

# OIL SPILL RESPONSE PLAN

## Western Gulf Coast Pipeline System



*Prepared for:*

**Valero Terminating and Distribution Company  
One Valero Way  
San Antonio , Texas 78249**

*Prepared by:*

**Witt O'Brien's**  
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wittobriens.com

### ACKNOWLEDGMENT AND PLAN APPROVAL

The information and procedures in this Plan must be treated as guidelines only. The user should determine to what extent it is practical and advisable to follow them. This decision may involve considerations not discussed in this Plan.

The information and procedures contained herein are considered to be accurate as of this date and are consistent with the National Contingency Plan (NCP) and applicable Area Contingency Plans (ACP) as detailed in Section 1.5.

### CERTIFICATION OF QUALIFIED INDIVIDUAL AND ALTERNATE QUALIFIED INDIVIDUAL

Valero Terminating and Distribution Company hereby certifies that the individuals identified as Qualified Individual and Alternate Qualified Individual in this Plan have the full authority in accordance with the applicable United States Federal and State regulations and as detailed in this Plan to:

1. Activate and engage in contracting with oil spill removal organizations.
2. Act as a liaison with the pre-designated Federal On-Scene Coordinator (OSC), and
3. Obligate funds required to carry out response activities.

Plan Approved:



Pipeline Operator

Signature

Title

Paulino E. Valdez, Jr.

06/17/2013

Name (please type or print)

Date

NOTE: O'Brien's Response Management (O'Brien'sRM) Inc. provided consulting and plan development services in the preparation of this Plan utilizing data provided by the owner/operator. O'Brien'sRM assumes no liability for injury, loss, or damage of any kind resulting directly or indirectly from the use of the regulatory interpretation, response planning, or information contained in this plan.

### OPERATOR'S STATEMENT - SIGNIFICANT AND SUBSTANTIAL HARM AND CERTIFICATION OF RESPONSE RESOURCES

FACILITY NAME: Western Gulf Coast Pipeline System  
 CORPORATE ADDRESS: One Valero Way  
San Antonio, Texas 78249

1. Is the pipeline greater than 6 and 5/8 inches (168 mm) in outside nominal diameter, greater than 10 miles (16.1 km) in length? and Yes<sup>✓</sup> No
2. Has any line section experienced a release greater than 1,000 barrels (159 cubic meters) within the previous five years? or Yes No<sup>✓</sup>
3. Has any line section experienced two or more reportable releases, as defined in 49 CFR 195.50, within the previous five years? or Yes No<sup>✓</sup>
4. Does any line section contain any electric resistance welded pipe, manufactured prior to 1970 and operates at a maximum operating pressure established under 49 CFR 195.406 that corresponds to a stress level greater than 50 percent of the specified minimum yield strength of the pipe? or Yes No<sup>✓</sup>
5. Is any line located within a 5-mile (8 km) radius of potentially affected public drinking water intakes and could reasonably be expected to reach public drinking water intakes? or Yes No<sup>✓</sup>
6. Is any line located within a 1-mile (1.6 km) radius of potentially affected environmentally sensitive areas and could reasonably be expected to reach these areas? Yes<sup>✓</sup> No

Valero Terminating and Distribution Company hereby certifies to the Pipeline and Hazardous Materials Safety Administration of the U.S. Department of Transportation that we have identified and ensured, by contract or by other means, the availability of personnel and equipment to respond, to the maximum extent practicable, to a worst case discharge.



Sr. Area Manager

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

Robert E. Hill

06/17/2013

\_\_\_\_\_  
Name (please type or print)

\_\_\_\_\_  
Date

**NOTE:** It is the responsibility of the holder of this Plan to ensure that all changes and updates are made. The Plan Holder must:

- Remove and discard obsolete pages.
- Replace obsolete pages with the updated pages.

<b>REVISION RECORD</b>		
<b>CHANGE DATE</b>	<b>AFFECTED PAGE NUMBER(S)</b>	<b>DESCRIPTION OF CHANGE(S)</b>
June, 2013	Entire Plan	Separated Eastern and Western Assets to form two Plans.

<b>DISTRIBUTION LIST</b>	
<b>COPY NUMBER</b>	<b>PLAN HOLDER<sup>1</sup></b>
1	Valero Terminating and Distribution Company Maintenance Technician III (RC) 104 Tullous St. Three Rivers, Texas 78071
2	Valero Terminating and Distribution company Senior Manager Area Terminal 6746 Up River Road Corpus Christi, Texas 78409
(2 CDs Only)	U.S. Department of Transportation Melanie Barber 1200 New Jersey Avenue SE-E-22-311 Washington, District Of Columbia 20590
3	O'Brien's Response Management Inc. Compliance Services 818 Town & Country Blvd., Suite 200 Houston, Texas 77024
<p><b>NOTE<sup>1</sup>:</b> The Distribution of this Plan is controlled by the Copy Number located on the front cover or CD label. The Plan Distribution Procedures provided in Section 1.3 and the Plan Review and Update Procedures provided in Section 1.4 should be followed when making any and all changes.</p>	

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## 1.0 INTRODUCTION AND PLAN CONTENT

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- 1.1 Plan Purpose/Objectives
- 1.2 Scope of Plan
- 1.3 Controlled Plan Distribution Procedures
- 1.4 Plan Review and Update Procedures
- 1.5 Regulatory Compliance

**Figure 1.1** Facility Information

**Figure 1.2** Piping System Overview

## 1.1 PLAN PURPOSE/OBJECTIVES

The purpose of this Oil Spill Response Plan (Plan) is to assist Valero Terminating and Distribution Company personnel in preparing for and responding quickly and safely to emergencies originating from the pipelines and associated facilities. The Plan provides techniques and guidelines for achieving an efficient, coordinated, and effective response to emergencies which may occur along the pipeline.

The specific objectives of the Plan are to:

- Establish Response Teams, assign individuals to fill the positions on the teams, and define the roles and responsibilities of team members.
- Define notification, activation, and mobilization procedures to be followed when a discharge occurs.
- Define organizational lines of responsibility to be adhered to during a response operation.
- Ensure compliance with federal, state, and local oil pollution regulations.
- Document equipment, manpower, and other resources available to assist with the response.
- Ensure compliance with the U.S. National Oil and Hazardous Substances Contingency Plan and associated Area Contingency Plan(s) for the area of operation.

## 1.2 SCOPE OF PLAN

This Plan has been developed in accordance with the regulation published in 49 CFR Part 194 - Response Plans for Onshore Oil Pipelines.

This Plan contains prioritized procedures for Company personnel to prevent or mitigate emergencies resulting from the operation of the pipeline. A description of the Pipeline's details is presented in Figure 1.1 with additional information provided in the sections, appendices and annexes.

### 1.3 CONTROLLED PLAN DISTRIBUTION PROCEDURES

The on site Managers at each Facility is responsible for maintenance and distribution of the Plan. Distribution will be handled in the following manner:

- Distribution of controlled Plans is determined by the copy number assigned to agency and designated corporate Plan Holders. A distribution list is included in the Foreword.
- Company personnel who may be called upon to provide assistance during discharge response activities will have access to a copy of the Plan for their use and training.
- Any person holding a controlled copy of the Plan shall ensure that the copy is transferred to their replacement in the event of reassignment or change in responsibility.
- Various regulatory agencies will also be distributed a controlled copy of the Plan. The list of agencies is detailed in the Distribution List located in the Foreword.

### 1.4 PLAN REVIEW AND UPDATE PROCEDURES

#### ***Review/Update***

The Plan resides as a web-based document, which permits authorized Corporate and field staff access to make:

- Appropriate revisions as required by operational or organizational changes.
- Appropriate revisions as required by changes in the names and phone numbers detailed in Section 2.0.
- Appropriate revisions as required by improved procedures or deficiencies identified during response team tabletop exercises or actual emergency responses.

#### ***Incorporation of Plan Revisions***

Email notification allows Authorized Plan Holders to update hard copy Plans as changes occur.

The Individual Plan Holder shall:

- Review and insert the revised pages into the Plan.
- Discard or archive the obsolete pages.

### ***Agency Revision Requirements***

Company shall revise and resubmit changes to the U.S. DOT/PHMSA Pipeline Response Plans Officer within 30 days of each change that would substantially affect the implementation of the Response Plan. Examples of changes in operating conditions that would cause a significant change to the Plan include:

#### ***Conditions Requiring Changes***

- An extension of the existing pipeline or construction of a new pipeline in a response zone not covered by the previously approved Plan.
- Relocation or replacement of portions of the pipeline, which in any way substantially affect the information included in this Plan, such as a change in the Worst Case Discharge volume.
- A change in the type of oil handled, stored, or transferred that materially alters the required response resources.
- A change in the name of the Oil Spill Removal Organization (OSRO).
- A material change in capabilities of the OSRO that provides equipment and personnel.
- A change in emergency response procedures.
- A change in the Qualified Individual.
- A change in the NCP or an ACP that has significant impact on the equipment appropriate for response activities.
- Any other changes that materially affect the implementation of the Plan.
- As a result of post incident or drill evaluations.

## 1.5 REGULATORY COMPLIANCE

DOT/PHMSA must be provided with two copies of revisions. The Company must submit the DOT/PHMSA issued Facility Control Number with the changes (the PHMSA Control Number is listed in Figure 1.1). In addition to periodic updates, when applicable, the Facility will resubmit the Emergency Response Plan to DOT/PHMSA every five years from the last approval date of the Plan.

