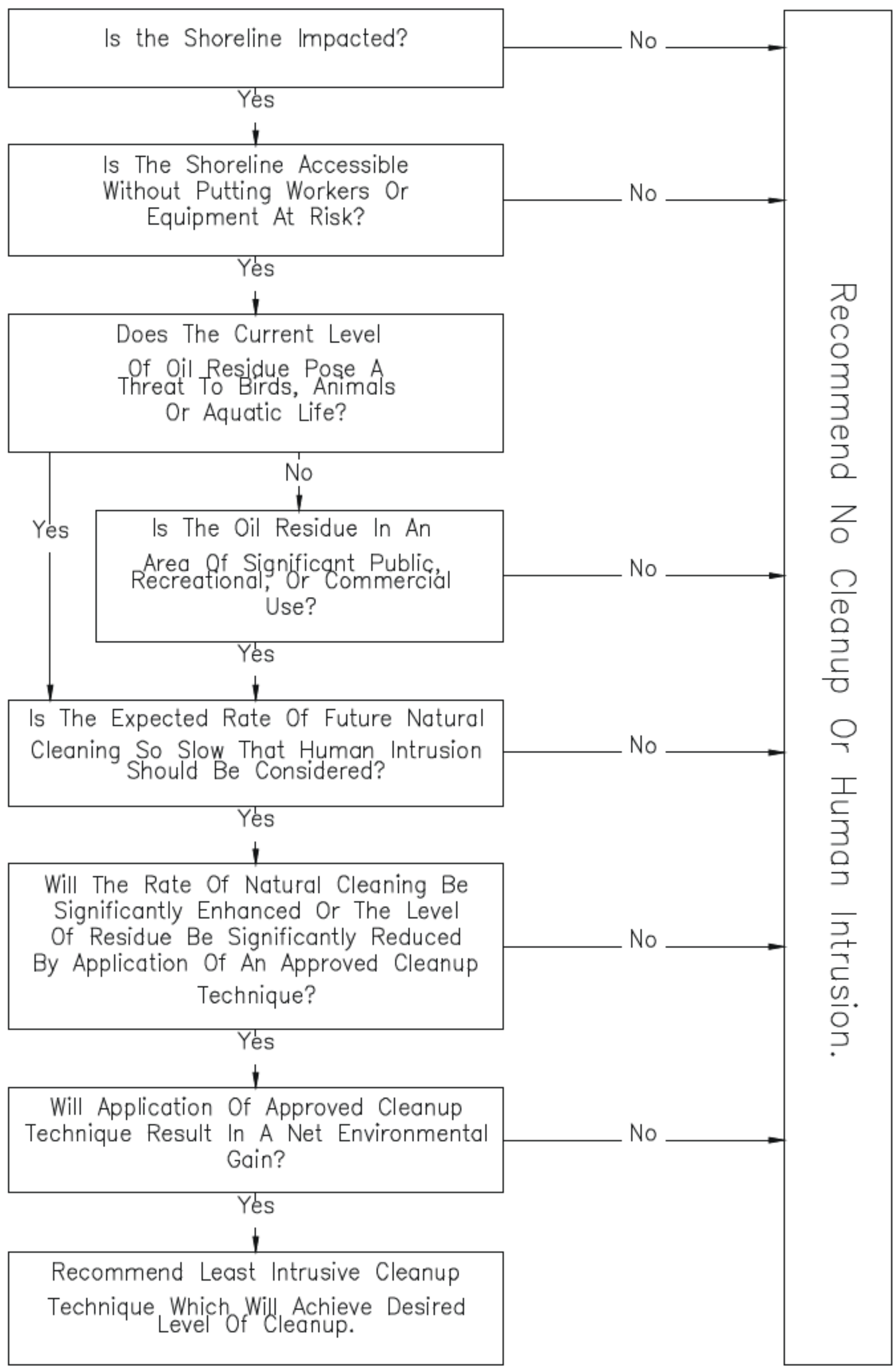
The NEBA is also useful for evaluating when cleanup should be terminated. In most cases, cleanup reaches a point of diminishing returns where the level of effort and intrusive nature of the cleanup increases exponentially as the amount of oil decreases. Even when a spill involves a relatively toxic oil (e.g., gasoline), the cleanup related impacts will often surpass those of the oil at some stage of the response operation.

A guide to conducting a NEBA is provided in **FIGURE E.10**. An explanation of each factor influencing the assessment is provided below:

- *Is the shoreline/area impacted?* - Should be based on surveys to document the extent of the affected area.
- *Is the shoreline/area accessible without putting workers or equipment at risk?* - Should be based on data obtained during the documentation surveys.
- *Does the current level of impact pose a threat to birds, animals, or aquatic life?* - There should be minimal threat to wildlife unless either the remaining hydrocarbons are in high concentrations or the remaining oil is still mobile enough that it would readily rub off or become mobile.
- *Is the oil residue in an area of significant public, recreational, historic or commercial use?* - Critical resource areas will have to be identified by the land owners and managers and other interested parties.
-
- *Is the expected rate of future natural cleaning so slow that human intrusion should be considered?* - The rate of future natural cleaning will have to be extrapolated from those already observed, historical data on similar spill situations, or the opinions of local oil spill experts.

- *Will the rate of natural cleaning be significantly enhanced or the level of oil residue significantly reduced by the application of an approved treatment/technique?* - If treatment is not expected to result in a “significant” improvement, the overall benefit most likely will not offset the potential impacts and risks associated with human intrusion.
- *Will application of cleanup technique result in a net environmental gain?* - A net environmental gain is achieved when an environmental threat is eliminated or reduced by a technique which is non-intrusive and has minimal negative impact on the environment.

FIGURE E.10
NET ENVIRONMENTAL BENEFIT ASSESSMENT PROCESS



E.3 CONTAINMENT AND RECOVERY

E.3.1 General

Containment and recovery refers to the techniques or methods that can be employed to contain and recover floating oil or contain oil flowing overland. Recovery of terrestrial spills is addressed in **SECTION E.2**.

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

Aquatic spill containment is primarily conducted through damming small creeks or drainage courses or using oil spill containment booms on larger waterways. Skimmers are usually the most efficient means of recovery although pumps, vacuum systems, and sorbents can also be effective. For terrestrial spills, trenches and earthen berms or other dams are most often used to contain oil migrating on the ground surface. Recovery of free oil is best achieved by using pumps, vacuum sources, and/or sorbents. The terrestrial containment and aquatic containment and recovery techniques applicable to the terminal area are summarized in **FIGURE E.11**.

E.3.2 Aquatic Spills

Effective containment and recovery of aquatic spills depends, in part, on the spill circumstances, how quickly the techniques can be implemented, and the prevailing environmental conditions. Regardless of the size of the spill, containment is most effective if conducted at or near the source of the spill before the spill spreads into a large area. The larger the area covered by the spill, the more equipment and manpower will be required. Containment at, or near, the source is also often associated with thicker layers of oil within the containment booms which, in turn, increases the efficiency of most skimmers.

Technique implementation time is the primary factor determining whether a spill can be contained at its source, unless the spill is continuing. Continuing spills can be contained at the source at any time, safety considerations permitting. Once the spill is allowed to spread, it can cover significantly large areas thus requiring substantial amounts of response resources. The oil can spread to extremely thin layers, making it difficult to see from the water and even more difficult to recover. Even sorbents are much less effective on very thin oil films than on thicker layers.

The prevailing environmental conditions can affect containment and recovery both in terms of effectiveness and deployment of equipment. In high winds and currents, equipment deployment is difficult and often times unsafe. Wind and currents can also add significant tension on containment booms, making it difficult to anchor the booms in place or connect sections of boom together in the water. Strong currents can also entrain the oil in the water stream flowing beneath the boom, resulting in ineffective containment. At current speeds greater than 0.7 kts, installing a second boom downstream of the first may provide additional containment.

FIGURE E.11
SUMMARY OF CONTAINMENT AND RECOVERY TECHNIQUES

Technique	Description	Primary Logistical Requirements[1]	Limitations[2]	Potential Environmental Effects
Terrestrial Spills – Containment				
A. Containment/ Diversion Berms	Construct earthen berms ahead of advancing surface spill to contain spill or divert it to a containment area.	Equipment 1 - Backhoe, bulldozer, front-end loader, or set of hand tools Personnel 4-8 – Workers	• Steep slopes • Porous substrate	• Disturbance to surface soils and vegetation • Increased oil penetration
B. Storm Drain Blocking	Block drain opening with sediments, plastic sheet, boards, etc. and secure to prevent oil from entering drain.	Equipment Misc.- hand tools 1 - Board, plastic sheet, mat, etc. Personnel 1-2 – Workers	• May be advantageous for oil to enter drain • Heavy precipitation	• Increased oil penetration • Oil can spread to other areas
C. Blocking Dams	Construct dam in drainage course/stream bed to block and contain flowing oil. Cover with plastic sheeting.	Equipment 1 - Backhoe, bulldozer, front-end loader, or set of hand tools 1 - plastic sheeting roll Personnel 4-6 – Workers	• Upstream storage capacity • Flowing water	• Increased oil penetration
D. Culvert Blocking	Block culvert opening with plywood, sediments, sandbags, etc. to prevent oil from entering culvert	Equipment Misc.- hand tools Misc.- Plywood, sandbags, etc. Personnel 3-4 – Workers	• Upstream storage capacity • Flowing water	• Increased oil penetration
E. Interception Trench/Barrier	Excavate trench or install barrier ahead of advancing surface/near-surface spill to contain oil. Cover bottom and downgradient side with plastic.	Equipment 1 - Backhoe, or set of hand tools Misc.- Plastic sheeting or plywood/ sheet metal Personnel 3-6 – Workers	• Slope • Depth to near-surface flow	• Increased oil penetration • Disturbance to surface soils and vegetation

FIGURE E.11, CONTINUED
SUMMARY OF CONTAINMENT AND RECOVERY TECHNIQUES

Technique	Description	Primary Logistical Requirements[1]	Limitations[2]	Potential Environmental Effects
F. Shoreline Containment Booming	Deploy boom around point of oil entry into water and anchor to shoreline on either side.	Equipment 1 – Boat 100 ft - Boom (min.) 3 - Anchor systems (min.) Personnel 2-3 - Workers	• Currents >1-2 kts • Waves[3] >1-2 feet • Water depths >50 feet	• Minor disturbance to substrate at anchor points • Heavy oiling of shoreline within booms and associated impacts
Aquatic Spills – Containment and Recovery				
G. Open Water Containment Booming	Boom is deployed between two boats in a "U" shape in front of approaching slick to contain oil and prevent contact with shoreline.	Equipment 2 - Boats 200 ft - Boom (min.) Misc.- Tow lines, bridles, connectors, etc. Personnel 4 - Workers plus boat crews	• Waves[3] >1-2 feet • High winds • Currents >2 kts	• No significant effects
H. Narrow Channel Containment Booming	Boom is deployed across channel at an angle to contain floating oil passing through channel.	Equipment 1 - Boat, vehicle, or winch 1-2 - Booms (1.2 x channel width each) 2-10 - anchor systems Personnel 2-3 - Workers	• Currents >2-3 kts • Water depths >50 feet (anchoring) • Sensitive shorelines	• Minor substrate disturbance at anchor points • Heavy shoreline oiling at downstream anchor point
I. Sorbent Barriers	A barrier is constructed by installing two parallel lines of stakes across a channel, fastening wire mesh to the stakes and filling the space between with sorbents.	Equipment(per 100 feet of barrier) Misc.- Hand tools 1 - Boat 20 - fence posts 200 feet - Wire mesh 200 ft^2 - Sorbents Misc.- Fasteners, support lines, additional stakes, etc. Personnel 2-3 - Workers	• Water depths >5-10 feet • Currents >0.5 kts • Soft substrate	• Minor substrate disturbance at post and shoreline anchor points • High substrate disturbance if boat is not used

FIGURE E.11, CONTINUED
SUMMARY OF CONTAINMENT AND RECOVERY TECHNIQUES

Technique	Description	Primary Logistical Requirements[1]	Limitations[2]	Potential Environmental Effects
J. Skimmers	Self-propelled skimmers work back and forth along the leading edge of a slick to recover the oil. Booms may be deployed from the front of a skimmer in a "V" configuration to increase sweep width. Portable skimmers are placed within containment booms in the area of heaviest oil concentration.	Equipment (Self-Propelled) 200 ft - Boom (min.) 2 - Boats Misc.- Tow lines, bridles, connectors, etc. Equipment (Portable) 50 ft - Hoses (min.) 1 - Pump (if required) 500 gal - Storage (min.) Personnel 4 - Workers plus boat crews	• High winds • Waves[3] >0.5 - 1 foot • Currents >2 kts	• No significant effects
K. Sorbents	Sorbents are applied manually to heavy oil coatings or accumulations on land or sheens on water to recover the oil.	Equipment Misc.- Sorbents Misc.- Bags or containers for oiled sorbents Personnel 1-10 - Workers	• Very light or weathered oil coatings/sheens • Steep or slippery shorelines	• Significant substrate disturbance • Foot traffic can trample vegetation and crush organisms • Possible ingestion of residual sorbents by animals

1 - Response equipment inventories from various regional contractors and suppliers are provided in **APPENDIX C**.
2 - In addition to implementation time and accessibility.
3 - Refers to height of breaking waves.