Except as provided above, amendments to the following do not require approval by DOT/PHMSA:

- Personnel and telephone number lists included in the Plan.
- OSRO(s) change which does not result in a material change in support capabilities.

The development, maintenance, and use of this Plan implements Company policy and addresses the following regulatory requirements and guidelines:

- Federal Oil Pollution Act of 1990: U.S. DOT Final Rule for Transportation Related On-shore Facilities (49 CFR Part 194).

The response zones have been reviewed for consistency with the following plans:

- U.S. National Oil and Hazardous Substances Contingency Plan (NCP)
- U.S. Environmental Protection Agency - Region VI, Regional Integrated Contingency Plan
- U.S. Coast Guard - One Gulf Plan and Geographic Response Plan - Sector Corpus Christi

## FIGURE 1.1

### FACILITY INFORMATION

GENERAL INFORMATION					
<b>Facility Name:</b>	Western Gulf Coast Pipeline System				
<b>U.S. DOT/PHMSA Control:</b>	Unknown				
<b>Operator Name:</b>	Valero Terminating and Distribution Company (VTDC)				
<b>Address:</b>	<table style="width: 100%; border: none;"> <thead> <tr> <th style="text-align: left;"><i>Physical Address</i></th> <th style="text-align: left;"><i>Operators Address</i></th> </tr> </thead> <tbody> <tr> <td>104 Tullous St. Three Rivers, Texas 78071</td> <td>One Valero Way San Antonio, Texas 78249</td> </tr> </tbody> </table>	<i>Physical Address</i>	<i>Operators Address</i>	104 Tullous St. Three Rivers, Texas 78071	One Valero Way San Antonio, Texas 78249
<i>Physical Address</i>	<i>Operators Address</i>				
104 Tullous St. Three Rivers, Texas 78071	One Valero Way San Antonio, Texas 78249				
<b>Mainline Number:</b>	(866) 382-5376 (24 Hours)				
<b>Contact Person:</b>	Paul Valdez, Pipeline Operator I				
<b>Primary NAICS Code:</b>	486910 and 486110				
<b>Determination of Significant and Substantial Harm (U.S. DOT PHMSA):</b>	The Response Zone meets the criteria for "Significant and Substantial Harm."				
<b>Operator Statement of (U.S.DOT PHMSA) "Significant and Substantial Harm":</b>	It is Valero Terminating and Distribution Company 's goal to respond as quickly as possible to all uncontrolled releases of petroleum products, regardless of the source point location along the system. Based upon this goal, and the overbreadth of the definitions provided in 49 CFR 194.103(c)(4) & (5), the Company is compelled to consider all the active line sections listed below in the Response Zone Annexes as capable of a release potentially causing "significant and substantial harm".				
PIPELINE LOCATION					
<b>States/Counties:</b>	The System covers 2 specific response zone(s) covering 1 state(s) and 2 county(ies) specifically detailed in the response zone annex.				
<b>States Traversed:</b>	Texas				
<b>Pipeline System Overview Diagram:</b>	<u>See Figure 1.2</u>				

**PHYSICAL DESCRIPTION - PIPELINE****Response Zone(s):**

The Live Oak County Response Zone consists of a pipeline connecting the Three Rivers Refinery with a truck off-loading facility.

- Live Oak County Zone
- Nueces County Zone

**General:**

- The Western Gulf Coast Pipeline System includes pipeline sections described below as well as supporting equipment and facilities.
- This Plan is written in English and understood by personnel responsible for carrying out the Plan.

**Pipeline Specifications:**

- **Products Type:**

Crude Oil  
Natural Gas

- **Pipe Detail:**The pipeline system consists of the following pipeline sections with the indicated diameters.
  - VTDC Three Rivers Truck Haul Crude 12"

Corpus Christi:

- VTDC Corpus Christi Truck Haul Crude 10"
- VTDC Plains tank farm to Corpus Chrisit Crude Truck Haul - 12"

## RESPONSE ZONE INFORMATION

### **Response Resources:**

Facility spill mitigation procedures and response guidelines are provided in Section 3.0 for discharges that could result from any of the following scenarios:

- Pipeline rupture/leak
- Explosion and/or fire
- Failure of facility piping
- Equipment failure (e.g. pumping system failure, relief valve failure, etc.)

These scenarios could result in the following discharge volumes (additional details in Appendix B):

### **Worst Case Discharge (WCD):**

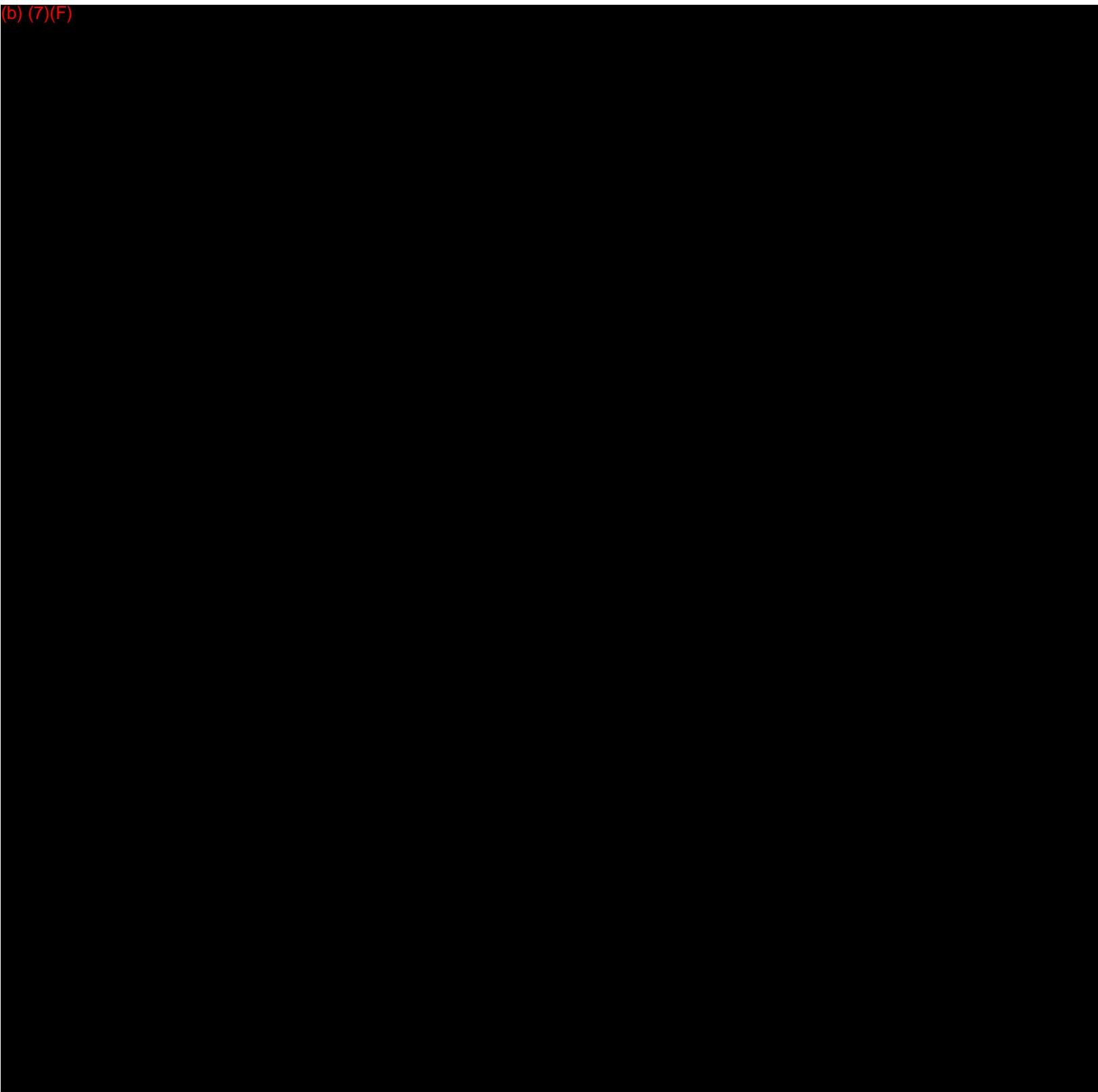
Response Zone	Discharge Scenario	Potential Oil Group	Planning Volume
Live Oak County Zone	WCD	3	(b) (7)(F)
Nueces County Zone	WCD	3	(b) (7)(F)

**FIGURE 1.2  
PIPING SYSTEM OVERVIEW**

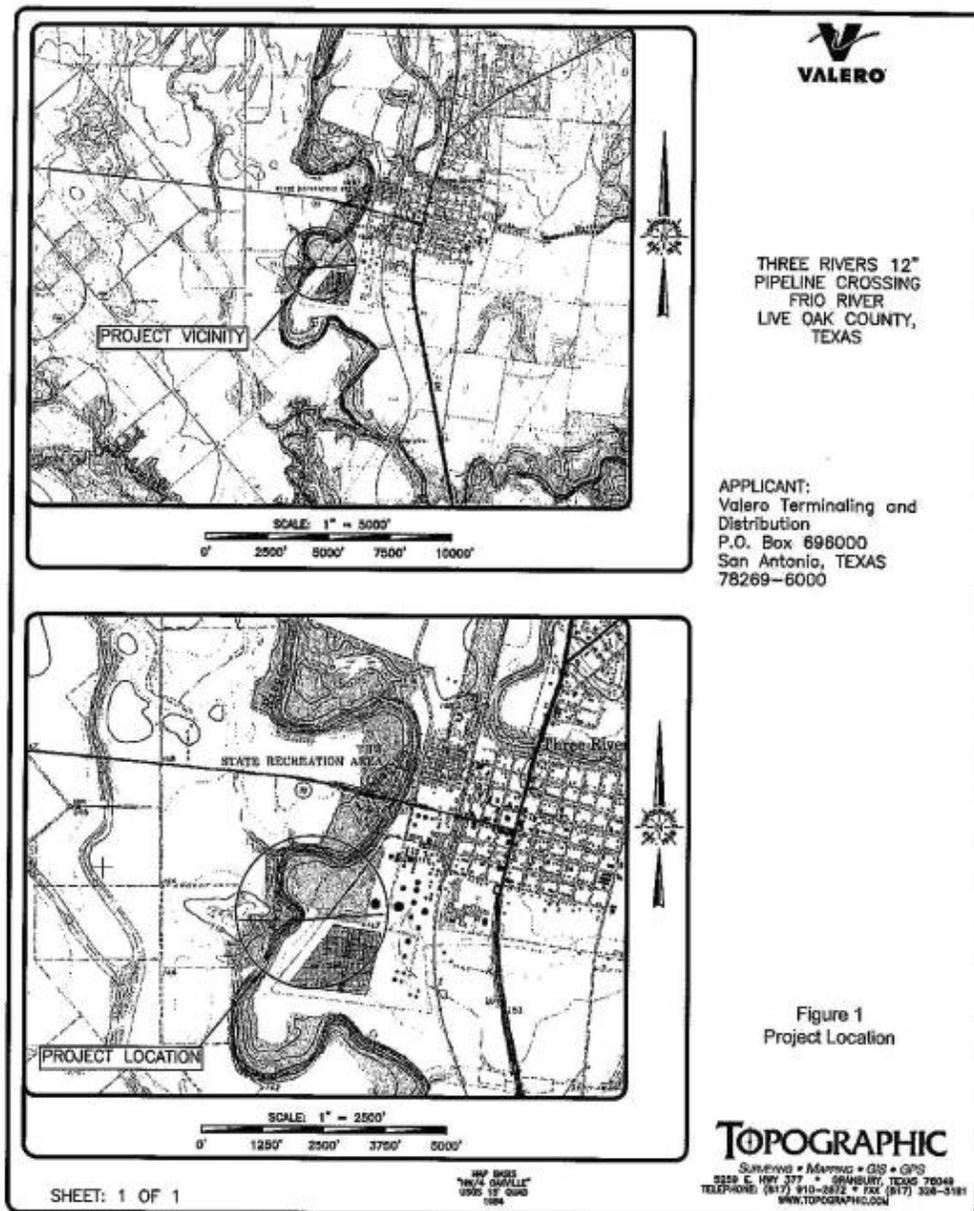




(b) (7)(F)









THREE RIVERS 12"  
PIPELINE CROSSING  
FRIO RIVER  
LIVE OAK COUNTY,  
TEXAS

APPLICANT:  
Valero Terminating and  
Distribution  
P.O. Box 696000  
San Antonio, TEXAS  
78269-6000

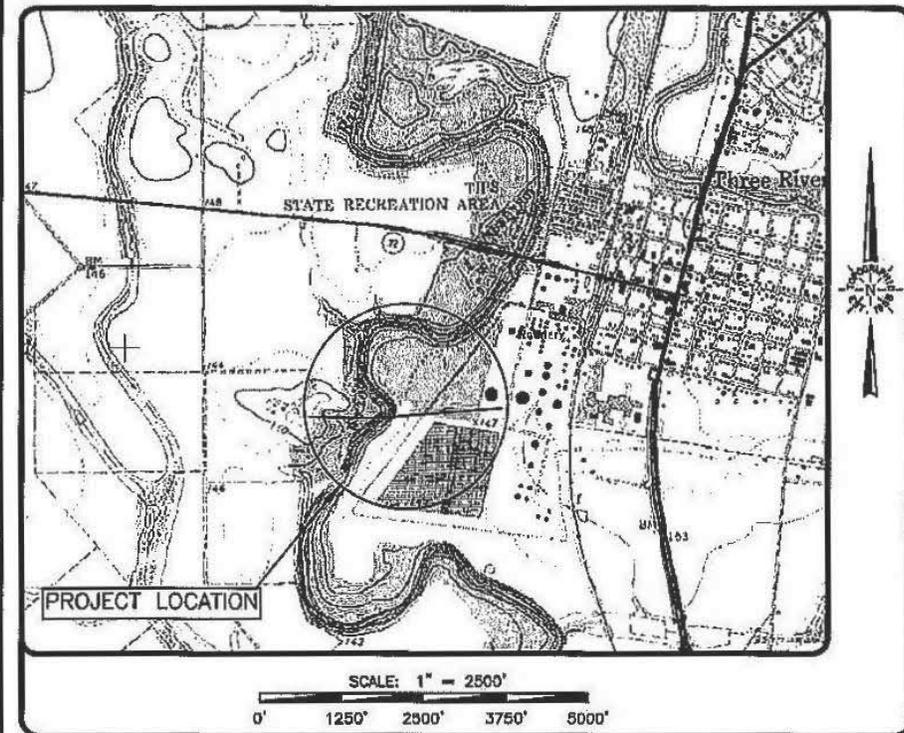
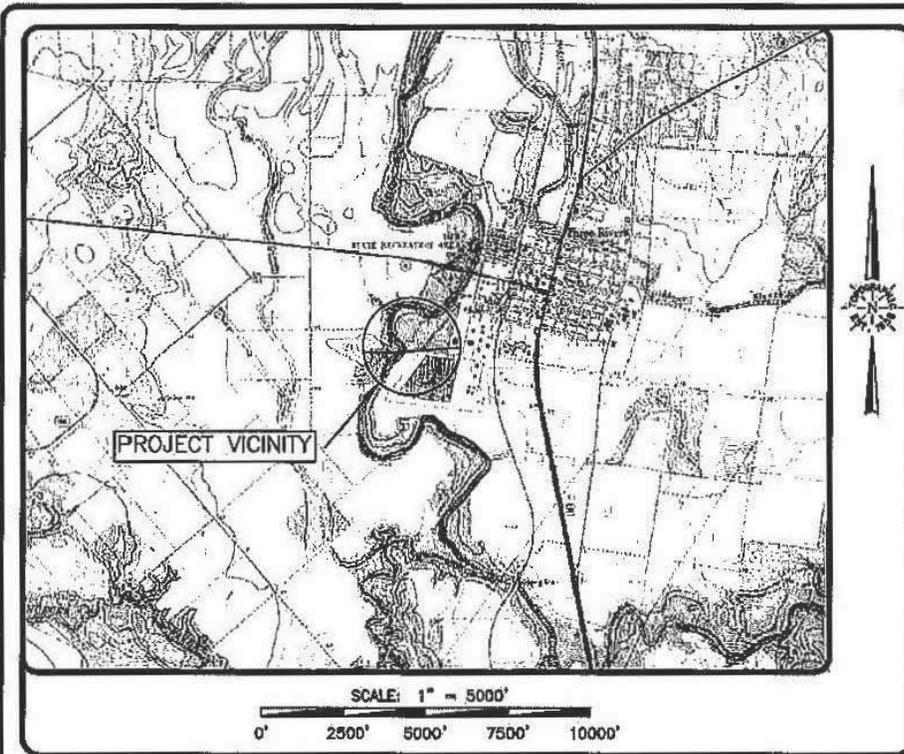
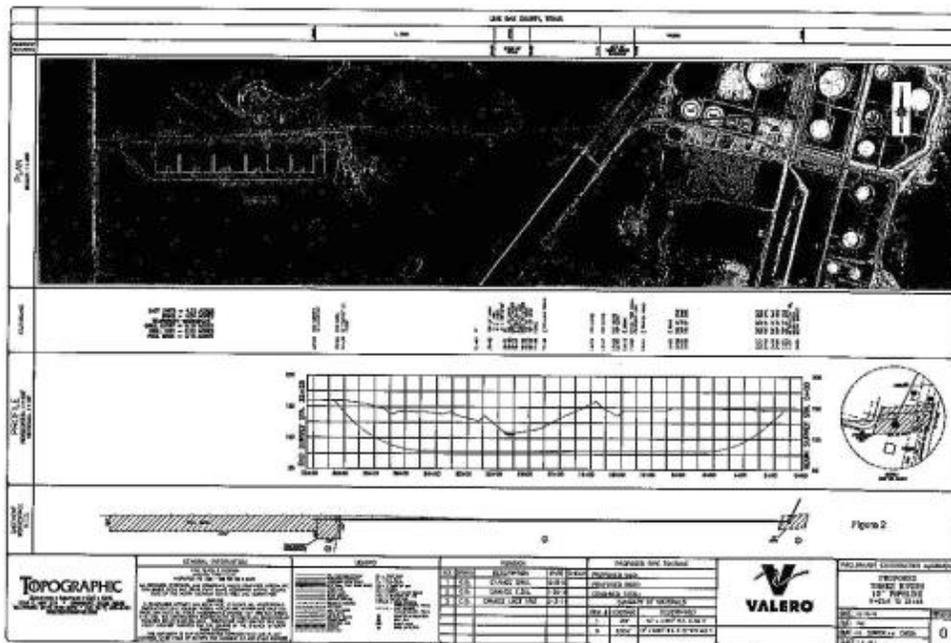
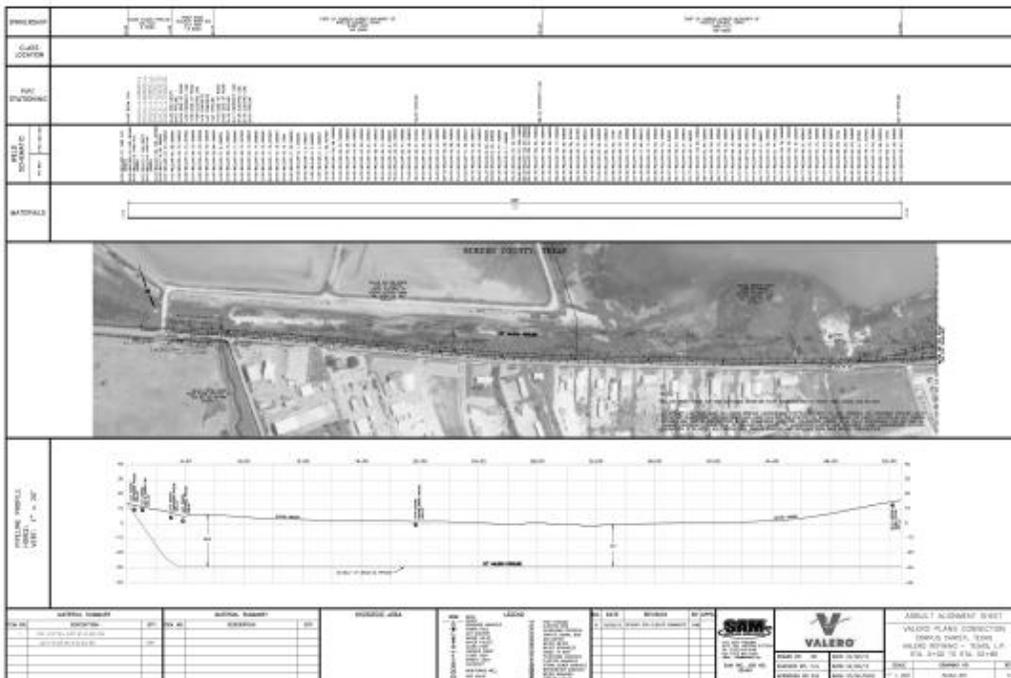