FIGURE E.12
CONTAINMENT AND RECOVERY IMPLEMENTATION SEQUENCE

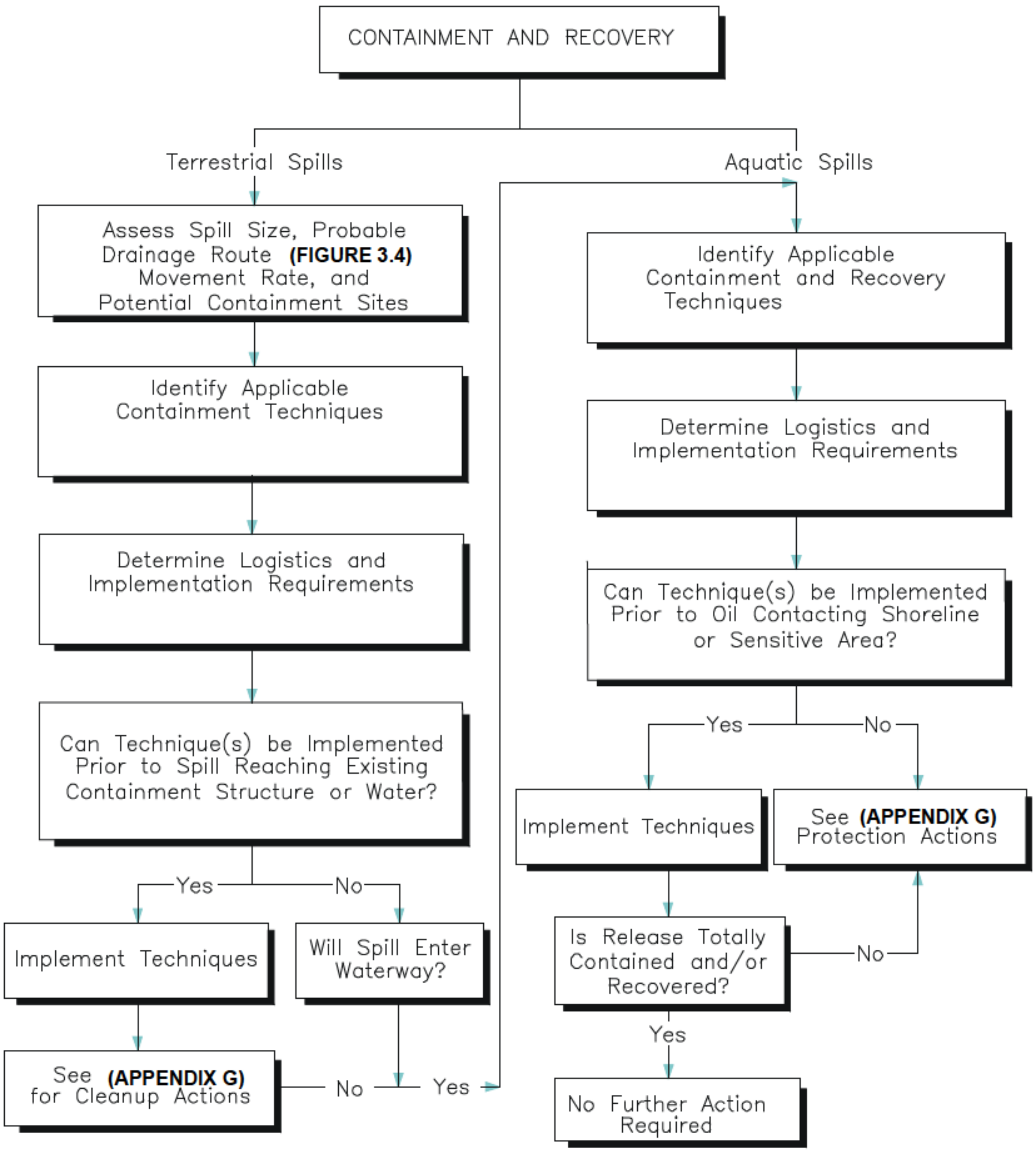
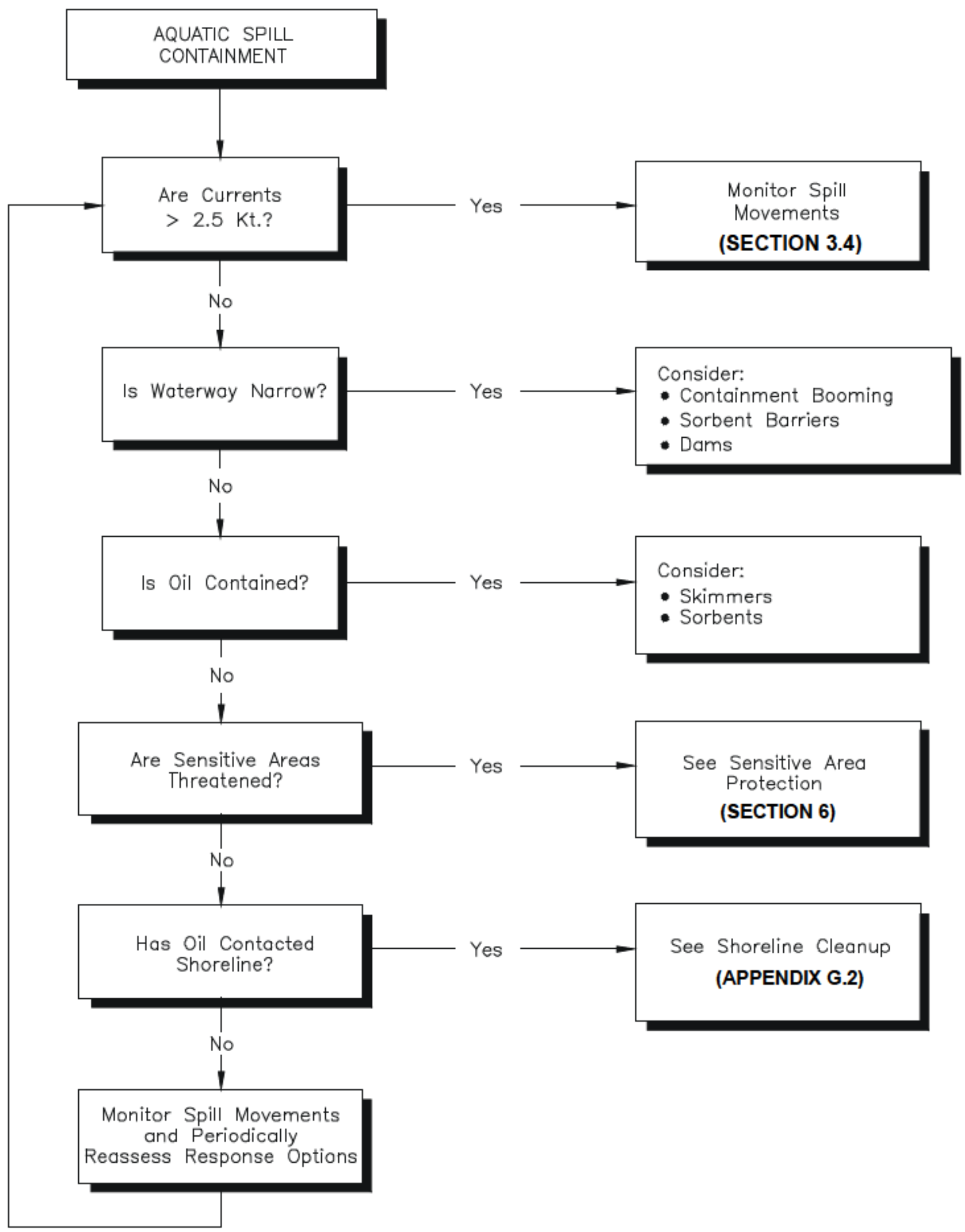


FIGURE E.13
AQUATIC SPILL CONTAINMENT AND RECOVERY TECHNIQUE SELECTION GUIDE



E.3.3 Terrestrial Spills

Terrestrial spills typically result from pipeline or tank leaks and tank or tank truck overfills. The Tesoro Terminal is equipped with secondary containment systems around all areas which are used for the storage and transfer of oil.

- Storage tank areas have earthen berms for secondary containment.
- The truck loading/unloading area is situated on concrete pads and equipped with curbing and drains for spill containment.

Each storage tank area contains a storm drain at the low point which is connected to the terminal runoff collection system. The drains are valved and normally maintained in the closed position. The containment areas are inspected routinely for accumulation of stormwater. If significant quantities accumulate, it is drained to collection system for treatment. The tank truck rack drains are connected directly to the collection system. Details of the terminal drainage system is provided in **SECTION 2**.

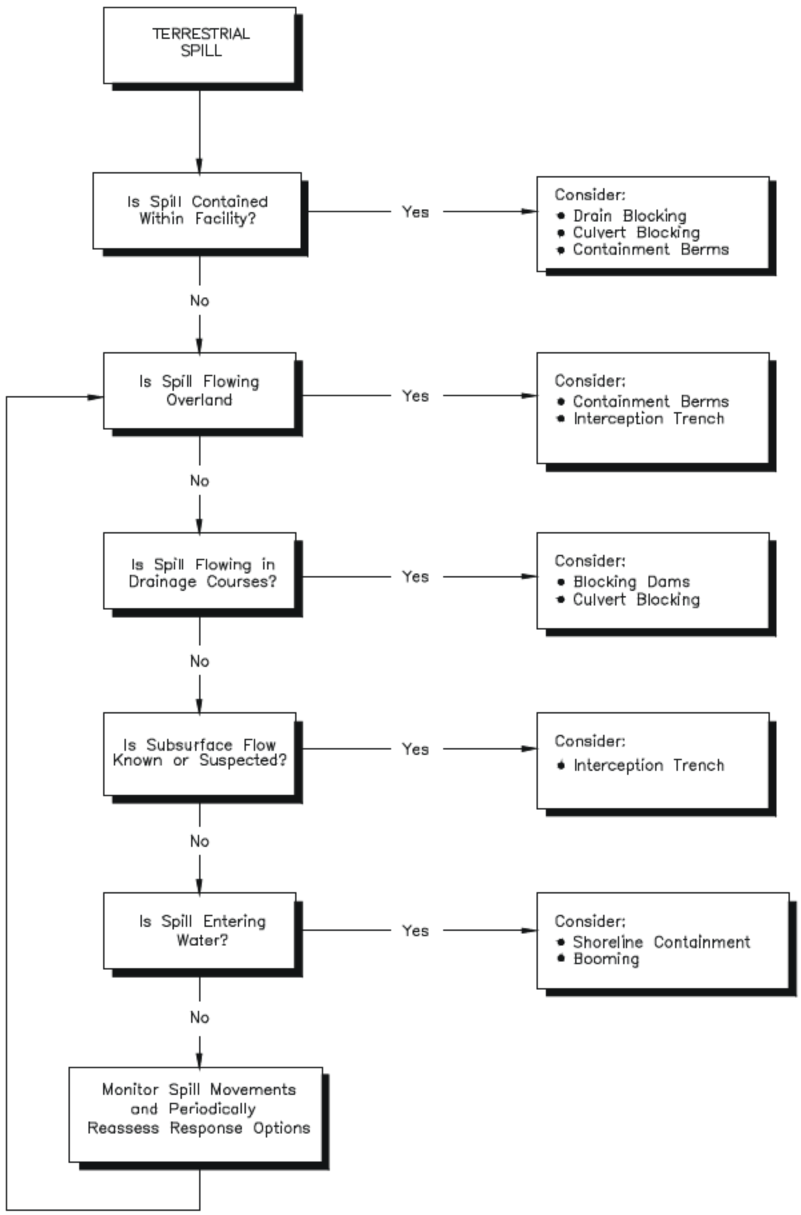
Most spills at terminals are small and occur within an existing secondary containment system which can preclude the need for additional containment activities. In some cases, such as equipment puncturing a storage tank or pipeline, the spill can be relatively large and continue for a significant period of time. Regardless of the size, spills occurring within the storage tank areas should be contained at or near their source to minimize the size of the cleanup area and quantity of soil affected.

The primary factors influencing terrestrial containment and recovery are:

- **Size** - Most containment techniques provide limited storage capacity.
- **Slope** - Berms and barriers are generally less effective on flat areas due to the inherent lack of storage capacity.
- **Surface texture** - Rough surfaces with natural ridges and depressions enhance containment and should be used whenever possible.
- **Substrate permeability** - Highly permeable sediments will allow rapid penetration of oil into the substrate thus complicating containment and recovery.
- **Existing drainage courses** - Oil is more easily contained and recovered if it is flowing within, or can be diverted to, existing natural or manmade drainage structures.
- **Stormwater runoff** - Runoff generally requires the containment of larger quantities of liquids and complicates oil recovery.

- A terrestrial containment and recovery technique selection guide is provided in **FIGURE E.15**.

FIGURE E.15
TERRESTRIAL SPILL CONTAINMENT TECHNIQUE SELECTION GUIDE



E.4 GROUP 5 OILS

E.4.1 Behavior

Group 5 oils are defined as those having a specific gravity greater than 1.0. When their specific gravity exceeds that of the ambient water, Group 5 oils will sink. Many will sink when fresh, and most will sink when they have weathered. Group 5 oils that disappear from the surface may not, however, sink to the bottom. The differences in the relative weights of the oil and the water are critical. Some water bodies, particularly estuaries, are thermally and density stratified. An oil which is heavier than water at the surface may sink until it reaches a layer of higher density, and remain at that level. This phenomena occurs in San Francisco Bay due to thermal differences associated with tides and along the interface between fresh water river flow over the denser salt water from the ocean.

An additional estuarine phenomena which can influence the fate and movement of heavier oil in the water column is related to turbidity. Oil can adhere to suspended sediment in the water column or be trapped by a process known as flocculation. In these cases, the oil sediment combination may be heavy enough to sink to the bottom and behave as a sediment.

Oil which reaches the bottom and adheres to or is incorporated in the bottom sediment will be subject to forces which control bottom sediment movement. Bottom drifter studies in San Francisco Bay have indicated a net onshore/inland movement of bottom sediment in some sections of the Bay. These studies, conducted by the U.S. Geological Survey, may be useful in emergency spill movement predictions. The studies include:

Conomos, T. J., *et al.* 1970. Movement of Seabed Drifters in the San Francisco Bay estuary and the adjacent Pacific Ocean: A preliminary report, U.S. Geological Survey Circular 637B, 8 pg.

Conomos, T. J., *et al*. 1971. Drift of surface and near bottom waters of the San Francisco Bay System: March 1970 through April, 1972. U.S. Geological Survey Open File Map.

E.4.2 Assessment

Presence and distribution of sunken oil can be observed directly through the use of divers and bottom or water column sampling devices. While these techniques are generally effective, they can be time consuming and may be hazardous.

Echo sounding systems have been successfully utilized for mapping of contrasting bottom features including oil and shallow submerged seagrass beds for a number of years. These systems, which interpret physical and acoustical characteristics of bottom sediments, range in sophistication from conventional depth sounders (fish finders) to specialized systems. It is recommended that the application of conventional depth finders be tested before attempting a more complicated approach.