Figure 1  
Project Location













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## 2.0 NOTIFICATION PROCEDURES

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### 2.1 Internal Notifications

### 2.2 External Notifications

**Figure 2.1** Internal Notification Sequence

**Figure 2.2** Internal Notification References

**Figure 2.3** Notification Data Sheet

**Figure 2.4** External Notification Flowchart

**Figure 2.5** External Notification References

## 2.1 INTERNAL NOTIFICATION

The following internal notifications should be made for each emergency incident to the extent that the incident demands (telephone reference is provided in Figure 2.2). In no event shall notification be delayed because the immediate supervisor is inaccessible. Authorization is given to bypass management levels if necessary to provide timely notification to appropriate management. The typical internal notification responsibilities for each person potentially involved in the initial response are as follows:

All emergency incidents will require some notification. The emergency category of the incident will affect the notifications and the initial response to the incident. It is important to properly classify the emergency category to ensure proper notifications and response.

**For Category 1 or 2** incidents or media inquiry, sites will make appropriate notifications through normal business chains based on the nature and extent of the emergency.

- First responder notifies supervisor.
- If the supervisor is not the Terminal/Station Manager then the supervisor will notify the Terminal/Station Manager.
- Terminal/Station Manager will notify the Area Manager and the HSE Representative.
- If Media is involved, Notify Corporate Communications.
- The VTDC Corporate Response Team\* will be notified of the incident by email via IMPACT Incident Report.

The following steps will be taken for all **Category 3 or 4 incidents**:

- Following initial notification of the site's emergency response team, Area Manager, or other key individual(s), the incident will be reported to the Corporate Response Team and the HSE Representative utilizing Notify Valero.

\*VTDC Corporate Response Team consists of a representative from each of the following groups:

- Operations
- HSE
- Regulatory Compliance

**FIGURE 2.1**  
**INTERNAL NOTIFICATION SEQUENCE**

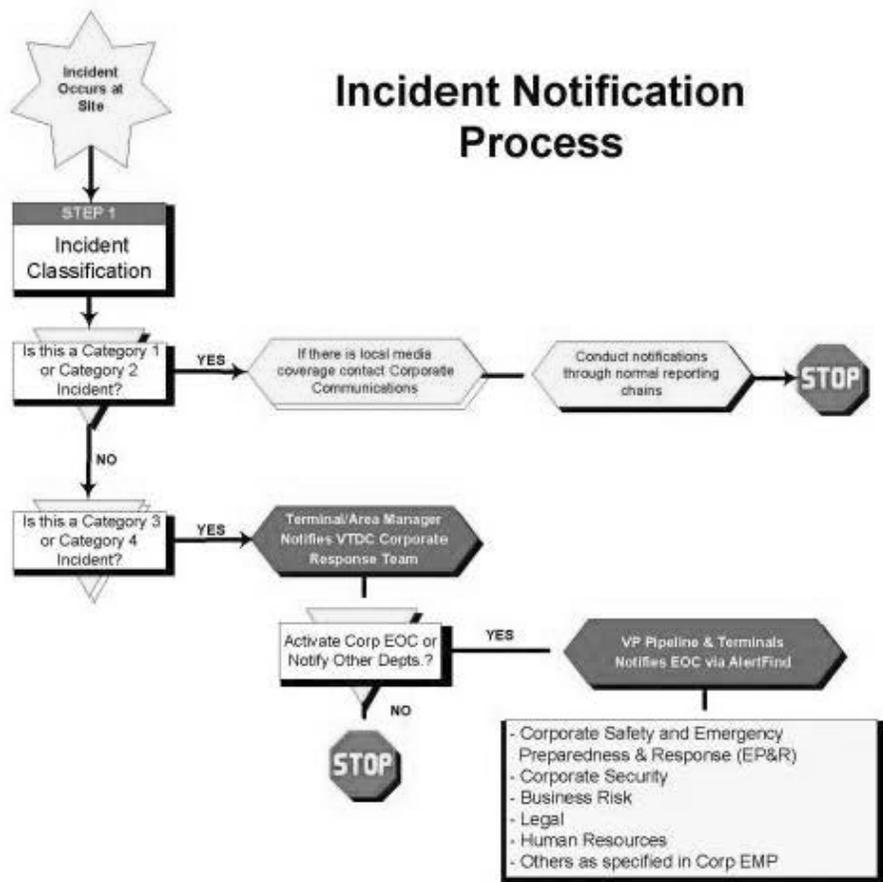


FIGURE 2.2

## INTERNAL NOTIFICATION REFERENCES

INTERNAL NOTIFICATIONS					
POSTION/TITLE	NAME	LOCATION	OFFICE	HOME	OTHER
Sr. Area Manager Pipeline & Terminals	Bobby Hill	Valero Headquarters	(361) 289-3226	(b) (6)	(361) 215-8987
Pipeline Operator I	Paul Valdez	Valero Headquarters	(361) 786-8037	(b) (6)	(361) 726-7550
INTERNAL NOTIFICATIONS - COPORATE EMERGENCY MANAGEMENT TEAM STAFF					
POSTION/TITLE	NAME	LOCATION	OFFICE	HOME	OTHER
HS&E Specialist	Jeff Ritcheson	San Antonio Office	(210) 345-2983	(b) (6)	210) 452-8707
Manager HSE Pipelines and Terminals	John Tenison	Valero Headquarters	(210) 345-4665	(b) (6)	210) 287-4665
Director HSE Pipelines & Terminals	Leroy Anderson	Valero Headquarters	(210) 345-4468	(b) (6)	210) 260-5769
Lead Regulatory Compliance Specialist	Shawwna Poor	Valero Headquarters	(210) 345-5245	(b) (6)	210) 215-4747
Lead Regulatory Compliance Specialist	James Trevino	Valero Headquarters	(210) 345-5145	(b) (6)	210) 219-1401
Manager Regulatory Compliance	Jim Stokes	Valero Headquarters	(210) 345-4693	(b) (6)	210) 872-8425
Sr. Area Manager Pipeline & Terminals	Bobby Hill	Valero Headquarters	(361) 289-3226	(b) (6)	361) 215-8987
Executive Director Pipelines & Terminals	Ron McInturff	Valero Headquarters	(210) 345-4324	(b) (6)	210) 867-9516
Executive Director Media Relations	Bill Day	Valero Headquarters	(210) 345-2928	(b) (6)	210) 621-7191
Manager Pipeline Control Center	Rick Hatton	Valero Headquarters	(210) 345-5250	(b) (6)	409) 988-1752 866) 382-5376 onsole #1

Live Oak County Zone				
POSTION/TITLE	NAME	OFFICE	HOME	OTHER
Sr. Area Manager Pipeline & Terminals	Bobby Hill	(361) 289-3226	(b) (6)	(361) 215-8987 CELL
Pipeline Operator I	Paul Valdez	(361) 786-8037		(361) 726-7550 CELL
HS&E Specialist	Jeff Ritcheson	(210) 345-2983		(210) 452-8707 CELL

Nueces County Zone				
POSTION/TITLE	NAME	OFFICE		OTHER
Sr. Area Manager Pipeline & Terminals	Bobby Hill	(361) 289-3226	(b) (6)	(361) 215-8987 CELL
Pipeline Operator I	Paul Valdez	(361) 786-8037		(361) 726-7550 CELL
HS&E Specialist	Jeff Ritcheson	(210) 345-2983		(210) 452-8707 CELL

## 2.2 EXTERNAL NOTIFICATIONS

External notifications are those made to entities outside of the Company including Federal, State and local regulatory agencies, as well as railroad and utility companies. These notifications include both verbal and written requirements.

### On Site Manager/HSE Specialist/QI

- National Response Center (NRC);
- Appropriate state agency;
- Local agencies;
- All releases reported to any agency due to special agreement; and
- USCG (as necessary).

The Notification Data Sheet (see Figure 2.3) should be used to begin the external notification process, keeping in mind that there are some strict time limits for making certain calls.

### The following are guidelines to be considered when initiating external notifications:

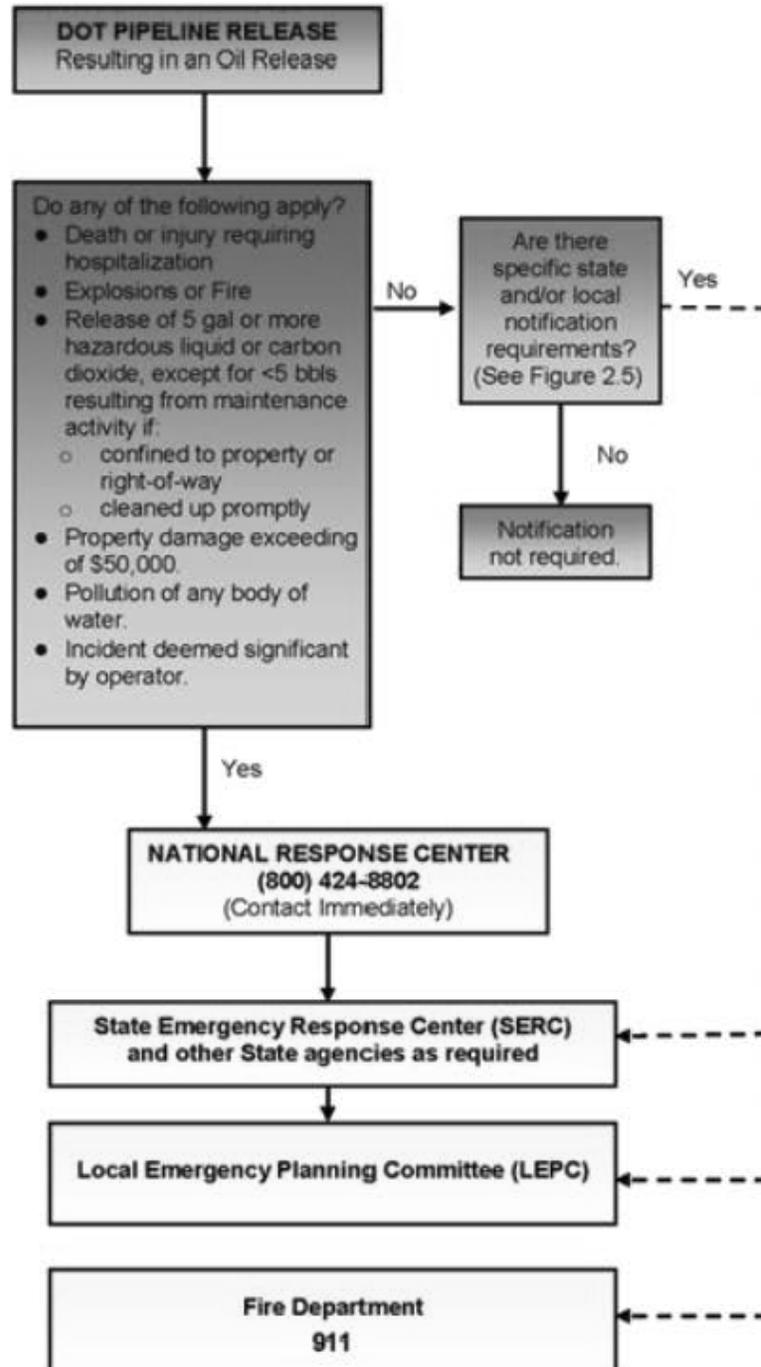
- Receive faxed copy of Notification Data Sheet from Company employee or, at a minimum, gather pertinent incident information from the third party reporting the release.
- Do not report information that has not been verified or confirmed, usually by field personnel.
- Do not speculate as to the cause on an incident or make any statements about liability.
- Do not delay notifications because of incomplete information.
- When making notifications, document:
  - Agency notified, including telephone number
  - Date and time of notification
  - Person notified
  - Content of message
  - Incident number, if applicable

NOTE: Refer to Figure 2.5 for any additional State written reporting requirements.

FIGURE 2.3

NOTIFICATION DATA SHEET				
Date of Incident: _____		Time of Incident: _____		
INCIDENT DESCRIPTION				
Reporter's Full Name: _____		Position: _____		
Day Phone Number: _____		Evening Phone Number: _____		
Company: Valero Terminating and Distribution Company (VTDC)		Organization Type: _____		
Facility Address: 104 Tullous St. Three Rivers , Texas 78071		Owner's Address: One Valero Way San Antonio , Texas 78249		
Facility Latitude: _____		Facility Longitude: _____		
Incident Address/Location: _____				
(if not at Facility): _____				
On-Scene Weather Conditions: _____				
Responsible Party's Name: _____		Phone Number: _____		
Responsible Party's Address: _____				
Source and/or cause of discharge (Description): _____				
Nearest City: _____				
County/Parish: _____		State: _____	Zip Code: _____	
Section: _____	Township: _____	Range: _____	Borough: _____	
Distance from City: _____		Unit of Measure: _____	Direction from City: _____	
Container Type: _____		Container Storage Capacity: _____	Unit of Measure: _____	
Facility Oil Storage Capacity: _____		Unit of Measure: _____		
Were Materials Discharged? ( Y / N ) Confidential? ( Y / N )				
CHRIS Code	Total Quantity Released	Water Impact (YES or NO)	Quantity into Water	Unit of Measure
RESPONSE ACTION(S)				
Action(s) taken to Correct, Control, or Mitigate Incident: _____				
Number of Injuries: _____		Number of Deaths: _____	Evacuation(s): ( Y / N )	Number Evacuated: _____
Was there any damage? ( Y / N ) Medium Affected: _____				
Description: _____				
More information about impacted medium: _____				
CALLER NOTIFICATIONS				
National Response Center (NRC):		1-800-424-8802		
Additional Notifications (Circle all applicable): USCG EPA State OSHA Other				
Describe: _____				
NRC Incident Assigned No.: _____				
ADDITIONAL INFORMATION				
Any information about the incident not recorded elsewhere in this report: _____				
Meeting Federal Obligations to Report ( Y / N )		Date Called _____		
Calling for Responsible Party? ( Y / N )		Time Called _____		
NOTE: DO NOT DELAY NOTIFICATION PENDING COLLECTION OF ALL INFORMATION.				

**FIGURE 2.4**  
**EXTERNAL NOTIFICATION FLOWCHART**



**FIGURE 2.5**  
**EXTERNAL NOTIFICATION REFERENCES**

<b>Required Notifications</b>	
<b>National Response Center (NRC)</b>	
c/o United States Coast Guard (CG-5335) - Stop 7581, 2100 2nd Street, SW Washington, District Of Columbia 20593-0001	(800) 424-8802 (202) 267-2675
<b>REPORTING REQUIREMENTS</b>	
TYPE: Any discharge or sighting of oil on navigable waters.	
VERBAL: Immediate notification required (within 2 hours).	
WRITTEN: If an RQ limit is reached, refer to state requirements for written report requirements.	
NOTE: A call to the NRC must also be made for spills or releases of hazardous substances that meet or exceed their RQ.	
<i>* Additional reporting information may be contained in the Document Library under Other Documents.</i>	
<b>Department of Transportation for DOT Jurisdiction Office of Pipeline Safety and Hazardous Material</b>	
1200 New Jersey Avenue SE-E-22-311 Washington, District Of Columbia 20590	(800) 424-8802 (202) 267-2675 NRC Direct (202) 366-4433 PHMSA Switchboard
<b>REPORTING REQUIREMENTS</b>	
TYPE: In addition to the reporting of accidents to the NRC, a written accident report may be required for incidents .	
VERBAL: Call to the NRC meets the required verbal notification under DOT reporting requirement.	
WRITTEN: As soon as practicable, an accident meeting any of the requisite criteria must be reported on PHMSA Form 7000-1.	
NOTE: N/A	
<i>* Additional reporting information may be contained in the Document Library under Other Documents.</i>	
<b>U.S. Environmental Protection Agency, Region 6</b>	
1445 Ross Avenue, Suite 1200 Dallas, Texas 75202	(214) 665-6595 (866) 372-7745
<b>REPORTING REQUIREMENTS</b>	
TYPE: Immediately for all spills that impact or threaten navigable water or adjoining shoreline.	
VERBAL: Notification to the EPA is typically accomplished by the call to the NRC.	
WRITTEN: As the agency may request depending on circumstances.	
NOTE: N/A	
<i>* Additional reporting information may be contained in the Document Library under Other Documents.</i>	