A geophysical approach using specialized survey and data analysis techniques has been successfully used in the location of submerged oil (Haven and Tampa Bay spills). This approach combines a ROXANN interpretative system with conventional echo sounding equipment, satellite positioning equipment and positioning and charting software. The system interprets the echo sounder signal reflectivity and backscattering, and can be calibrated to produce real-time maps of oil distribution. Typically, dual frequency transducer combinations are utilized (38 and 120 kHz), with a separate ROXANN system configured for each frequency. The 38 kHz frequency will generally give greater sediment penetration and is preferred if only a single frequency transducer is available. Limited grab sampling or diver observation can be used to calibrate the system. The Approach has been applied successfully in water depths as shallow as 3 to 4 feet. The survey width (on the bottom) depends on the water depth. Historical surveys have been run using 25 to 50 meter line spacing. Typically, 20 to 30 nautical miles can be surveyed in a day.

Contractors having ROXANN capability include:

1) Continental Shelf Associate, Jupiter, FLA - (561) 746-7946
2) Ocean Systems, St. Petersburg, FLA - (727) 360-1660

E.4.3 Containment

No effective methods for the containment of submerged oil have been developed.

E.4.4 Recovery

A variety of techniques have been attempted, but none have been proven truly effective. These techniques include:

- Manual collection by divers;
- Suction using vacuum systems (limited) to shallow water);
- Recovery using submersible or air lift pumps;
- Clam shell dredging; and
- Hydraulic dredging.

THIS PAGE INTENTIONALLY LEFT BLANK.

APPENDIX F INSPECTION/PREVENTION AND MAINTENANCE

F.1 INSPECTION/PREVENTION MEASURES

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 drivers/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 discusses procedures and checklists that are followed. For additional information concerning inspections, refer to the individual Marine Terminal Operations Manuals for Amorco or Avon.

F.1.1 Tank Inspection

FIGURE F.1 presents a checklist and form for tank inspections utilized at Avon. These include inspections for tank gauging, valves, roofs and seals.

- **Compatibility**

  All tanks are designed for and compatible with the material stored and conditions of storage such as pressure, temperature, and corrosivity. Design data is recorded on the tank data sheets and design drawings filed in the Engineering Design Department.

- **Tank Integrity**

  The integrity of tanks is insured through:
  1. Hydrostatic testing of bulk storage tanks;
  2. Routine visual inspection; and
  3. Tank shell thickness testing.

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.

F.1.2 Tank Inspection Records

Tank inspection records, located in the Inspection Department, document conditions found during integrity testing and observations made on foundations and support.

Tank internal and external inspections are done according to the principles of the *API Guide for Inspection of Refinery Equipment*, Chapter XIII, "Atmospheric and Low Pressure Storage Tanks" and API Standard 653 (3rd edition, December 2001) and in accordance with 40 CFR 112, Appendix F.

F.1.3 Response Equipment Inspection

Using the Emergency Response Equipment List provided in **SECTION 7.1.3**, and **APPENDIX B** of this Plan, response equipment will be checked for the following in accordance with 40 CFR 112, Appendix F:

1. Inventory (item and quantity);
2. Storage location;
3. Accessibility (time to access and respond);
4. Operational status/condition;
5. Actual use/testing (last test date and frequency of testing); and
6. Shelf life (present age, expected replacement date).

Oil spill cleanup material and emergency response equipment will be inventoried and tested by the Spill Response Team every six months or immediately after a spill. The Spill Response Team will order the supplies and record inspection notes test results on the equipment records on file at the Refinery. Consult the Emergency Response Supervisor for more information.

F.1.4 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.2 PREVENTION MEASURES NECESSARY TO REDUCE AN OIL SPILL OCCURING DUE TO FACILITY OPERATIONS

Tesoro has established practices to prevent oil spills, and mitigation measures for responding to an oil spill. The individual Marine Terminal Operations Manuals cover additional mitigation actions. Prevention measures are also covered in the Spill Prevention, Control, and Countermeasure (SPCC) Plan on file at the Refinery.

The Maintenance and Metallurgical Engineering and Inspection Departments conduct and maintain inspections of physical structures and other major equipment on the marine terminal.

F.2.1 Description of Type and Frequency of Personnel Training

The Company personnel are provided with training in compliance with OSPR, USCG and SLC requirements. **APPENDIX A** provides a Training/Drills/Inspection matrix listing this information. The Health and Safety Department is responsible for maintaining records. The Training Department is responsible for maintaining master training records for employees.

F.2.2 Description of Leak Detection

For a complete description of shutdown systems, refer to the individual Marine Terminal Operations Manuals. Information on pipeline leak detection systems is maintained by the Gauging and Blending Supervisor.

F.2.3 Fencing, Locks, Lighting and Other Security Measures

A description of security measures such as fencing, locks and lighting is provided in **SECTION 7.2.**

F.2.4 Alcohol and Drug Testing Programs for Key Personnel

The Company has adopted an alcohol and drug testing program. Details about this program are in **APPENDIX I**.

F.2.5 Implementation of Mitigation and Control Measures to Control Hazards Identified in the Risk and Hazard Analysis

For transfer operations at the marine terminal, refer to the individual Marine Terminal Operations Manuals. For details on the Risk and Hazard Analysis are found in **APPENDIX D.2**. Further mitigation and control measures are provided in **SECTION 2** and **SECTION 7**.

APPENDIX G ACRONYMS, DEFINITIONS, AND REFERENCES

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
BAAQMD	Bay Area Air Quality Management District
BBL	Barrel
BLM	Bureau of Land Management (USDOI)
BNTM	Broadcast Notice to Mariners (USCG)
BOA	Basic Ordering Agreement
CAER	Community Awareness Emergency Response (CMA)
Cal-EPA	California Environmental Protection Agency
CAMEO	Computer-Aided Management of Emergency Operations
CCC/BCDC	California Coastal Commission and San Francisco Bay Conservation and Development Commission
CCCHSD	Contra Costa County Health Services Department
CCGF	Commander Coast Guard Forces (USCG)
CCR	California Code of Regulations
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)
CWA	Clean Water Act of 1977 (Federal)
CWS	Community Warning System
DCO	Discharge Clean-Up Organization
DEM	Governor's Division of Emergency Management
DLI	Department of Labor & Industries
DOC	Department of Commerce
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
EEZ	Exclusive Economic Zone
ELIRT	Emergency Local Interfunctional Response Team
EOC	Emergency Operations Center
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
EQ	Environmental Quality
ERAP	Emergency Response Action Plan
ERC	Emergency Response Coordinator
ERT	Emergency Response Team
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
HUD	Department of Housing and Urban Development
HWCP	Hazardous Waste Contingency Plan
IBRRC	International Bird Rescue Research Center
ICP	Incident Command Post
ICS	Incident Command System
IMO	International Marine Organization
INS	Immigration and Naturalization Service
IPIECA	International Petroleum Industry Environmental Conservation Association
IRT	Initial Response Team
JIB	Joint Information Bureau
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
OSPR	California Office of Oil Spill Prevention and Response
OSPRA	Oil Pill Prevention and Response Act of 1991 (TWC)
OSRL	Oil Spill Response, Ltd.
OSRO	Oil Spill Removal Organization
OSRP	Oil Spill Response Plan
OSSC	Oil Spill Service Center (Southhampton, England)
ORT	Oil Spill Recovery Team
PAO	Public Affairs Officer (USCG)
PFD	Personal Flotation Device
PHS	Public Health Service
PIAT	Public Information Assistance Team
PIP	Pre-Incidence Planning
POLREP	Pollution Report Message (USCG)
PPE	Personal Protective Equipment
PREP	National Preparedness for Response Exercise Program
QI	Qualified Individual
RA	EPA Regional Administrator
RAT	Radiological Assistance Team
RCP	Regional Oil and Hazardous Substance Pollution Contingency Plan
RCRA	Resource Conservation and Recovery Act of 1976
RHFPD	Rodeo/Hercules Fire Protection District
RP	Responsible Party

RPM	Remedial Project Manager
RRC	Regional Response Centers
RRI	Regional Resource Inventory
RRM	(Clean Bay) Regional Resource Manual
RRT	Regional Response Team (Federal)
RSPA	Research and Special Programs Administration
RQ	Reportable Quantity
SAR	Search and Rescue
SARA	Superfund Amendments and Reauthorization Act
SCBA	Self-Contained Breathing Apparatus
SDHPT	State Department of Highways and Public Transportation
SDWA	Safe Drinking Water Act of 1986
SDWF	State Department of Wildlife and Fisheries
SERC	State Emergency Response Commission
SFBRWQCB	San Francisco Bay Regional Water Quality Control Board
SHPO	State Historic Preservation Office
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 Countermeasure 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
SWLAMA	Southwest Louisiana Mutual Aid Association
TARC	Tiered Area Response Consortium
TAT	Tactical Assist Team (EPA)
TEAP	Transportation Emergency Action Plan
UCS	Unified Command System

USA	U.S. Army
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
USCG	U.S. Coast Guard
USDA	U.S. Department of Argiculture
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
WCD	Worst Case Discharge
WDR	Waste Discharge Requirements

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 that 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 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/OSPR Regulations are owned, operated, or under the direct control of the facility owner or operator, and are available within stipulated times in the specified geographic areas;
- Active membership in a local or regional oil spill removal organization that has identified specified personnel and equipment described under USCG/OSPR 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/OSPR to verify the availability of the response resources identified through tests, inspections, drills; and
- Is incorporated by reference in 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.

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, impoundments, mobile or portable drilling or workover rigs, barge mounted drilling or workover rigs, and portable fueling facilities located offshore or on or adjacent to coastal waters or any place where a discharge of oil from the facility could enter coastal waters or threaten to enter the coastal waters.

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.

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

Historic Asset
A cultural or archeological asset inventoried by the California Historic State Preservation and determined to be significant as defined by California State Law.

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.

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 wharfage 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.

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 340EC (645EF); and
- At least 95% of which volume, distill at a temperature of 370EC (700EF).

Non-Petroleum Oil
Oil of any kind that is not petroleum-based. It includes, but is not limited to, animal and vegetable oils.

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 Cooperative
Multi-company cooperative organization developed by industry to assist with oil spill response and clean up. Typically, manpower and equipment are identified by a company on a voluntary basis.

Oil Spill Removal Organization
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.

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
Any person, individual, partnership, corporation, association, governmental unit, or public or private organization of any character.

Person
Any political subdivision, government agency, municipality, industry, public or private corporation, copartnership, association, firm, individual, or any other entity whatsoever.

Persistent Oil
A petroleum-based oil that does not meet the distillation criteria for a non-persistent oil. For the

purposes of this Appendix, persistent oils are further classified based on specific gravity as follows:

- Group II - specific gravity less than .85.
- Group III - specific gravity between .85 and less than .95.
- Group IV - specific gravity .95 to and including 1.0.
- Group V - specific gravity greater than 1.0.

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.

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.

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.

Ship
Any boat, ship, vessel, barge, or other floating craft of any kind.

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 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.

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.

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 below ground 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.

G.3 REFERENCES

Concawe. 1992. "Methodologies for Hazard Analysis and Risk Assessment in the Petroleum Refining and Storage Industry." Prepared by Concawe's Risk Assessment Ad-hoc group.

U.S. Department of Housing and Urban Development. 1987. "Siting of HUD-Assisted Projects Near Hazardous Facilities: Acceptable Separation Distances from Explosive and Flammable Hazards." Prepared by the Office of Housing, Environment and Energy, Environmental Planning Division, Department of Housing and Urban Development. Washington, D.C.

U.S. DOT, FEMA, and U.S. EPA. "Handbook of Chemical Hazard Analysis Procedures."

U.S. DOT, FEMA, and U.S. EPA. "Technical Guidance for Hazards Analysis: Emergency Planning for Extremely Hazardous Substances." Washington, D.C.

The National Response Team. 1987. "Hazardous Materials Emergency Planning Guide." Washington, D.C.

The National Response Team. 1990. "Oil Spill Contingency Planning, National Status: A Report to the President." Washington, D.C., U.S. Government Printing Office.

Offshore Inspection and Enforcement Division. 1988. "Minerals Management Services, Offshore Inspection Program: National Protential Incident of Noncompliance (PINC) List." Reston, Va.

Federal Register 1993. Volume 58. No. 30 "Proposed Rules." U.S. EPA, Washington, D.C.

40 CFR Part 112 1994. "Oil Pollution Prevention; Non-Transportation-Related Facilities, Final Rule." U.S. EPA, Washington, D.C.

Clean Bay Regional Resource Manual (CBRRM). Golden Eagle Refinery – Shift Superintendent's Office.

Marine Terminal Operations Manuals, Tesoro Golden Eagle Refinery - Amorco and Avon Wharfs.

Hazardous Waste Contingency Plan, Tesoro Golden Eagle Refinery. EOC.

Area Contingency Plan (OSPR/USCG)

Material Safety Data Sheets covering Chemicals within the Refinery are available from the Industrial Hygiene Department, Golden Eagle Refinery.

Metallurgical Engineering and Inspection (ME&I) Records. Tesoro Golden Eagle Refinery.

Marine Terminal Records, Tesoro Golden Eagle Refinery.

Maintenance Central Records, Tesoro Golden Eagle Refinery.

Health and Safety Records, Golden Eagle Refinery.

Spill Prevention Control and Countermeasure Plan (SPCC) (March 1998), for Refinery.

APPENDIX H CROSS REFERENCE/OPA 90 REQUIREMENTS

H.1 EPA OPA 90 CROSS-REFERENCE

This table provides a means of cross referencing this Plan to EPA regulations.