<b>Occupational Safety &amp; Health Administration (OSHA)</b>	
200 Constitution Avenue Washington, District Of Columbia 20210	(800) 321-6742
<b>REPORTING REQUIREMENTS</b>	
TYPE: Fatality from a work related incident or the inpatient hospitalization of three (3) or more employees as a result of a work related incident.	
VERBAL: Immediately.	
WRITTEN: As requested by the Agency.	
NOTE: N/A	
<i>* Additional reporting information may be contained in the Document Library under Other Documents.</i>	

<b>Texas General Land Office (TGLO)</b>	
6300 Ocean Drive, Unit 5847 Corpus Christi, Texas 78412-5847	(800) 832-8224 (361) 825-3300
<b>REPORTING REQUIREMENTS</b>	
TYPE: All spills of oil or petroleum products into water that causes a sheen and/or discharges onto land that meet or exceed 5 barrels for crude oil or 25 gallons for refined products.	
VERBAL: Immediately. Within 30 days of discovery of a reportable discharge or spill submit TCEQ report to	
WRITTEN: TCEQ Regional Manager (30 TAC Section 327.5(c)) 60 days after the state on-scene coordinator (TXGLOSOSC) directs.	
NOTE: N/A	
<i>* Additional reporting information may be contained in the Document Library under Other Documents.</i>	

<b>Texas Railroad Commission / Oil and Gas Division</b>	
1701 N. Congress / P.O. Box 12967 Austin, Texas 78711-2967	(512) 463-6788
<b>REPORTING REQUIREMENTS</b>	
TYPE: (16 TAC Section 3.20 (a)-(b)) In the case of a fire, spill or break causing a loss of over 5 barrels. For Pipeline incidents reportable to the NRC, notify the TRRC Pipeline Safety Section's District.	
VERBAL: Immediate notification to the District Office.	
WRITTEN: Fire Form H-8 in duplicate when appropriate measures have been taken, within 30 days following the date of the incident.	
NOTE: N/A	
<i>* Additional reporting information may be contained in the Document Library under Other Documents.</i>	

<b>TX Railroad Commission - San Antonio Dist. 1 &amp; 2</b>	
115 E. Travis St. San Antonio, Texas 78205	(210) 227-1313
<b>REPORTING REQUIREMENTS</b>	
(16 TAC Section 3.20 (a)-(b)) In the case of a fire, spill or break causing loss of over (5) barrels. For Pipeline incidents reportable to the NRC, notify the TRRC Pipeline Safety Section's District.	
VERBAL: Immediate notification to District Office.	
WRITTEN: File Form H-8 in duplicate when appropriate measures have been taken, within 30 days following the date of the incident.	
NOTE: N/A	
<i>* Additional reporting information may be contained in the Document Library under Other Documents.</i>	

<b>US Coast Guard Sector Corpus Christi</b>	
Texas	(800) 440-0858
<b>REPORTING REQUIREMENTS</b>	
TYPE: Immediately for all spills that impact or threaten navigable water or adjoining shoreline.	
VERBAL: Notification to the USCG is typically accomplished by the call to the NRC.	
WRITTEN: As the agency may request depending on circumstances.	
NOTE:	
<i>* Additional reporting information may be contained in the Document Library under Other Documents.</i>	

<b>U.S. Fish and Wildlife Service</b>	
1849 C Street NW Washington, District Of Columbia 20240-0002	(800) 344-9453
<b>REPORTING REQUIREMENTS</b>	
TYPE: Wildlife Protection / Rehabilitation	
VERBAL: Immediately.	
WRITTEN: As the agency may request depending on circumstances.	
NOTE: N/A	
<i>* Additional reporting information may be contained in the Document Library under Other Documents.</i>	

Live Oak County Zone	
<b>Live Oak County (LEPC)</b>	
Mr. James Jungman PO Box 4587 George West, Texas 78022	(361) 449-1693
<b>REPORTING REQUIREMENTS</b>	
TYPE: Any release of a hazardous or extremely hazardous substance in an amount equal to or greater than the reportable quantity.	
VERBAL: Immediately	
WRITTEN: If requested	
NOTE: <i>* Additional reporting information may be contained in the Document Library under Other Documents.</i>	

Nueces County Zone	
<b>Nueces County LEPC</b>	
2406 Leopard Corpus Christi, Texas 78408	(361) 826-3960
<b>REPORTING REQUIREMENTS</b>	
TYPE: Any release of a hazardous or extremely hazardous substance in an amount equal to or greater than the reportable quantity.	
VERBAL: Immediately.	
WRITTEN: If requested.	
NOTE: N/A	
<i>* Additional reporting information may be contained in the Document Library under Other Documents.</i>	

<b>USCG CLASSIFIED OIL SPILL REMOVAL ORGANIZATIONS (OSRO)</b>		
<b>COMPANY</b>	<b>LOCATION</b>	<b>TELEPHONE</b>
National Response Corporation (NRC)	Seattle, Washington	(800) 899-4672

<b>ADDITIONAL RESPONSE RESOURCES</b>		
<b>COMPANY</b>	<b>LOCATION</b>	<b>TELEPHONE</b>
Veolia Environmental Services	Corpus Christi, Texas	(800) 599-4094

<b>MEDIA NOTIFICATIONS</b>		
<b>AGENCY</b>	<b>LOCATION</b>	<b>TELEPHONE</b>
Channel 4-KSAT	San Antonio, Texas	(210) 351-1200
Channel 5-KENS	San Antonio, Texas	(210) 366-5000

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## 3.0 RESPONSE ACTIONS

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- 3.1 Initial Response Actions
- 3.2 Documentation of Initial Response Actions
- 3.3 Oil Containment, Recovery and Disposal/Waste Management
- 3.4 Storage/Disposal
- 3.5 Sampling and Waste Analysis Procedures
- 3.6 Safety Awareness
- 3.7 Emergency Medical Treatment and First Aid

**Figure 3.1**      Specific Incident Response Checklist  
Initial Response  
Line Break Or Leak  
Fire  
Bomb Threat

**Figure 3.2**      Product Specific Response Considerations

### 3.1 INITIAL RESPONSE ACTIONS

Initial response actions are those taken by local personnel immediately upon becoming aware of a discharge or emergency incident, before the Local Response Team (described in Section 4.0) is formed and functioning. Timely implementation of these initial steps is of the utmost importance because they can greatly affect the overall response operation.

The pages that follow discuss initial response actions for a variety of emergencies that have the possibility of occurring. These emergencies are discussed in the order listed below:

- Initial Response
- Line Break or Leak
- Fire
- Bomb Threat

It is important to note that **these actions are intended only as guidelines** . The appropriate response to a particular incident may vary depending on the nature and severity of the incident and on other factors that are not readily addressed. Note, that **without exception, employees and public safety is first priority.**

The first Company person on scene will function as the Incident Commander (IC) until relieved by an authorized supervisor who will assume the IC position. Transfer of command will take place as more senior management respond to the incident. For response operations within the control of the Local Response Team, the role of IC will typically be assumed and retained by area management.

The person functioning as **Incident Commander** during the initial response period **has the authority to take the steps necessary to control the situation and must not be constrained by these general guidelines.**

**INITIAL RESPONSE ACTIONS - SUMMARY****PERSONNEL AND PUBLIC SAFETY IS FIRST PRIORITY****CONTROL**

- Eliminate sources of ignition
- Isolate the source of the discharge, minimize further flow

**NOTIFY**

- Make internal and external notifications
- Activate local Company personnel as necessary
- Activate response contractors and other external resources as necessary

**CONTAIN**

- Begin spill mitigation and response activities
- Monitor and control the containment and clean-up effort
- Protect the public and environmental sensitive areas

In addition to the potential emergency events outlined in this Section, the Company has identified several "abnormal operations" that could occur at the pipeline facilities. The Company has defined the events and established procedures to identify, eliminate or mitigate the threat of a worst case discharge due to these events. In compliance with 49 CFR 195.402(d), these procedures are defined in the Company's Operations Manual.

## SPILL RESPONSE EVALUATION FLOWCHART

(This flowchart depicts the steps to evaluate an incident to determine the appropriate level of response.)

### Emergency/Incident Classification

Incident Category	CONSIDERATIONS			
	HEALTH/SAFETY	COMMUNITY IMPACT	ENVIRONMENTAL IMPACT	RELIABILITY IMPACT
<b>I</b>	No Onsite Injury to First Aid or No Injury to Public  Small Fire - No ERT Response Required	No to Minor Impact to People or No Media Coverage	Minor Spill or Release  No Reportable Quantity or No Agency Contact or No Response Needed	\$0 to \$100K
<b>II</b>	Onsite Recordable to Lost Time Injury or Nuisance to Public  Moderate Fire - ERT Response Required	Community Warning or Local Media Coverage	Moderate Spill or Release  Reportable Quantity with Agency Notification or Short Duration Remediation	From \$100K to \$1MM
<b>III</b>	Permanent Disabling Injury to Single or Multiple Fatality within the immediate area or Medical Treatment to Public  Major Fire or Explosion - Mutual Aid Response Required	Shelter in Place or State to Regional Media Coverage	Major Spill or Release  Reportable Quantity with Multi-Agency Involvement or Prolonged Remediation	From \$1MM to \$10 MM
<b>IV</b>	Multiple Fatalities across The Site or Public Fatality  Catastrophic Fire or Explosion	Public Evacuation or National Media Coverage	Catastrophic Spill or Release  Agency Intervention or Permanent Environmental Damage	Greater than \$10MM

## FIGURE 3.1

### SPECIFIC INCIDENT RESPONSE CHECKLIST

#### INITIAL RESPONSE

##### *Medical Emergency/Rescue Incident*

- Apply appropriate first aid for both injury and shock, exercising care not to cause further injury.
- If victim is unconscious and not breathing, immediately apply artificial respiration (if trained in CPR) and continue without interruption until natural breathing is restored or until relieved by another CPR-trained individual or other qualified medical personnel.
- Call for ambulance or other medical evacuation resources, if appropriate.
- Notify hospital of patient arrival and extent of injury.
- Notify victim's immediate family.
- Complete follow-up and written reporting, as the situation demands.