EPA REFERENCE 40 CFR PART 112	DESCRIPTION	TESORO PLAN SECTION
112.7 (d) (2)	Statement of Corporate Commitment	Preface
112.20(g)	ACP/NCP Interface	Section 1
112.20 (h)(1)	Emergency Response Action Plan	Section 2
112.20 (h)(1)(i)	Qualified Individual(s)	Section 1, 4
112.20 (h)(1)(ii)	Spill Notification List	Section 3
112.20 (h)(1)(iii)	Reportable Spill Information	Section 3
112.20 (h)(1)(iv)	Response Equipment	Section 7, Appendix B
112.20 (h)(1)(v)	Response Personnel Capabilities	Appendix A
112.20 (h)(1)(vi)	Evacuation Plans	Section 2
112.20 (h)(1)(vii)	Source Control	Section 2, 6
112.20 (h)(1)(viii)	Facility Diagram	Section 1, Appendix C
112.20 (h)(2)	Facility Information	Section 1, Appendix C
112.20 (h)(3)	Information about Emergency Responses	Section 2, 3
112.20 (h)(3)(i)	Identity of Private Personnel & Equipment	Appendix B
112.20 (h)(3)(ii)	Contracts	Appendix B
112.20 (h)(3)(iii)	Individuals/Organizations Contact List	Section 3
112.20 (h)(3)(iv)	Reportable Spill Information	Section 3
112.20 (h)(3)(v)	Response Personnel Capabilities	Appendix A
112.20 (h)(3)(vi)	Facility's Response Equipment	Section 7, Appendix B
112.20 (h)(3)(vii)	Plans for Evacuation of Facility	Section 2
112.20 (h)(3)(viii)	Diagram of Evacuation Routes	Section 2
112.20 (h)(3)(ix)	Duties of the Qualified Individual(s)	Section 4
112.20 (h)(4)	Hazard Evaluation	Appendix D
112.20 (h)(5)	Response Planning Levels	Appendix D
112.20 (h)(5)(i)	Worst Case Discharge	Appendix D
112.20 (h)(5)(ii)	Small Discharge	Appendix D
112.20 (h)(5)(iii)	Medium Discharge	Appendix D
112.20 (h)(6)	Discharge Detection Systems	Appendix F
112.20 (h)(7)	Plan Implementation	Section 2
112.20 (h)(7)(i)	Response Actions to be Carried Out	Section 2, 7
112.20 (h)(7)(ii)	Response Scenario	Appendix D
112.20 (h)(7)(iii)	Waste Disposal Plan	Section 5
112.20 (h)(7)(iv)	Adequate Containment & Drainage	Section 1, Appendix C
112.20 (h)(8)	Drills/Exercises & Response Training	Appendix A
112.20 (h)(9)	Site and Drainage Diagrams	Section 1,
112.20 (h)(10)	Security Systems	Section 2, 7
112.20 (h)(11)	Response Plan Cover Sheet	Preface

H.2 USCG OPA 90 CROSS REFERENCE

This table provides a means of cross referencing this Plan to USCG regulations.

USCG REFERENCE 33 CFR PART 154	DESCRIPTION	TESORO PLAN SECTION
1035(a)(1)	Name & Address	Section 1
1035(a)(2)	Physical Location	Section 1
1035(a)(3)	24 hr Contact	Section 1
1035(a)(4)	Table of Contents	Preface
1035(a)(5)	Cross Reference	Appendix H
1035(a)(6)	Record of Changes	Section 1
1035(b)(1)(i)	Notification Procedure	Section 3
1035(b)(1)(ii)	Spill Report Form	Section 3
1035(b)(2)(i)	Discharge Volume	Appendix D
1035(b)(2)(ii)	Spill Mitigation	Section 2, 7
1035(b)(2)(iii)	Equipment & Responsibilities	Section 7, Appendix B
1035(b)(3)(i)	Initial Supervision	Sections 2
1035(b)(3)(ii)	Qualified Individuals	Section 1, 4
1035(b)(3)(iii)	Incident Command	Section 4
1035(b)(3)(iv)	Response Contractor	Appendix B
1035(b)(3)(v)	IMT Job Descriptions	Section 4
1035(b)(3)(vi)	Dispersants	Section 7
1035(b)(3)(vii)	Aerial Oil Tracking Capabilities	Section 2
1035(b)(4)(i)	Identify Sensitive Areas	Section 6, Appendix D
1035(b)(4)(ii)	Describe Sensitive Areas	Section 6, Appendix D
1035(b)(4)(iii)	Protect Sensitive Area	Section 6
1035(b)(5)	Disposal Plan	Section 5
1035(c)	Response Training & Exercises	Appendix A
1035(d)	Plan Review & Update	Section 1
1035(e)(1)(i)	Facility Description	Section 1, Appendix C
1035(e)(1)(iv)	MSDS Information	Section 2, Appendix C, Appendix D
1035(e)(2)(i)	Contact Qualified Individuals	Section 3
1035(e)(2)(ii)	Contact Response Contractor	Section 3
1035(e)(2)(iii)	Contact Agencies	Section 3
1035(e)(3)(i)	Response Equipment List	Section 7, Appendix B
1035(e)(3)(ii)	Spill Response Contractor	Section 3, 6, Appendix B
1035(e)(3)(iii)	OSRO Classification	Appendix B
1035(e)(4)	Communications Plan	Section 7
1035(e)(5)	Health & Safety Plan	Section 5
1035(e)(6)	Acronyms	Appendix G

H.3 USDOT CROSS REFERENCE

This table provides a means of cross referencing this Plan to U.S. Department of Transportation (USDOT) Pipeline and Hazardous Materials Safety Administration (PHMSA) regulations.

REQUIREMENTS	LOCATION IN THIS PLAN
1.0 Information Summary	
(a) For the core plan:	
(1) Name and address of operator;	Figure 1.3
(2) For each response zone which contains one or more line sections that meet the criteria for determining significant and substantial harm (§194.103), listing and description of response zones, including county(s) and state(s).	Figure 1.3
(b) For each response zone appendix:	Section 1
(1) Information summary for core plan;	Figure 1.3
(2) QI names and telephone numbers, available on 24-hr basis;	Figure 1.3
(3) Description of response zone, including county(s) and state(s) in which a worst case discharge could cause substantial harm to the environment.	Figure 1.3
(4) List of line sections contained in response zone, identified by milepost or survey station or other operator designation.	Figure 1.3
(5) Basis for operator's determination of significant and substantial harm; and	Appendix D
(6) The type of oil and volume of the worst case discharge.	Appendix D.8
(c) Certification that the operator has obtained, through contract or other approved means, the necessary private personnel and equipment to respond, to the maximum extent practicable, to a worst case discharge or threat of such discharge.	Section 7; Appendix B
2.0 Notification Procedures	
(a) Notification requirements that apply in each area of operation of pipelines covered by the plan, including applicable state or local requirements;	Section 3
(b) Checklist of notifications the operator or Qualified Individual is required to make under the response plan, listed in the order of priority;	Section 3
(c) Name of persons (individuals or organizations) to be notified of discharge, indicating whether notification is to be performed by operating personnel or other personnel;	Section 3
(d) Procedures for notifying Qualified Individuals;	Section 3
(e) Primary and secondary communication methods by which notifications can be made;	Section 3

REQUIREMENTS	LOCATION IN THIS PLAN
(f) Information to be provided in the initial and each follow-up notification, including the following: (1) Name of pipeline; (2) Time of discharge; (3) Location of discharge; (4) Name of oil recovered; (5) Reason for discharge (e.g. material failure, excavation damage, corrosion) (6) Estimated volume of oil discharged; (7) Weather conditions on scene; and (8) Actions taken or planned by persons on scene.	Section 3
3.0 Spill Detection and On-Scene Spill Mitigation Procedures	
(a) Methods of initial discharge detection;	Appendix D.5.3
(b) Procedures, listed in order of priority, that personnel are required to follow in responding to a pipeline emergency to mitigate or prevent any discharge from the pipeline;	Section 2
(c) List of equipment that may be needed in response activities based on land and navigable waters including: (1) Transfer hoses and pumps; (2) Portable pumps and ancillary equipment; and (3) Facilities available to transport and receive oil from a leaking pipeline;	Section 7, Appendix B
(d) Identification of the availability, location, and contact phone numbers to obtain equipment for response activities on a 24-hour basis;	Section 3
(e) Identification of personnel and their location, telephone numbers, and responsibilities for use of equipment in response activities on a 24-hour basis.	Section 3
4.0 Response Activities	
(a) Responsibilities of , and actions to be taken by, operating personnel to initiate and supervise response actions pending the arrival of the Qualified Individual or other response resources identified in the response plan;	Section 3, Section 4.5
(a) Qualified Individual's responsibilities and authority, including notification of the response resources identified in the response plan;	Section 4.5
(b) Procedures for coordinating the actions of the operator or Qualified Individual with the action of the OSC responsible for monitoring or directing those actions;	Section 4
(c) Oil spill response organizations (OSRO) available through contract or other approved means, to respond to a worst case discharge to the maximum extent practicable; and	Section 7
(d) For each organization identified under paragraph (d), a listing of: (1) Equipment and supplies available; (2) Trained personnel necessary to continue operation of the equipment and staff the oil spill removal organization for the first 7 days of the response.	Section 7, Appendix B
5.0 List of Contacts (Names and addresses of the following individuals or organizations, with telephone numbers at which they can be contacted on a 24-hr basis)	
(a) List of persons the plan requires the operator to contact;	Section 3
(b) Qualified Individuals for the operator's areas of operation;	Section 3
(c) Applicable insurance representatives or surveyors for the operator's areas of operation; and	Figure 1.3

REQUIREMENTS	LOCATION IN THIS PLAN
(d) Persons or organizations to notify for activation of response resources;	Section 3
6.0 Training Procedures (Description of training procedures and programs of the operator)	Appendix A
7.0 Drill Procedures (Description of drill procedures and programs the operator uses to assess whether its response plan will function as planned. It would include:)	
(a) Announced and unannounced drills;	Appendix A
(b) Types of drills and their frequencies. For example: (1) Manned pipeline emergency procedures and qualified individual notification drills conducted quarterly. (2) Drills involving emergency actions by assigned operating or maintenance personnel and notification of qualified individual on pipeline facilities which are normally unmanned, conducted quarterly; (3) Shore-based spill management team tabletop drills conducted yearly, (4) Oil spill removal organization field equipment deployment drills conducted yearly; (5) A drill that exercises entire response plan for each response zone, would be conducted at least once every three years.	Appendix A
8.0 Response Plan Review and Update Procedures	
(a) Procedures to meet §194.121; and	Section 1.5
(b) Procedures to review plan after a worst case discharge and to evaluate and record the plan's effectiveness.	Section 1.5
9.0 Response Zone Appendices	
Each response zone appendix would provide the following information:	
(a) Name and telephone number of the qualified individual;	Figure 1.3
(b) Notification procedures;	Section 3
(c) Spill detection and mitigation procedures;	Appendix D.5.3
(d) Name, address, and telephone number of oil spill response organization;	Section 3
(e) Response activities and response resources including: (1) Equipment and supplies necessary to meet §194.115, and (2) Trained personnel necessary to sustain operation of the equipment and to staff the oil spill response organization and spill management team for the first 7 days of the response;	Section 2; Section 7
(f) Names and telephone numbers of Federal, State, and local agencies which the operator expects to assume pollution response responsibilities;	Section 3
(g) Worst Case Discharge Volume;	Appendix D
(h) Method used to determine the worst case discharge volume, with calculations;	Appendix D

REQUIREMENTS	LOCATION IN THIS PLAN
(i) A map that clearly shows: (1) Location of worst case discharge, and (2) Distance between each line section in the response zone and, i. Each potentially affected public drinking water intake, lake, river, and stream within a radius of five miles of the line section; ii. Each potentially affected environmentally sensitive area within a radius of one mile of the line section;	Section 1; Section 6
(j) Piping diagram and plan-profile drawing of each line section, which may be kept separate from the response plan if the location is identified; and	Section 1
(k) For every oil transported by each pipeline in the response zone, emergency response data that: (1) Include name description, physical and chemical characteristic, health and safety hazards, and initial spill-handling and firefighting methods; and (2) Meet 29 CFR 1910.1200 or 49 CFR 172.602.	Section 2.1; Appendix D.3.6

H.4 OSPR CROSS-REFERENCE

Note: To the degree information required by Subsections 817.02(b) through (k) exists elsewhere, copies of the pre-existing information may be submitted. If the Information provided is not sufficient to meet the requirements of this subchapter, additional information may be requested by the Administrator.

REQUIREMENTS	LOCATION IN THIS PLAN
(a) Introductory Material	
(1) Each plan shall provide the following information:	
(A) name and address of the marine facility, and mailing address if different. The name and address of the facility shall be referenced in the plan title or on a title page at the front of the plan;	Figure 1.3
(B) name, address and phone number of the owner and/or operator of the marine facility;	Figure 1.3
(C) name, address and phone number of the person to whom correspondence should be sent;	Figure 1.3
(D) a certification statement signed under penalty of perjury by an executive within management who is authorized to fully implement the oil spill contingency plan, who shall review the plan for accuracy, feasibility, and executability. If this executive does not have training, knowledge and experience in the area of oil spill prevention and response, the certification statement must also be signed by another individual with the plan holder's management structure who has the requisite training, knowledge, and experience.	Section 1.4
(E) A copy of the California Certificate of Financial Responsibility (COFR) for the facility shall be included in the front of the plan. If the COFR is not available when the plan is submitted because the facility is not yet operational, the COFR must be provided as soon as it becomes available. The COFR must be provided before the plan can be approved.	Section 1.6
(2) Each plan shall identify a qualified individual, as defined in chapter 1, section 790, and any alternates that may be necessary for the purpose of implementing the plan. If an alternate or alternates are identified in the plan, then the plan shall also describe the process by which responsibility will be transferred from the Qualified Individual to an alternate. During spill response activities, notification of such a transfer must be made to the State Incident Commander at the time it occurs.	Figure 1.3 Section 4.5
(3) Each plan shall provide the name, address, telephone number and facsimile number of an agent for service of process designated to receive legal documents on behalf of the plan holder. Such agent shall be located in California.	Figure 1.3
(4) Each plan shall contain a copy of the written contract or other approved means verifying that any oil spill resource organization(s) that are named in the plan will provide the requisite equipment and personnel in the event of an oil spill. This requirement can be met by, a copy of the basic written agreement with an abstract of the recovery and/or cleanup capacities covered by the contract.	Appendix B
(b) Facility Description	
(1) Each plan shall describe the facility's design and operations with specific attention to those areas from which an oil spill could occur. This description shall include, at a minimum, the following information:	Appendix C
(A) a piping and instrumentation diagram, and a tank diagram including the location of pumps, valves, vents and lines; the number, and oil storage capacity of each structure covered under the plan and its age, design, construction and general condition; the range of oil products normally stored in each structure; the present or absence of containment structures and equipment; and the location of mooring areas, oil transfer locations, control stations, safety equipment, drip pans and the drainage for drip pans;	Appendix C
(B) a description of the types, physical properties, health and safety	Section 2.1 and

REQUIREMENTS	LOCATION IN THIS PLAN
hazards, maximum storage or handling capacity and current normal daily throughput of oil handled. A material safety data sheet (MSDS) or equivalent will meet this requirement and can be maintained separately at the facility providing the plan identified its locations;	Section 2, Appendix C, Appendix D
(C) a description of the normal procedures for transferring oil from or to a pipeline, tanker, barge or other vessel, or storage tank, and the amount, frequency and duration of oil transfers;	Appendix C
(D) the facility's normal hours of operation; and	Figure 1.3
(E) for an exploration or production facility, a complete description of those sections of the oil or gas lease field, gathering lines, storage tanks and processing facilities, under the control of the owner/operator, a spill from which could reasonable be expected to impact the marine waters of California.	N\A
(2) Each plan shall describe the facility site and surrounding area, including where appropriate, the following information (Note: where maps/diagrams are required they may be submitted (in addition to the original hard copy) on electronic media, in portable document format (PDF)):	See Below
(A) a map and description of site topography, including the drainage and diversion plans for the facility, such as sewers, storm drains, catchment, containment or diversion systems or basins, oil/water separators, and all watercourses into which surface runoff from the facility drains;	Section 1 and Figures 1.4, 1.5, 1.6
(B) vicinity maps showing any vehicular or rail access to the facility, pipelines to and from the facility, nearby residential, commercial or other populous areas, and access to private land necessary to respond to a spill;	Figure 1.4
(C) seasonal hydrographic and climatic conditions including wind speed and direction, air & water temperature, local tides, prevailing currents, any local visibility problems.	Fig 1.3 & Appendix C.3.4
(D) Physical geographic features, including ocean depths and local bathymetry; beach types and other geological conditions; including type of soil and terrain; operational conditions such as physical or navigation hazards, traffic patterns, permanent buoys, moorings and underwater structures or other site-specific factors; and any other physical feature that may affect spill response;	Appendix C.3.5
(E) logistical resources within the geographic area covered by the plan, including facilities for fire services, medical services, and accommodations for spill response personnel; and	Section 3
(F) shoreline access area, including piers, docks, boat launches, and equipment and personnel staging areas.	Section 1; Figures 1.4 - 1.14
(c) Prevention Measures	Appendix H
Each plan shall address prevention measures in order to reduce the possibility of an oil spill occurring as a result of the operation of the facility. The prevention measures must eliminate or mitigate all the hazards identified in the Risk and Hazard Analysis.	
(1) Risk and Hazard Analysis	Appendix D
(A) Each plan shall provide a history of the significant spills from the facility for either the 10 year period prior to the date of plan submittal, or from the date the facility became operational, whichever is shorter. A significant spill is one, which had a deleterious impact on the environment, or caused the physical layout of the facility or the facility's operations procedures to be modified. This information shall include:	Appendix D.4
1. a written description of sites, equipment or operations with a history of oil spills;	Appendix D.4
2. the cause and size of any historical spill. The causes to be considered shall include such factors as operator error, or a failure of the system or subsystem from which the spill occurred.	Appendix D.4
3. a brief summary of the impact of the spills; and	Appendix D.4
4. a description of the corrective actions taken in response to any	Appendix D.4

REQUIREMENTS	LOCATION IN THIS PLAN
and all spills included in the historical data.	
(B) Each facility shall conduct a Risk and Hazard Analysis to identify the hazards associated with the operation of the facility, including operator error, the use of the facility by various types of vessels, equipment failure, and external event likely to cause an oil spill.	Appendix D.2
The owner/operator may use one or more of the hazard evaluation method identified by the American Institute of Chemical Engineers, or an equivalent method, including, but not limited to:	Appendix D.2
1. What-if analysis;	Appendix D.2
2. Checklist analysis;	Appendix D.2
3. Preliminary hazard analysis;	Appendix D.2
4. Hazard and operability study;	Appendix D.2
5. Failure mode and effect analysis; or	Appendix D.2
6. Fault tree analysis.	Appendix D.2
(C) The chosen hazard evaluation method must be conducted in accordance with the guidelines established by the American Institute of Chemical Engineers as published in the most recent edition of the "Guidelines for Hazard Evaluation Procedures", prepared for The Center For Chemical Process Safety.	Appendix D.2
1. The plan must include information regarding the expertise of the working group that develops the analysis.	Appendix D.2
2. The plan must include information that demonstrates to the Administrator that the analysis is appropriate to the facility and adequate according to the published procedures above.	Appendix D.2
3. An owner/operator may be found in violation of this section if the Risk and Hazard Analysis does not address the risks posed by the facility.	Appendix D.2
4. The Administrator may require that an analysis be updated if there are significant changes made to the facility. A significant change, as used in the paragraph, is one that would have an impact on the outcome of the Risk and Hazard Analysis.	Appendix D.2
5. Additional information regarding the analysis method used or the working group that conducted the analysis shall be made available to the Administrator upon request.	Appendix D.2
(D) Each plan shall include a summary of the results of the Risk and Hazard Analysis. The summary shall include the following:	Appendix D.2
1. The hazard analysis method used, and a statement that the analysis is specific to the facility. If the analysis relies on a risk assessment at a similar facility, the summary shall specify how the two facilities are comparable;	Appendix D.2
2. an inventory of the hazards identified, including the hazards that resulted in the historical spills:	Appendix D.2
3. an analysis of the potential oil discharges, including the size, frequency, cause, duration and location of all significant spills from the facility as a result of each major type of hazard identified;	Appendix D.2
4. the control measures that will be used to mitigate or eliminate the hazards identified. The plan shall include timeframes for implementing any control measures that cannot be functional immediately; and	Appendix D.2
5. a prediction of the potential oil spills that might still be expected to occur, after any mitigating controls have been implemented.	Appendix D.2
(E) All supporting documentation used to develop the Risk and Hazard Analysis summary shall be made available to the Administrator upon request.	Appendix D.2
(2) Off-Site Consequence Analysis	Appendix D.9
For the significant hazards identified in the Risk and Hazard Analysis required under this section, the facility shall conduct a trajectory analysis to determine the Off-Site Consequences of an oil spill. This analysis shall assume	Appendix D.9

REQUIREMENTS	LOCATION IN THIS PLAN
pessimistic water and air dispersion of the oil into the air or onto the water will be considered. This analysis is intended to be used as the basis for determining the areas and shoreline types for which Response Strategies must be developed. Some of the information required in this subsection may be drawn from the appropriate area contingency plans, completed by the Coast Guard, State Agencies, and local governments pursuant to the Oil Pollution Act of 1990. (Note: Where map/diagrams are required they may be submitted (in addition to the original hard copy) on electronic media, in portable document format (PDF)).	
The analysis, which shall be summarized in the plan, shall include at least the following:	Appendix D.9
(A) a trajectory, or series of trajectories (for pipelines, etc.), to determine the potential directions, rate of flow and time of travel of the reasonable worst case oil spill from the facility to marine waters and to the shorelines that may be impacted. For purposed of this requirement, a trajectory or trajectories (projected for a minimum of 72 hours) that determine the outer perimeter of a spill, based on regional extremes of climate, tides, currents and wind with consideration to seasonal differences, shall be sufficient;	Appendix D.9
(B) for each probable shoreline that may be impacted, a discussion of the general toxicity effects and persistence or the discharge based on type of product; the effect of seasonal conditions on sensitivity of these areas; and an identification of which areas will be given priority attention if a spill occurs.	Appendix D.9
(3) Resources at Risk from Oil Spills	Section 6
Based on the trajectory of the spilled oil as determined in the Off-Site Consequence Analysis, each plan shall identify the environmentally, economically and culturally sensitive areas that may be impacted. Each plan shall identify and provide a map of the locations of these areas.	Section 6
(A) The map of environmentally sensitive areas shall include:	Section 6
1. shoreline types and associated marine resources;	Section 6
2. the presence of migratory and resident marine bird and mammal migration routes, and breeding, nursery, stopover, haul-out, and population concentration areas by season;	Section 6
3. the presence of aquatic resources including marine fish, invertebrates, and plants including important spawning, migratory, nursery and foraging areas;	Section 6
4. the presence of natural terrestrial animal and plant resources in marine-associated environments;	Section 6
5. the presence of state or federally-listed rare, threatened or endangered species;	Section 6
6. the presence of commercial and recreational fisheries including aquaculture sites, kelp leases and other harvest areas.	Section 6
(B) The map of the locations of economically and culturally sensitive areas shall include:	Section 6
1. public beaches, parks, marinas, boat ramps and diving areas;	Section 6
2. industrial and drinking water intakes, power plants, salt pond intakes, and other similarly situated underwater structures;	Section6
3. off-shore oil and gas leases and associated drilling/production platforms;	Section 6
4. known historical and archaeological sites. If a plan holder has access to any confidential archaeological information, it must be submitted as a separate item and will be handled as confidential information as outlined in Subsection 816.01(d);	Section 6
5. areas of cultural or economic significance to Native Americans; and	Section 6
6. the major waterways and vessel traffic patterns that are likely to be impacted.	Section 6

REQUIREMENTS	LOCATION IN THIS PLAN
Note: some other information required in Subsection 817.02(c)(3) may be drawn from the Guidance Documents developed by the OSPR, and the appropriate Area Contingency Plan completed by the Coast Guard, State Agencies, and Local Governments pursuant to the Oil Pollution Act of 1990.	Section 6
(4) Required Prevention Measures	Appendix H
Each facility shall take all prevention measures to reduce or mitigate the potential hazards identified in the Risk and Hazard Analysis, and the potential impact those hazards pose to the resources at risk.	Appendix H
In addition, each plan shall include the following:	Appendix H
(A) schedules, methods and procedures for testing, maintaining and inspecting pipeline and other structures within or appurtenant to the facility that contain or handle oil which may impact marine waters if a failure occurs. Any information developed in compliance with Title 30 CFR, Part 250.153; Title 33 CFR, Part 154; Title 49 CFR, Part 195; and/or Title 5, Division, Part 1, Chapter 5.5 of the Government Code may be substituted for all or part of any comparable prevent measures required by this subsection.	Appendix H
(B) Methods to reduce spills during transfer and storage operations, including overfill prevention measures and immediate spill containment provisions. Any information developed in compliance with Title 2, CCR, Division 3, Chapter 1, Article 5; Title 30 CFR, Part 250.154; and/or Title 33 CFR, Parts 154 and 156 may be substituted for all or part of any comparable prevention measures required by this subsection.	Appendix H
(C) procedures to assure clear communication among all the parties involved during transfer operations. Any information developed in compliance with Title 2, CCR, Division 3, Chapter 1, Article 5; Title 14, CCR, Division 1, Subdivision 4, Chapter 3, Subchapter 6; and/or Title 33 CFR, Parts 154 and 156 may be substituted for all or part of any comparable prevention measures required by this subsection;	Appendix H
(D) protection measures for areas within the facility that are subject to flooding	Appendix H
(E) the plan holder shall provide additional relevant information to the Administrator upon request.	Appendix H
(5) Other Prevention Measures	
Each plan shall also identify, and include a summary of those prevention measures required by other Federal, State or local agencies or which are currently in place and being utilized by facility personnel. The list of existing prevention measures shall include, but not be limited to, the following:	Appendix H
(A) a description of any "risk reduction incentive programs" in place at the facility. A risk reduction incentive program is one designed to reduce factors leading to technical and human error, such as programs that reward accident-free periods in the workplace.	Appendix H
(B) a description of leak detection and spill prevention safety and alarm systems, devices, equipment or procedures;	Appendix D.6.3
(C) a description of automatic controls that can be operated remotely or pre-programmed to control normal processes, safety shutdown and emergency shutdown;	Appendix D.6.3
1. the means of relieving pressure due to thermal expansion of liquid in pipes during periods of non-use.	Appendix D.6.3
(D) a description of the alcohol and/or drug awareness program such as any training or information materials available to employees on recognition of alcohol and/or drug abuse,	Appendix F
(E) any additional prevention measures taken or contemplated to minimize the possibility of oil spills;	Appendix H
(F) A description of any fencing, locks, lighting and other security or surveillance measures necessary to reduce vandalism, sabotage, or unauthorized entries.	Section 7.2
(G) The plan holder shall provide additional relevant information to the Administrator upon request.	

REQUIREMENTS	LOCATION IN THIS PLAN
(d) On-Water Containment and Recovery	
Each plan must provide for the on-water containment and recovery of all potential spills from the facility. To determine the amount of containment and recovery capability that must be available, each facility must calculate a Response Planning Volume as outlined below:	
(1) Reasonable Worse Case Spill (RWO)	Appendix D.8
To calculate the response planning volume, it is necessary to determine the reasonable worst case spill for each facility, as follows:	Appendix D.8
(A) For marine facilities (except offshore platforms (not subject to Chapter 6.67 (commencing with Section 25270) or Chapter 6.7 (commencing with Section 25280) of Division 20, Health and Safety Code) which are addressed in subsection (B), offshore platforms which are addressed in Subsection (E)):	Appendix D.8
1. the loss of the entire capacity of all in-line, break-out and portable storage tank(s), not subject to Chapter 6.67 (commencing with Section 25270) or Chapter 6.7 (commencing with Section 25280) of Division 20,Health and Safety Code, needed for continuous operation of the pipelines used for the purposed of handling or transporting oil, taking into account the existence of volume limiting factors including, but not limited to, line pressure, gravity, and the availability and location of the emergency shut-off controls; plus	Appendix D.8
2. the amount of additional spillage that could reasonably be expected to enter California marine waters during emergency shut-off, transfer or pumping operations if a hose(s) or pipeline(s) ruptures or becomes disconnected, or if some other incident occurs which could cause or increase the size of an oil spill. The spillage shall be calculated as follows: the maximum time to shut down the flow from the pipe or hose in hours (based on historic discharge data or the best estimate in absence of historic discharge data for the marine facility) multiplied by the maximum flow rate expressed in barrels per hour (based on the maximum relief valve setting or maximum system pressure when relief valves are not provided) plus the total linefill drainage volume expressed in barrels.	Appendix D.8
3. The Administrator has the discretion to accept that a marine facility can operate only a limited number of the total pipelines at a time. In those circumstances, the reasonable worst case spill volume shall include the drainage volume from the piping normally not in use, in addition to the volume determined in (1) and (2), above.	Appendix D.8
(B) for on-shore pipelines not subject to Chapter 6.67 (commencing with Section 25270) or Chapter 6.7 (commencing with Section 25280) of Division 20, Health and Safety Code, the largest volume in barrels, of the following:	Appendix D.8
1. The pipeline's maximum release time in hours (i.e., the time between pipeline rupture and discovery), plus the maximum shut-down response time in hours (based on historic discharge data or in the absence of such historic data, the operator's best estimate), multiplied by the maximum flow rate expressed in barrels per hour (based on the maximum daily capacity of the pipeline), plus the largest line drainage volume after shutdown of the line section(s) in the response zone expressed in barrels. (As used in this subsection: line section means a continuous run of pipe that is contained between adjacent pressure pump stations, between a pressure pump station and a terminal or break-out tank, between a pressures pump station and a block valve, or between adjacent block valves; response zone means a geographic area either along a length of pipeline or including multiple pipelines, containing one or more adjacent line sections, for which the operator must plan for the deployment of, and	Appendix D.8