##### *Abnormal Pipeline Operations*

- If operating design limits have been exceeded (increase or decrease pressure or flow) and no emergency condition exists, stop operations and immediately investigate the pipeline.
- Verify whether a true safety problem, equipment malfunction, or operator error is present.
- If the situation is due to malfunctioning equipment, can transfer operations can continue safely? If yes, then bypass the faulty equipment until the completion of the transfer and make appropriate repairs. **Note: In all cases, safety to operations, the general public, and property will govern actions taken.**
- If the transfer can not continue safely, make appropriate repairs before continuing operations. **Note: Corrective action will only be done by qualified personnel to perform the type of work involved.**
- Monitor affected systems until normal operations are resumed.
- Inform local operators such as utilities, telephone, and/or railway.
- Complete follow-up and written reporting, as the situation demands.

**Note:** Abnormal operations are further detailed in the Company's O&M Manual.

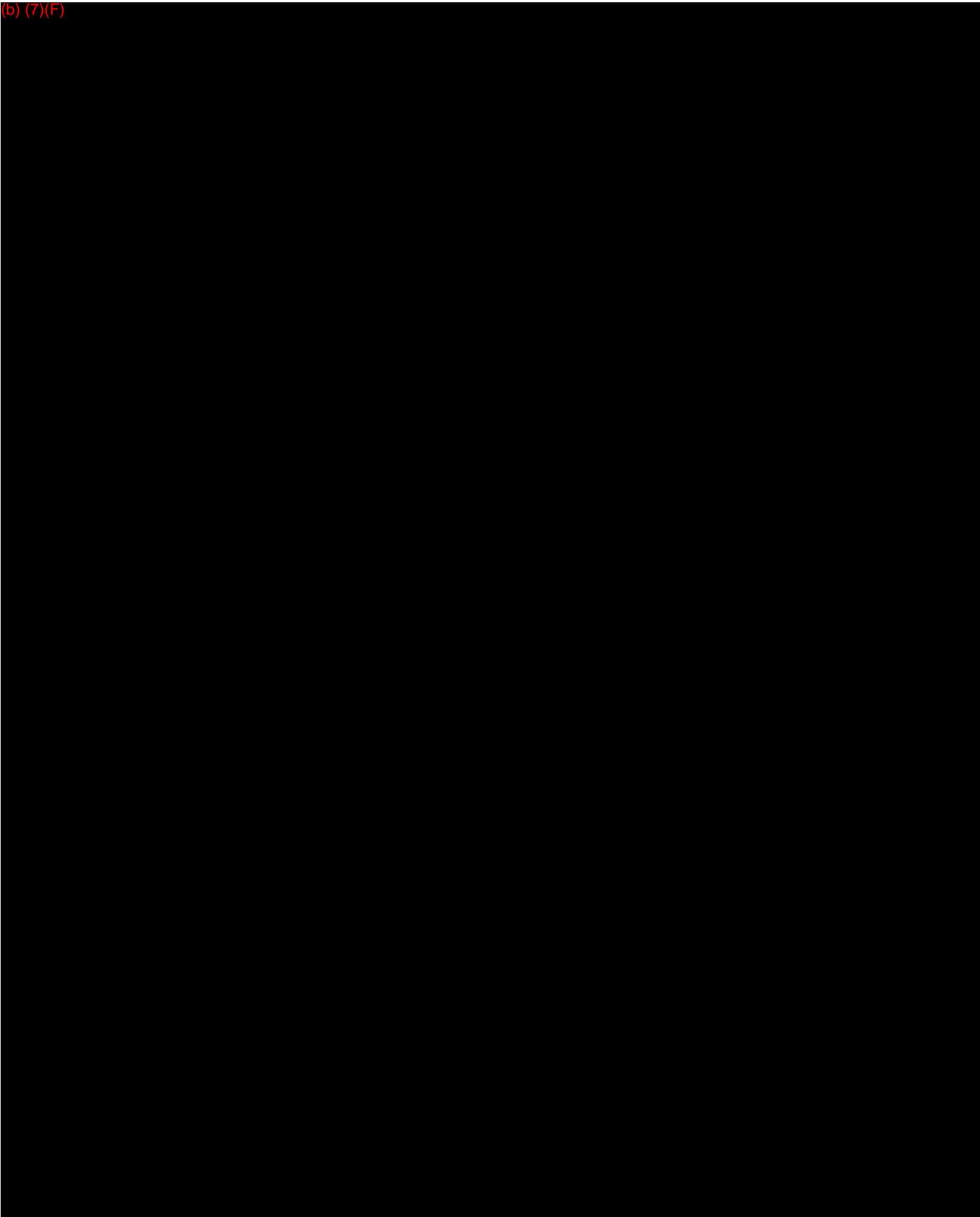
**LINE BREAK OR LEAK, SPECIFIC RESPONSE (Including Piping Rupture/ Leak Valve Rupture/Leak and Manifold Failure)*****Line Break or Leak***

- Notify Control Center.
- Control Center and/or local operations will perform shut down procedures outlined in Procedural Manual.
- Obtain all the necessary information to complete the leak report.
- Qualified personnel should use Combustible Gas Indicator, O2 meter, proper colorimetric indicator and/or other air sampling measurements to ensure that areas are safe to enter for continued response operations. Refer to Safety Volume for further guidance.
  - Mitigate spreading of the product, as the situation demands. Potential containment strategies include:
    - Earthen dike/berm
    - Ditching
    - Spreading sorbent material over the spill
  - Prevent the spill from entering the waterways, sewer, etc. to the greatest extent possible.
- Inform local operators such as utilities, telephone company, railway.
- Review the location of socio-economic and environmentally sensitive areas identified in Section 6.0. Determine which of these may be threatened by the spill and direct the response operation to these locations. Initiate protection and recovery actions.
- Determine the direction and expected duration of spill movement.
- Make all necessary repairs.
- Clean up spilled product to eliminate any possible environmental problems. Be alert for underground cables.
- Return the line to service when repairs are complete.
- Complete follow-up and written reporting, as the situation demands.

**FIRES (MINOR, MAJOR, EXPLOSION) SPECIFIC RESPONSE*****Pipeline Right of Way***

- In the event of fire in the absence of the on site Terminal Manager, any Company employee on duty may be designated as the individual in charge.
- The individual discovering the fire will adhere to the instructions above:
  - Ensure that the fire department has been notified.
  - Alert all Facility areas of the exact location and extent of the fire.
  - Ensure supervisor is notified by telephone (refer to Figures 2.1 and 2.2).
- Prior to the arrival of a Response Team member or a supervisor, the individual will remain in charge and will direct the fire department to the scene of the fire.
- Handle the calls.
- Call the Fire and Police Departments (911).
- Notify the Control Center.
- Go to the scene of the incident to evaluate the situation.
- Update Control Center.

(b) (7)(F)



## 3.2 DOCUMENTATION OF INITIAL RESPONSE ACTIONS

It is difficult, particularly during the first few minutes of an initial response operation, to think about the importance of documentation. A log should be maintained that documents the history of the events and communications that occur during the response. When recording this information, it is important to remember that the log may become instrumental in legal proceedings, therefore:

- Record only facts, do not speculate.
- Do not criticize the efforts and/or methods of other people/operations.
- Do not speculate on the cause of the spill.
- Do not skip lines between entries or make erasures. If an error is made, draw a line through it, add the correct entry above or below it, and initial the change.
- Record the recommendations, instructions, and actions taken by government/regulatory officials.
- Document conversations (telephone or in person) with government/regulatory officials.
- **Request that government/regulatory officials document and sign their recommendations or orders (especially if company personnel do not agree with the suggestions, instructions, or actions).**

## 3.3 OIL CONTAINMENT, RECOVERY AND DISPOSAL/WASTE MANAGEMENT

The disposal of recovered oil and oily debris poses potential immediate and long term problems; therefore, every effort should be made to reclaim as much of the recovered oil as possible. All contaminated material will be disposed of in accordance with all applicable state, federal and local regulations. The Health, Safety and Environmental (HSE) Department must be consulted to ensure compliance with these regulations.

Recovered oil, oily liquids, gasoline or diesel contaminated soil, and other cleanup debris such as concrete, wood, oily rags, spill booms and sorbent materials will be collected, temporarily stored and eventually disposed of off-site. The disposal method will be determined by testing the wastes for ignitability, corrosivity, reactivity, and toxicity characteristics. Other tests required by recycling/disposal facilities will be conducted as required. Crude oil contaminated soil may be bio-remediated at one of the Valero Terminaling and Distribution facilities on a Railroad Commission of Texas approved remediation pad.