REQUIREMENTS	LOCATION IN THIS PLAN
provide spill response capabilities. The size of the zone is determined by the operator after considering available capabilities, resources, and geographic characteristics); or	
2. the largest foreseeable discharge for the line section(s) within a response zone, expressed in barrels, based on the maximum historic discharge, if one exists, adjusted for any subsequent corrective or preventive action taken; or	Appendix D.8
3. if the response zone contains one or more break-out tanks, the capacity of the single largest tank or battery of tanks within a single secondary containment system, adjusted for the capacity or size of the secondary containment system, expressed in barrels.	Appendix D.8
(C) For offshore platforms (except those drilling a new well which are addressed in Subsection (D)):	N/A
1. total tank storage and flow line capacity; plus	N/A
2. that portion of the total linefill capacity which could be lost during a spill, taking into account the availability and location of the emergency shut-off controls and the effect of hydrostatic pressure; plus	N/A
3. the amount of additional spillage that could reasonable be expected to enter marine waters during emergency shut-off, transfer or pumping operations if a hose or pipeline ruptures or becomes disconnected, or some other incident occurs which could cause or increase the size of an oil spill. The calculation may take into consideration other safety devices, emergency reaction times and maximum transfer rates; plus	N/A
4. the daily production volume for seven days from an uncontrolled blowout of the highest capacity well associated with the marine facility. In determining the daily discharge rate, the reservoir characteristics, casing/production tubing sizes, and historical production and reservoir pressure data shall be taken into consideration.	N/A
(D) For offshore platforms with active well drilling:	N/A
The owner/operator of a platform at which a new well is being drilled must submit a proposed reasonable worst-case oil spill calculation for platform operations to the Administrator. The proposed worst case discharge is the daily volume possible for seven days from an uncontrolled blowout taking into consideration any known reservoir characteristics. The proposed calculation will be reviewed by the Administrator during the plan review and approval process to determine if it adequately addresses the oil spill potential of the new well system.	N/A
(E) For offshore pipelines, the largest volume in barrels of the following calculation;	N/A
1. The pipeline system leak detection time, plus the shutdown response time, multiplied by the highest measured oil flow rate over the preceding 12-month period. For new pipelines, use the predicted oil flow rate. Add to this calculation the total volume of oil that would leak from the pipeline after it is shut in. This volume should be calculated by taking into account the effects of hydrostatic pressure, gravity, frictional wall forces, length of pipeline segment, tie-ins with other pipelines, and other factors.	N/A
(F) The calculations, and such parameters as shutoff times, that are used to determine a facility's reasonable worst case spill shall be submitted as part of the plan. The Administrator may review and test these parameters as part of the drill conducted in accordance with Subsection 816.03(b).	Appendix D
(2) Persistence and Emulsification Factors	Figure D.8
(A) The reasonable worst-case spill volume is then multiplied by a persistence factor relative to the most persistent type of oil that may	Figure D.8

REQUIREMENTS					LOCATION IN THIS PLAN
be spilled. The persistence factors relative to the type of oil spilled, are specified below:					
Oil Group	Non-Persistent (Group 1)	Light Crude (Group 2)	Medium Crude (Group 3)	Heavy Crude (Group 4)	Figure D.8
On-Water Volumes	.20	.50	.50	.50	
(B) Emulsification Factors					Figure D.8
The volume determined from the calculation in Subparagraph (A) is then multiplied by one of the following emulsification factors, again, based on the type of oil.					Figure D.8
Oil Group	Non-Persistent (Group 1)	Light Crude (Group 2)	Medium Crude (Group 3)	Heavy Crude (Group 4)	Figure D.8
Emulsification	1.0	1.8	2.0	1.4	
(C) Response Planning Volume					Figure D.8
The total determined by the above calculation is a Response Planning Volume.					Figure D.8
1. The Response Planning Volume to be used to determine the amount of Response Equipment and Services that must be under contract shall be the greater of the amount determined in Subsection 817.02(d)(1) and (2), or the Planning volume for On-water Recovery calculated for the nearshore/inland environment in the facility's federal response plan pursuant to 33 CFR Part 154, Appendix C, Section 7. The Planning Volume for On-water Recovery is the adjusted volume from the federal calculation determined prior to establishing the response tiers utilizing the mobilization factors.					Figure D.8
2. All calculations used to determine the Response Planning Volume shall be included in the plan.					Figure D.8
(3) Response Capability Standards					Figure D.8
The equipment and personnel necessary to address the Response Planning Volume is brought to the scene of the spill over a period of time. The timeframes are dependent upon the risk zone in which the facility is located and are specified in the tables in this section.					Figure D.8
The standards set forth in this section are only planning standards and may not reflect the exigencies of actual spill response. However, these are the standards that must be used to determine the amount of equipment personnel that must be under contract. Equipment in addition to that under contract must be identified, and a call-out procedure in place to access this equipment, if the facility has a spill that exceeds these planning standards. The owner/operator is ultimately responsible for addressing the entire volume of an actual spill regardless of the planning standards.					Figure D.8
(A) Total Equipment Required					Section D.8
1. The total amount of on-water containment and recovery equipment and services required shall be the lesser of the amount necessary to address the Response Planning volume determined in Section 817.02(d)(2)(C) or the Daily Recovery Rate established by this Section t 817.02(d)(3)(B).					Section D.8
2. The amount of equipment and the timeframes for delivery are specified in Subsection 817.02(d)(3)(B). The barrels per day capacity figure is the total amount of on-water recovery equipment that must be at the scene of the spill at the hour specified which is measured from the time of notification, as described in this subchapter. All on-water recovery equipment must be capable of being deployed and operable within one hour of arrival at the scene of the spill but no later than the designated timeframe for each risk zone.					Section D.8
3. The timeframes for equipment delivery and deployment as specified in this subsection do not take into account the time					Section D.8

REQUIREMENTS	LOCATION IN THIS PLAN
required to conduct a health and safety assessment of the site as set forth in Subsection 817.02(f)(9), and as required by the California Occupational and Safety Administration. In addition, these timeframes do not account for delays that may occur due to weather or seastate. The actual time necessary to deliver and deploy equipment will be assessed at the time of an incident or a drill and will take into account the prevailing conditions of weather and seastate, as well as the site assessment requirements.	
(B) Daily Recovery Rate	Section D.8
1. Facilities located in High-Volume Ports	Section D.8
Delivery Time (Hrs): 6 / 24 / 36 / 60 Bbls/Day Capacity: 23,437 / 31,250 / 46,875 / 78,125	Section D.8
(i) in addition, the facility transfer points within the high volume ports must have 3125 barrels/day, or 10% of the reasonable worst case spill volume, whichever is less, of on-water recovery capability that can be mobilized and on-scene within 2 hours of notification;	Section D.8
(ii) if a facility/transfer point within a High Volume Port maintains and can immediately deploy containment equipment for a 3125 barrel spill, or 10% of the reasonable worst case spill volume, whichever is less, the initial on-water recovery capability can be on-scene within 3 hours rather than 2 hours.	Section D.8
2. Facility Transfer Areas and the Santa Barbara Channel Area	N/A
Delivery Time (Hrs): 12 / 36 / 60 Bbls/Day Capacity: 19,531 / 35,156 / 66,406	N/A
(i) in addition, facility transfer points within a Facility/Transfer Area and the Santa Barbara Channel Area must have 3,125 barrels of recovery capability that can be mobilized and on-scene within 2 hours of notification;	N/A
(ii) if a facility/transfer point within a Facility/Transfer area or the Santa Barbara Channel Area maintains and can immediately deploy containment equipment for 3,125 barrel spill, or 10% of the reasonable worst case spill volume, whichever is less, the initial on-water recovery capability can be on-scene within 3 hours rather than 2 hours.	N/A
(iii) for those points where transfers occur infrequently, and where there is not permanent equipment present, the 3,125 barrel/day, or 10% of the reasonable worst case spill volume, whichever is less, on-water recovery capability shall be brought to the site at the time of transfer;	N/A
(iv) for infrequent transfers of non-persistent oil, the initial response requirement may be waived by application to the Administrator. The application for waiver must include a justification based on such factors as the location of the facility, proximity to response equipment, additional equipment in the immediate area, and the relative	N/A

REQUIREMENTS	LOCATION IN THIS PLAN
environmental sensitivity of the potential spill sites.	
(C) Sufficient containment equipment shall be brought to the scene of the spill to address the daily recovery rates as designed in Section 817.02(d)(3)(B).	Appendix D.8
(D) The standards set forth in Subsection 817.02(d)(3)(B), were increased by a factor of 25% effective July 1, 1997, and again on July 1,2001. It was determined that this increase is not feasible and necessary to meet the best achievable protection of the coast.	Appendix D.9
(E) The standards set forth in Subsection 817.02(d)(3)(B) will be reviewed by the Administrator to determine if increases to these amounts are feasible and necessary in order to meet the best achievable protection of the coast. Prior to any such increase, the Administrator will conduct a review and hold a hearing as outlined below:	N/A
1. The Administrator shall conduct a review of the scheduled increase before the increase shall become effective. Results of this review shall be available in January of the year the increase would be effective.	N/A
2. Review of the standards shall include analysis of technological improvements, such as but not limited to: equipment efficiency and design improvements; improved spill tracking capability; approved dispersants; bioremediation; and other prevention and response measures.	N/A
3. The Administrator shall conduct a public hearing prior to confirming the new standards to solicit input regarding the necessity of the proposed increase and any credits that may be allowed.	N/A
(F) Transfer Operations	Section 7
Each plan holder shall own or have under contract the equipment, and shall have the personnel and procedures sufficient to contain a 50 barrel spill. These response resources shall be present on-site during all vessel transfer operations and deployable immediately in the event of an oil spill.	Section 7, Appendix B
(4) Non-Cascadable Equipment:	
Each plan shall nominate a certain amount of the recovery equipment identified in Section 187.02(D)(3) as non-cascadable, which may not be moved outside of the risk zone in which the facility is located. Non-cascadable equipment may not be moved in response to a spill outside the risk zone without approval of the Administrator or the Federal On-Scene Coordinator (FOSC) through the Unified Command. During the Coastal Protection Review, the Administrator shall determine which among the nominated equipment shall be designated as non-cascadable equipment for each zone. The final determination may not include equipment nominated from each plan. A contingency plan is not made invalid by the movement of non-cascadable equipment, if such movement has been approved by the Administrator or the FOSC.	Appendix B
The amount of recovery equipment that is non-cascadable is dependent upon the risk zone in which the facility is located. The total amount required will be the lessor of the amount necessary to address the Response Planning Volume, or the amount specified as follows:	Appendix B
(A) High Volume Ports and the Santa Barbara Channel Area; 10,000 barrels per day of recovery capability that can be mobilized within 2 hours of notification and on-scene within 12 hours.	Appendix B
(B) Facility/Transfer Areas: 2,500 barrels per day of recovery capability that can be mobilized within 2 hours and on-scene within 12 hours.	Appendix B
(5) On-Water Response Equipment and Services	
(A) Each plan shall demonstrate that the facility has under contract, or by other approved means, (defined in Section 815.05(b) of this	Section 7; Appendix B

REQUIREMENTS		LOCATION IN THIS PLAN
	subchapter), access to all the necessary equipment and services to comply with the Response Capability Standards established in Subsection 817.02(d)(3). The amount of response equipment required shall take into account the derated capacity (as defined in Chapter 1, Section 790 of this subdivision) of the equipment.	
(B)	The equipment identified for a specific area must be appropriate for use in that area given the limitations of the geography, bathmetry, water depths, tides, currents and other local environmental conditions. For those areas that require shallow-water response capability (refer to the Area Contingency Plan), the plan shall provide for an adequate number of shallow-draft vessels (as defined in Section 815.05 of this subchapter) and for adequate booming and other shoreline protection of all sensitive sites identified in the trajectory analysis conducted as part of the Off-site Consequence Analysis. Additionally, the equipment identified shall also be appropriate for use on the type of oil identified.	Section 7; Appendix B
	The following information must be provided:	Section 7; Appendix B
	1. the location, inventory and ownership of the equipment to be used to fulfill the response requirements of this subchapter;	Section 7; Appendix B
	2. a complete inventory of any non-mechanical response equipment and supplies, including the type of toxicity of each chemical agent, with procedures for storage and maintenance;	Section 7; Appendix B
	3. the type and capacity of storage and transfer equipment matched to the skimming capacity of the recovery systems;	Section 7; Appendix B
	4. the manufacturer's rated capacities and the operational characteristics for each major item of oil recovery equipment;	Section 7; Appendix B
	5. the derated capacity (as defined in Chapter 1, Section 760 of this subdivision) for each major piece of on-water recovery equipment listed, as well as the derated capacity for the skimming systems as a whole.	Section 7; Appendix B
	(i) A request may be submitted to the Administrator to review the derated capacity for a piece of equipment if it can be shown that the equipment has a different capacity than the derating factor allows.	Section 7; Appendix B
	(ii) The Administrator's decision regarding a change in the derated capacity for a piece of equipment will be issued as soon as administratively feasible.	Section 7; Appendix B
	6. vessels designated for oil recovery operations, including skimmer vessels and vessels designed to tow and deploy boom, and availability of shallow-draft vessels;	Section 7; Appendix B
	7. vessels of opportunity reasonably available for oil spill recovery operations, including availability of shallow-draft vessels, procedures to equip the vessels, inventory all equipment, and train personnel;	Section 7; Appendix B
	8. pumping and transfer equipment for transferring oil from damaged structures, or from undamaged structures which might be at risk of discharging additional oil;	Section7; Appendix B
	9. procedures for storage, maintenance, inspection and testing of spill response equipment under the immediate control of the operator;	Section 7; Appendix B
	10. sufficient equipment to track the movement of discharged oil, including aerial surveillance sufficient to direct skimming operations;	Section 7; Appendix B
(C)	Each plan shall describe the personnel available to respond to an oil spill, including:	Section 4
	1. a list of job category including a job description for each type of spill response position needed as indicated in the spill response organization scheme;	Section4

REQUIREMENTS	LOCATION IN THIS PLAN
2. a match between personnel by job category, and the equipment proposed for use (including equipment appropriate for shallow-water environments), including the plan for mobilization of such personnel;	Section 4
3. sufficient personnel to maintain a response effort of at least 14 days.	Section4
(D) A list of the facility's spill management personnel and their spill response qualifications including a discussion of spill response training and experience, regulatory awareness and compliance, and supervision.	Section 4 and Appendix A
(E) Each plan shall describe procedures for the transport of required equipment, personnel and other resources to the spill site. The description shall include plans for alternative procedures during adverse environmental conditions. Adverse environmental conditions to be considered shall include:	Section 7; Appendix B
1. adverse weather;	
2. sea states, tides, winds, and currents;	
3. presence of debris or other obstacles; and	
4. any other known environmental condition that could restrict response efforts.	
(F) Any equipment and personnel identified in the plan must be available for response. Any necessary maintenance for the equipment, vacation periods for response personnel or other eventuality must be taken into account in relying upon these resources.	Appendix A and H
1. The equipment owner must notify the Administrator when major equipment is removed from service for a period of 24 hours or more for maintenance or repair. Major equipment is that which, if removed, would affect timely implementation of the plan. Notification must be made prior to removing equipment for regularly scheduled maintenance, and within 24 hours of removing equipment for unscheduled repairs.	Appendix A and H
2. The equipment owner must demonstrate that backup equipment is available during the time that the primary response equipment is out of service. Backup equipment may be provided from the owner's own inventory, or may be made available from another responder.	Appendix A and H
3. A plan shall remain valid during the time that equipment has been removed from service for maintenance or repair if the Administrator has approved such movement.	Appendix A and H
(G) Group 5 Oils	Appendix G
Facilities that handle Group 5 oils must provide information on response procedures and identify response equipment and resources to address the facility's reasonable worst case spill. Such equipment shall include, but is not limited to the following:	Appendix G
1. sonar, sampling equipment, or other methods for locating the oil on the bottom or suspended in the water column;	Appendix G
2. containment boom, sorbent boom, silt curtains, or other methods to reduce spreading on the bottom.	Appendix G
3. dredges, pumps or other equipment necessary to respond to a discharge involving Group 5.	Appendix G
(6) On-Water Response on Recovery Strategies	Section 2.5
Utilizing the equipment that must be under contract, each plan shall describe methods to contain spilled oil and remove it from the environment. The equipment identified for a specific area must be	Section 2.5

REQUIREMENTS		LOCATION IN THIS PLAN
	appropriate for use in that area given the limitations of the bathymetry, geomorphology, shoreline types and other local environmental conditions. Additionally, the equipment identified shall be appropriate for use on the type of oil identified. The description shall include:	
(A)	methods for on-water containment and removal of oil in open-water environments;	Section 2.5
(B)	methods for adapting on-water containment and removal strategies in order to address the spill as it moves to the close-to-shore environment. This description shall include, where appropriate, methods for carrying out response operations and protection strategies in shallow-water environments, as identified in the trajectory analysis conducted as part of Off-site Consequence Analysis.	Section 2.5
(C)	The plan holder may propose the use of dispersants, in-situ burning, coagulants, boremediants, or other chemical agents or non-mechanical methods for response operations. The use of any non-mechanical method for response must be done in accordance with provisions of the State Marine Oil Spill Contingency Plan, the National Oil and Hazardous Substances Pollution Contingency Plan, the applicable federal Area Contingency Plan and all applicable State laws and regulations.	Section 5.7
	If a non-mechanical method of response is proposed, the plan shall include:	Section 5.7
	1. methods of deployment or application;	Section 5.7
	2. a description of the specific mechanisms in place to assess the environmental consequences of the chemical agent. This shall include the mechanism for continuous monitoring of environmental effects for the first three days after initial application, and periodic monitoring thereafter until the agent is inert or no longer operative.	Section 5.7
	3. identification of all permits, approvals or authorizations needed to allow the use of chemical agents or non-mechanical methods, and the timeline for obtaining them;	Section 5.7
	4. a plan for protecting resources at risk, areas of public concern and the public from any adverse effects of the chemical agents used;	Section 5.7
	5. the projected efficacy of each type of non-mechanical method proposed for use taking into account the type of spilled material and the projected environmental conditions of the potential site; and	Section 5.7
	6. upon request, the plan holder shall provide any test results known to the plan holder which assess the environmental impacts of applying these agents in marine environment.	Section 5.7
(D)	methods for tracking the movement of the discharge oil; and	Section 2.4
(E)	the location of the weather stations to be used for observations of winds, currents and other data at the time of a spill that may assist in making real-time projections of spill movement.	Section 3
(e)	**Shoreline Protection and Clean-up**	
	Each plan must provide for shoreline protection and cleanup of all spills from the facility. The protection strategies and amount of equipment necessary are outline below:	
(1)	Shoreline Response Planning Volume	Appendix D.8
	Each plan shall demonstrate that the facility has access to all necessary equipment and services to address the response strategies appropriate to each shoreline that could potentially be impacted by a spill from the facility.	Appendix D.8.8

REQUIREMENTS					LOCATION IN THIS PLAN
To determine the amount of equipment and services necessary a response planning volume must be calculated as outline below:					Appendix D.8.8
(A) Multiply the reasonable worst case spill for facility, as calculated in Subsection 817.02(d)(1), by the appropriate persistence factor from the chart below for the most persistent type of oil that may be spilled:					Appendix D.8.8
Oil Group	Non-Persistent (Group 1)	Light Crude (Group 2)	Medium Crude (Group 3)	Heavy Crude (Group 4)	Appendix D.8.8
Cleanup Volume	.10	.30	.50	.70	
(B) Emulsification Factors					Appendix D.8.8
The volume determined from the calculation above is then multiplied by one to following emulsification factors, again, based on the type oil.					Appendix D.8.8
Oil Group	Non-Persistent (Group 1)	Light Crude (Group 2)	Medium Crude (Group 3)	Heavy Crude (Group 4)	Appendix D.8.8
Emulsification	1.0	1.8	2.0	1.4	
(C) Total Shoreline Equipment Required					Appendix D.8.8
The total determined by the calculation is a Response Planning Volume.					Appendix D.8.8
1. The Response Planning Volume to be used to determine the amount of Response Equipment and Services that must be under contract shall be the greater of the amount determined in Subsection 817.02(e)(1), or the adjusted Planning Volume for onshore recovery calculated for the nearshore/inland environment in the facility's federal response plan pursuant to 33 CFR Part 154 Appendix C, Section 7.					Appendix D.8.8
2. All calculations used to determine the Response Planning Volume shall be included in the plan.					Appendix D.8.8
(2) Shoreline Response Equipment and Services					
Each plan must identify, and ensure availability through contract or other approved means (as defined in Section 815.05(b) of this subchapter), an oil spill response organization capable of effecting shoreline protection strategies. Such protection strategies must be commensurate with the Response Planning Volume calculated to potential shoreline impact, and must be capable of addressing all appropriate protection, response and clean-up strategies. The specific areas where equipment and services must be available for use shall be identified in the Off-Site Consequence Analysis.					Section 7 and Appendix B
(A) The equipment identified for a specific area must be appropriate for use in tat area given the limitations of the bathymetry, geomorphology, shoreline types and other local environmental conditions. Additionally, the equipment identified shall be appropriate for use on the type of oil identified.					Section 7 and Appendix B
The following information must be provided.					Section 7 and Appendix B
1. The amounts of all protective booming, shallow-draft vessels, and shoreline cleanup equipment necessary to address the specific types of shorelines that may be impacted.					Section 7 and Appendix B
2. the location, inventory and ownership of the equipment to be used to fulfill the response requirements;					Section 7 and Appendix B
3. the procedures for storage, maintenance, inspection and testing of spill response equipment under the immediate control of the operator.					Section 7 and Appendix B
(B) Each plan shall describe the personnel available to respond to an oil spill, including:					Section 4

REQUIREMENTS	LOCATION IN THIS PLAN
1. a list by job category including a job description for each type of spill response position needed as indicated in the spill response organization scheme:	Section 4
2. a match between personnel, by job category and the equipment proposed for use (including equipment appropriate for shallow-water environment), including the plan for mobilization of such personnel;	Section 4
3. sufficient personnel to maintain a response effort for at least 14 days;	Section 4
(C) Any equipment and personnel identified to meet the planning standard requirements must be available for response. Any necessary maintenance for the equipment, vacation periods for response personnel, or other eventuality must be taken into account in relying upon these resources.	Appendix A and H
1. The equipment owner must notify the Administrator when major equipment is removed from service for a period of 24 hours or more for maintenance or repair, if such movement would affect timely implementation of the plan. Notification must be made prior to removing the equipment for regularly scheduled maintenance, and within 24 hours of removing equipment for unscheduled repairs.	Appendix A and H
2. The equipment owner must demonstrate that backup equipment is available during the time that the primary response equipment is out of service.	Appendix A and H
(3) (Reserved)	
(4) Shoreline Response and Clean-up Strategies	Appendix G
(A) Utilizing the equipment that must be under contract, each plan shall describe the methods that will be used to contain spilled oil and remove it from the environment. The equipment identified for a specific area must be appropriate for use in that area given the limitations of the bathymetry, geomorphology, shoreline types and other local environmental conditions. Additionally, the equipment identified shall be appropriate for use on the type of oil identified. The description shall include:	Appendix G
1. all shoreline protection procedures and oil diversion and pooling procedures for the close-to-shore environment. These procedures shall include, where appropriate, methods for carrying out response operations and clean-up strategies in shallow-water environments, as identified in the trajectory analysis conducted as part of the Off-site Consequence Analysis;	Appendix G
2. methods for shoreside cleanup, including containment and removal of surface oil and oiled debris and vegetation from all applicable shorelines, adjacent land and beach types.	Appendix G
3. measures to be taken to minimize damage to the environment from land operations during a spill response, such as impacts to sensitive shoreline habitat caused by heavy machinery or foot traffic.	Appendix G
(B) Protection, response and clean-up strategies will be specific to the type of oil spilled, the expected spill sites as identified in the Off-Site Consequence Analysis, and the resources at risk at those spill sites.	Appendix G
(C) Each plan must utilize all the strategies appropriate to the potential impact sites.	Appendix G

REQUIREMENTS	LOCATION IN THIS PLAN
(f) Response Procedures	
(1) Each plan shall describe the organization of the facility's spill response system and management team. An organizational diagram depicting the chain of command shall also be included. Additionally, the plan shall describe the method to be used to interface the plan holder's organization into the State Incident Command System and/or the Unified Command Structure as required by Title 8, California Code of Regulations, Section 5192(q)(3)(A).	Section 4
(A) The plan holder may utilize the procedures outlined in the appropriate Area Contingency Plan as a reference when describing how the facility's chain of command will interface with the State Incident Command System which utilizes the Unified Command Structure.	Section 4
(B) Each plan shall describe the organization of the plan holder's public information office, as it relates to an oil spill incident, and the method by which the Information Officer will be integrated into the State Incident Command System.	Section 4
(C) Each plan shall describe the plan holder's safety program as it relates to an oil spill incident and the method by which their Safety Officer will be integrated into the State Incident Command System.	Section 4
(2) Each plan shall describe the process to establish sites needed for spill response operations, including location or location criteria for:	
(A) a central command post sufficient to accommodate the State Incident Command or State/Federal Unified Command as well as the plan holder's response organization;	Section 2
(B) a central communications post if located away from the command post;	N/A
(C) equipment and personnel staging areas.	Section 2
(3) Each plan shall include a checklist, flowchart or decision tree depicting the procession of each major stage of spill response operations from spill discovery to completion of cleanup. The checklist, flowchart or decision tree shall describe the general order and priority in which key spill response activities are performed.	Figure 2.1 and Section 2
(4) Each plan shall describe how the plan holder will provide emergency services before the arrival of local, state or federal authorities on the scene, including:	Sections 3 and 4
(A) procedures to control fires and explosions, and to rescue people or property threatened by fire or explosion;	Sections 3 and 4
(B) procedures for emergency medical treatment and first aid;	Sections 3 and 4
(C) procedures to control ground, marine and air traffic which may interfere with spill response operations;	Sections 3 and 4
(D) procedures to manage access to the spill response site and the designation of exclusion, decontamination and safe zones; and	Sections 3 and 4
(E) procedures to provide the required personnel protective gear for responders.	Sections 3 and 4
(5) Each plan shall describe equipment and procedures to be used by facility personnel to minimize the magnitude of a spill and minimize structural damage, which may increase the quantity of oil spilled.	
(A) Spill mitigation procedures shall include immediate containment strategies, methods to stop the spill at the source, methods to slow or stop leaks, and methods to achieve immediate emergency shutdown.	Section 2.2
(B) For spill mitigation procedures the plan shall include prioritized procedures for facility personnel including specific procedures to shut down affected operations. Responsibilities of facility personnel should be identified by job title. A copy of these procedures should be maintained at the facility operations center. These procedures should address the following equipment and scenarios:	Section 2.2 and Figure 2.7
1. failure of manifold and mechanical loading arm, other transfer equipment, or hoses, as appropriate;	Figure 2.7

REQUIREMENTS	LOCATION IN THIS PLAN
2. tank overfill;	Figure 2.7
3. tank failure;	Figure 2.7
4. pipe rupture;	Figure 2.7
5. pipe leak, both under pressure and not under pressure, if applicable;	Figure 2.7
6. explosion and/or fire; and	Figure 2.7
7. other equipment failure (e.g. pumping system failure, relief valve failure, etc.).	Figure 2.7
(6) Each plan shall detail the lines of communications between the responsible party, the Qualified Individual and the on-scene commanders, response teams, and local, state, and federal emergency and disaster responders, including:	Section 7.1.5
(A) communication procedures;	Section 7.1.5
(B) the communication function (e.g., ground-to-air) assigned to each channel or frequency used;	Section 7.1.5
(C) the maximum broadcast range for each channel or frequency used; and	Section 7.1.5
(D) redundant and back-up systems.	Section 7.1.5
(7) Each plan shall provide for post-spill review, including methods to review both the effectiveness of the plan and the need for plan amendments.	Section 8.2
(A) The result of the review shall be forwarded to the Administrator within 90 days following the completion of response and clean-up procedures;	Section 8.2
(B) The review shall be used by the Administrator only for the purposes of proposing future amendments to the contingency plan.	Section 8.2
(8) Each plan shall describe the procedures to manage access to the spill response site, the designation of exclusion, decontamination and safe zones, and the decontamination of equipment and personnel during and after oil spill response operations, as required by the California Occupational Safety and Health Administration.	Section 7.2
(9) Prior to beginning spill response operations and/or clean up activities, a Site Safety Plan must be completed. Each plan shall include information as required pursuant to Title 8, Section 5192(b)(4)(B) of the California Code of Regulations including, but not limited to, a written respiratory protection program, written personal protective equipment program, written health and safety training program, written confined space program and permit forms, direct reading instrument calibration logs, and written exposure monitoring program.	Section 5.4
(g) Notification Procedures	
(1) Each plan shall include a list of contacts to call in the event of a drill, threatened discharge of oil, or discharge of oil. The plan shall:	Section 3
(A) detail the procedures for reporting oil spills to all appropriate local, state, and federal agencies;	Section 3
(B) identify a central reporting office or individual, who is responsible for initiating the notification process and is available on a 24-hour basis. The following information must be provided:	Section 3
1. the individual or office to be contacted;	Section 3
2. telephone number or other means of contact for any time of the day; and	Section 3

REQUIREMENTS	LOCATION IN THIS PLAN
3. an alternate contact in the event the individual is unavailable.	Section 3
(C) establish a clear order to priority for notification.	Section 3
(2) Immediate Notification	Section 3
Nothing in this section shall be construed as requiring notification before response.	Section 3
(A) Each plan shall include a procedure for contacting the primary OSRO, or other initial response resources if an OSRO is not being used, within 30 minutes of the discovery of a discharge of oil or threatened discharge of oil.	Section 3
(B) Each plan shall include a procedure that ensures that the owner/operator of his/her designee will initiate contact with the Qualified Individual, the California Governor's Office of Emergency Services and the National Response Center immediately, but no longer than 30 minutes, after discovery of a discharge of oil or threatened discharge of oil.	Section 3
(A) All phone numbers necessary to complete the immediate notification procedures must be included in the response manual.	Section 3
(3) Each plan shall identify a call-out procedure to acquire the resources necessary to address spills that cannot be addressed by the equipment that the owner/operator is required to have under contract. Procedures must allow for initiation of the call-out within 24 hours of the incident and must begin as soon as a determination has been made that additional resources are necessary.	Section 3
(4) Each plan shall provide a checklist of the information to be reported in the notification procedures, including but not limited to:	Figure 3.3 and 3.4
(A) facility name and location;	Figure 3.4
(B) date and time of the incident;	Figure 3.4
(C) the cause and location of the spill;	Figure 3.4
(D) an estimate of the volume of oil spilled and the volume at immediate risk of spillage;	Figure 3.4
(E) the type of oil spilled, and any inhalation hazards or explosive vapor hazards, if known;	Figure 3.4
(F) the size and appearance of the slick;	Figure 3.4
(G) prevailing weather and sea conditions;	Figure 3.4
(H) actions taken or planned by personnel on scene;	Figure 3.4
(I) current condition of the facility;	Figure 3.4
(J) injuries and fatalities; and	Figure 3.4
(K) any other information as appropriate.	Figure 3.4
(5) Reporting of a spill as required by Subsection 817.02(g)(2) shall not be delayed solely to gather all the information required by Subsection 817.02(g)(4).	Figure 3.4
(6) An updated estimate of the volume of oil spilled and the volume at immediate risk of spillage shall be reported to the California Governor's Office of Emergency Services whenever a significant change in the amount reported occurs, but not less than every 12 hours within the first 48 hours of response. The State Incident Commander and/or the Federal On-scene Coordinator	Figure 3.4

REQUIREMENTS	LOCATION IN THIS PLAN
through the Unified Command shall have the option of increasing or decreasing this timeframe, as needed. Update spill volume information included in the Incident Action Plan developed through the Unified Command will meet the requirements of this subsection.	
(h) Temporary Storage and Waste Management	Section 7.3
(1) Each plan shall identify sufficient temporary storage for all oily waste, or identify facilities that would be able to accept the oily waste for recycling or other means of waste management. Sufficient storage shall be no less that 2 times the required daily recovery rate as determined in Section 817.02(d)(3)(B).	Section 7.3
(2) Each plan shall identify the party that shall maintain responsibility for recovered oil and oily waste for the purposes of temporary storage.	Section 7.3
(3) Each plan shall describe site criteria and methods used for temporary storage of recovered oil and oily wastes generated during response and cleanup operations, including sites available within the facility.	Section 7.3
(4) Each plan shall identify all applicable permits, and all federal, state, and local agencies responsible for issuing those permits for transit, temporary storage and ultimate waste management of all wastes likely to result from an oil spill.	Section 7.3
(5) Each plan shall include information, which could expedite the state approval process for the use of temporary waste storage sites, including a list of appropriate contacts and a description of procedures to be followed for each approval process.	Section 7.3
(i) Wildlife Rehabilitation Requirements	Section 6.3
Each plan shall describe how oiled wildlife care will be provided by one of the following approved means:	Section 6.3
(1) Utilize the California Oiled Wildlife Care Network (OWCN) to meet oiled wildlife care requirements; or	Section 6.3
(2) describe procedures that clearly outline how oiled wildlife care will be provided. The equipment, facilities, and personnel necessary to implement these procedures must be identified and assured by contract for each Geographic Area covered by the plan. Standards for wildlife care must comply with all applicable State and federal laws.	Section 6.3
(j) Training	
(1) Each plan shall provide that all appropriate personnel employed by the facility shall receive training in the use and operation of oil spill response and cleanup equipment. The plan shall describe:	Appendix A
(A) the type and frequency of training that each individual in a spill response position receives to achieve the level of qualification demanded by their job description;	Appendix A
(B) the procedures, if any, to train and use volunteers or other additional personnel in spill response operations as necessary for the size of the spill.	Appendix A
(2) Each plan shall describe the type and frequency of personnel training on methods of reduce operational risks. The description of the training shall include, if applicable, the following:	Appendix A
(A) any established training objectives that address potential spill sources and causes that were identified in the Risk and Hazard Analysis.	Appendix A
(B) the means of achieving any established training objectives, such as:	Appendix A
1. training programs for the positions involved with the various aspects of the facility's operation that could result in a spill (e.g. position responsible for facility inspections or transfers);	Appendix A
2. a training schedule, including adequate frequency, (e.g., initial training upon hire and annual refresher training) and type of training (workshops, classroom, videotape, on-the-job training, etc.) for each position trained, by job classification;	Appendix A

REQUIREMENTS	LOCATION IN THIS PLAN
(C) any licenses, certifications or other prerequisites required to hold particular jobs.	Appendix A
(D) A plan holder whose facility is subject to and in compliance with State Lands Commission training regulations under Public Resources Code Section 8755, shall be considered in compliance with the training provisions of this subsection.	Appendix A
(3) Each plan shall provide for safety training as required by state and federal health and safety laws for all personnel likely to be engaged in oil spill response, including a program for training non-permanent responders such as volunteer or temporary help.	Appendix A
(4) A facility owner/operator shall ensure that training records are maintained for 3 years. All such documentation must be made available to the Administrator upon request.	Appendix A
(k) Drills and Exercises – Types and Frequency	Appendix A
(1) A marine facility owner/operator shall conduct drills and exercises as necessary to ensure that the elements of the plan will function in an emergency. Each plan shall describe the facility's drill and exercise program, including how the program assures shoreline protection strategies (for all environmentally sensitive sites identified as potentially impacted in the facility's Off-site Consequence Analysis) will be exercised, as outlined in Section 820.01(f) of this subdivision. The following are the necessary drill and exercise frequencies for all facilities, as consistent with the National Preparedness for Response Exercise Program (PREP):	Appendix A
(A) a quarterly drill of the notification procedures for marine facility personnel, the Qualified Individual, the OSROs, and the spill management team;	Appendix A
(B) a semiannual exercise to test the deployment of marine facility-owned equipment;	Appendix A
(C) a yearly tabletop exercise of the marine facility's spill management team.	Appendix A
(2) Training sessions may constitute creditable drills and exercises if all requirements in Subsection 820.01 (b) through (f) are met.	Appendix A
(3) A marine facility owner/operator shall ensure that all of the response resources identified in the plan participate in equipment deployment exercises at least once every three years.	Appendix A
(4) Drills shall be designed to exercise either individual components of the plan or the entire response plan. Such drills, individually or in combination, shall ensure that the entire plan is exercised at least once every three years.	Appendix A
(5) The facility owner/operator shall ensure that records sufficient to document a drill or exercise are maintained for 3 years following the completion of the drill. All such documentation must be made available to the Administrator upon request.	Appendix A
Note: Evaluation and credit criteria for drills and exercises are described in Section 820.01 of this subchapter.	Appendix A
Authority: Sections 8670.10, 8670.28, and 8670.31(a), Government Code.	
Reference: 8574.1, 8574.7, 8670.7(a), 8670.10, 8670.28(a), 8670.29, 8670.31(a)-(f), and 8670.37.51, Government Code; Section 8750, Public Resources Code; Title 8, CCR Section 5192; 33 CFR, Part 154, Subpart F, 40 CFR Part 300;	

APPENDIX I DRUG AND ALCOHOL POLICY

RULES AND STANDING INSTRUCTIONS		
Section **1**: **LEADERSHIP/ADMINISTRATION**	Subject **1-8-A**: **Drug and Alcohol Program Implementation Process**	
Original Issue: **10/1997**	Latest Revision: **10/01/2008**	Reviewed by: **Rick Rios**
Next Review Date: **10/01/2011**	Responsible Dept: **Human Resources**	Page: **1 of 3**

GOAL
Employees working in identified Department of Transportation (DOT) or Company mandated Safety-Sensitive positions are subject to unannounced drug/alcohol tests on a random basis. Tesoro Golden Eagle Refinery shall randomly test at least 25 percent of each pool of the total number of DOT and "Safety-Sensitive" positions on an annual basis.

As stated in the Drug/Alcohol Program, which was agreed to between Tesoro and USW Local 5 employees classified as being in a DOT or "Safety-Sensitive" positions are all employees who have the immediate responsibility for:

A. Ensuring the Refinery continues to maintain an environmentally-compliant and responsible operation,

B. Maintaining our position in the community as a good neighbor concerned about the public's personal property and health, or

C. Establishing and maintaining a safe work place for themselves, fellow employees, visitors, customers, and contractor personnel.

An agent of the company (Pharmatox) shall use a computer-based number generator to randomly select employees to be drug/alcohol tested. The random selection of names shall take place once a month. However, drug/alcohol testing may occur at any time.

LOCATION
All specimen collections shall be conducted in the DISA trailer by an agent of Pharmatox.

HUMAN RESOURCES REPRESENTATIVE
Diane Daniels Ext. 3571

PROCEDURES
A. A Pharmatox representative will contact the Shift Superintendent (or in his/her absence a Human Resources Representative) to schedule the random drug/alcohol tests for Operations employees.

B. Collections will take place if:

1. employee is coming on shift, or

2. employee can leave unit temporarily, or

RULES AND STANDING INSTRUCTIONS		
Section **1**: **LEADERSHIP/ADMINISTRATION**	Subject **1-8-A**: **Drug and Alcohol Program Implementation Process**	
Original Issue: **10/1997**	Latest Revision: **10/01/2008**	Reviewed by: **Rick Rios**
Next Review Date: **10/01/2011**	Responsible Dept: **Human Resources**	Page: **2 of 3**

3. employee works at Tract 3, Gauging or Pumpers

C. The Shift Superintendent shall **notify** the **selected employee** that is **on shift** of the required drug/alcohol test and advise employee to report to the collection site. The Shift Superintendent shall give the employee at least 30 minutes, but no more than one-hour notice to report to the collection site.

D. If an employee's relief is to be drug/alcohol tested, ***the employee on the unit will not be notified that their relief will be late until the employee to be tested is at the collection site***. Once the employee to be tested is at the collection site, the employee on the unit may then be requested to hold over. Employees that are coming on shift and scheduled to be tested shall be picked up by their Shift Supervisor at their relative entrance gate and taken directly to the collection site. If the Shift Supervisor is not able to pick up the employee to be tested, Unit Supervisors or any Management personnel may be used to ensure that the relief does not take place at the unit. Once the employee to be tested arrives at the unit, the Shift Supervisor is to be notified to provide transportation directly to the collection site.

E. Specimen collections may take place during any shift with collections for shift relievers taking place during the approximate times:

5:30 am	6:30 am	5:30 pm	6:30 pm

F. All other employees will be subject to collections any time during their shift.

G. If a situation arises where an operator cannot be released to participate in the random drug/alcohol testing, the following shall occur:

1. Shift Superintendent will be responsible for making that decision with input from a Human Resources Representative, and approval of Operations Management.

2. The Shift Superintendent will document why the employee was not sent in for drug/alcohol testing and who participated in that decision making process.

   a. The Shift Superintendent will then forward the documentation to Human Resources and the Operations Manager.

RULES AND STANDING INSTRUCTIONS		
Section **1**: **LEADERSHIP/ADMINISTRATION**	Subject **1-8-A**: **Drug and Alcohol Program Implementation Process**	
Original Issue: **10/1997**	Latest Revision: **10/01/2008**	Reviewed by: **Rick Rios**
Next Review Date: **10/01/2011**	Responsible Dept: **Human Resources**	Page: **3 of 3**

Once the collection has been completed and the Evidential Breath Testing (EBT) result displays between .02 and .039, he/she must be removed from performing all DOT covered functions for the remaining portion of their shift, and may not come back to work for a minimum of eight hours. An appropriate Human Resources Representative shall assist in initiating disciplinary procedures as soon as the EBT confirmation test is complete.

This procedure is intended to provide an overview of Tesoro Golden Eagle Drug and Alcohol Program. When in doubt regarding applicability of this procedure, you should consult with the Human Resources representative listed on page one of this document. Complete program information is available through most Area Superintendents, Shift Superintendents and the Human Resources Department.

Approved By: ______________________________ Date:___________________________

Rick Rios
Manager, Human Resources

THIS PAGE INTENTIONALLY LEFT BLANK.