Waste containing any kind of oil is considered hazardous unless it can be shown to be non-hazardous by a certified laboratory analysis. To be classified as non-hazardous, the waste must be certified not to possess any of the following characteristics: ignitability, corrosivity, reactivity or toxicity. Laboratory analysis will be required by any disposal facility before they will accept oily waste for disposal. Valero has ongoing contracts with various laboratories. Analytical methods that are commonly used are:

- Benzene SW-846-8020
- Toluene SW-846-8020
- Ethyl benzene SW-846-8020
- Xylene SW-846-8020

- Total Petroleum Hydrocarbons 418.113550

Total Metals;

- Arsenic SW-846-7060
- Cadmium SW-846-7130
- Chromium SW-846-7191
- Lead SW-846-7420

Hazardous Waste Characteristics;

- Ignitability SW-846-1010
- Corrosivity SW-846-1110
- Cyanide SW-846-7.3.3.2
- Reactivity Sulfide SW-846-7.3.4.2
- TCLP Volatiles SW-846-8260

As directed by the HSE Department, materials deemed non-recyclable will be:

- 1) Sold to a commercial recycler, or
- 2) Disposed of off-site.

Valero has existing disposal contracts for Class I, II, and III non-hazardous materials and for hazardous materials. Valero also has contracts for the incineration of hazardous materials. The HSE Department will coordinate; labeling, placarding, manifesting and permitting requirements for waste shipments offsite.

## FIGURE 3.2

### PRODUCT SPECIFIC RESPONSE CONSIDERATIONS

<b>FLAMMABLE LIQUIDS (Non-Polar/Water-Immiscible)</b>	
The following information provides the initial responder(s) with data that may be useful in making quick decisions and executing prompt response actions. <u>The information is intended for guideline purposes only.</u>	
HEALTH	
<b>GUIDE NO. 128</b>	<ul style="list-style-type: none"> <li>● Inhalation or contact with material may irritate or burn skin and eyes.</li> <li>● Fire may produce irritating, corrosive and/or toxic gases.</li> <li>● Vapors may cause dizziness or suffocation.</li> <li>● Runoff from fire control or dilution water may cause pollution.</li> </ul>
FIRST AID	
<ul style="list-style-type: none"> <li>● Move victim to fresh air.</li> <li>● Call 911 or emergency medical service.</li> <li>● Give artificial respiration if victim is not breathing.</li> <li>● Administer oxygen if breathing is difficult.</li> <li>● Remove and isolate contaminated clothing and shoes.</li> <li>● In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.</li> <li>● Wash skin with soap and water.</li> <li>● In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.</li> <li>● Keep victim warm and quiet.</li> <li>● Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.</li> <li>● Ensure medical personnel are aware of materials involved and take precautions to protect themselves.</li> </ul>	
PUBLIC SAFETY	
<ul style="list-style-type: none"> <li>● <b>CALL Emergency Response Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.</b></li> <li>● Isolate spill or leak area immediately for at least 25 to 50 meters (80 to 160 feet) in all directions.</li> <li>● Keep unauthorized personnel away.</li> <li>● Stay upwind.</li> <li>● Keep out of low areas.</li> <li>● Ventilate closed spaces before entering.</li> </ul>	
<b>EVACUATION</b>	<p><b>Large Spill</b></p> <ul style="list-style-type: none"> <li>● Consider initial downwind evacuation for at least 300 meters (1,000 feet).</li> </ul> <p><b>Fire</b></p> <ul style="list-style-type: none"> <li>● If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.</li> </ul>
Information provided by the Emergency Response Guidebook 2012.	

## 3.4 STORAGE/DISPOSAL

### Oil/Water/Debris Separation Strategies

All spilled oil will be removed from the environment as quickly as possible to minimize damage. Strategies and methods for oil/water/debris separation will depend upon the condition of the oil, in-house oil-processing equipment/policies, and government regulations.

Once the trajectory of the spill is predicted, the HSE Department Representative will attempt to anticipate areas where protective or deflective booms may help to reduce contamination. In areas where such defensive actions are unfeasible, shoreline cleanup and debris collection in advance of the spill may be necessary.

Oil recovered from shoreline areas will typically contain substantial amounts of water and debris. Excess water (in particular, salt water) greatly increases the quantity to be transported and can create problems at processing facilities. Debris will often clog pumps and cause other handling difficulties. Most debris in the form of vegetation, rocks, gravel, used sorbents, etc. is easily removed by screening, whereas, the separation of water and oil is somewhat more difficult. Oil/water/debris separation will largely be accomplished using the techniques described below. Certain conditions may make the use of this option unfeasible.

An oil/water separator can be constructed under field conditions using a 55 gallon drum or a large welded sheet metal box fitted with a valve and bottom-draining pipe. The oil/water mixture is pumped into the container and allowed to stand long enough for the oil and water to separate. The water is then separated off the bottom through the drain, and the oil is pumped into a storage tank or truck. A tank or vacuum truck also can be used as an effective oil/water separator by following the same procedure.

A second method involves the use of a 55 gallon drum and a natural or excavated, plastic lined sump pit. Several holes are drilled in the side near the bottom and a large hole is cut in the top. The sump is partially filled with water and the drum is suspended upright and positioned so that the bottom two-thirds are submerged. The oil/water mixture is pumped into the top of the drum at a rate slow enough to prevent the oil from being driven out of the holes at the bottom. As more of the mixture is pumped in, the water will flow out the holes at the bottom and the oil will concentrate at the water surface in the drum. Once the oil layer becomes thick enough, it can be pumped or vacuumed out and into a tank truck or storage tank.

Spill response personnel will make effort to keep oily solids (sorbents, booms, protective clothing, etc.) segregated from recovered oil and water. Most water will be decanted and removed from the recovered oil and water. Most water will be decanted and removed from the recovered oil by allowing it to stand and separate or by the use of skimmers. Oil recovered by the decanting and skimming will be returned to the Valero Terminaling and Distribution facility.

## **Spilled Material Sampling and Test Methods**

### **Oil Sampling**

Oil sampling and analysis is an important part of planning the response and documenting a spill. It is important to sample spilled oil as early as possible to predict and assess natural resource damages and to distinguish a Premcor spill from any unidentified spills which may follow.

Valero's methods of identification involves matching samples based on the assumption that no two oils have identical compositions unless they have identical histories. This relationship has been termed the "fingerprint principle" because, in theory, each oil product is unique.

## **3.5 SAMPLING AND WASTE ANALYSIS PROCEDURE**

Sample Analysis Immediately following spill notification, the HSE Department will specify the approved sampling and analysis procedures, which are appropriate to that spill situation. At the discretion of the HSE Department, either in-house or contractor sampling and sample analysis will be used. In either case the person handling the samples shall complete a "chain of custody" upon release of the sample to the next individual taking charge of the sample. Valero's in-house labs have the capability of conducting gas chromatography, atomic absorption spectrophotometry, and infrared analysis. Gas chromatography (GC) will be used to characterize the organic components, determine the quality and quantity of different fractions present in the oil, and compare the spill samples to reference samples. Atomic absorption spectroscopy (AA) will be used in oil identification to determine the nickel/vanadium ratio in oils. Infrared analysis (IR) will be used to determine organic and inorganic components, fractions present in the oil, and to compare spill samples to reference samples

## **3.6 SAFETY AWARENESS**

### **HSE Specialist**

Safety Officer is responsible for PPE and duties outlined in Section 4.0

## Personal Protective Equipment (PPE)

The following represents OSHA/USEPA designated PPE levels for responding to emergencies, post emergency cleanup sites, and/or Temporary Storage and Disposal (TSD) sites. The responder's PPE should be chosen based on his/her level of training and assigned job duties.

<b>Personal Protective Equipment (PPE)</b>	
<p><b>LEVEL A</b></p> <ul style="list-style-type: none"> <li>● Self Contained Breathing Apparatus (SCBA) (worn inside suit)</li> <li>● Encapsulated Chemical Protective Suit</li> <li>● Chemical Protective Gloves</li> <li>● Chemical Protective Boots</li> <li>● Hard Hat</li> <li>● Safety Toe Footwear</li> <li>● Safety Glasses</li> </ul>	To be selected when the greatest level of skin, respiratory, and eye protection is required.
<p><b>LEVEL B</b></p> <ul style="list-style-type: none"> <li>● SCBA (worn outside suit)</li> <li>● Chemical Protective Suit w/Hood</li> <li>● Chemical Protective Boots</li> <li>● Chemical Protective Gloves</li> <li>● Hard Hat</li> <li>● Safety Toe Footwear</li> <li>● Safety Glasses</li> </ul>	To be selected when the highest level of respiratory protection is necessary but a lesser level of skin protection is needed.
<p><b>LEVEL C</b></p> <ul style="list-style-type: none"> <li>● Air Purifying Respirator (APR)</li> <li>● APR a½ Face or Full Face</li> <li>● Hard Hat</li> <li>● Glasses (worn with a½ face APR)</li> <li>● Chemical Protective Boots</li> <li>● Chemical Protective Gloves</li> <li>● Chemical Protective Suit/Tyvek</li> <li>● Safety Toe Footwear</li> <li>● Safety Glasses</li> </ul>	To be selected when the concentration and type of airborne substances is known and the criteria for using air purifying respirators are met.
<p><b>MODIFIED LEVEL C</b> Same as level C except no APR requirements.</p>	To be selected when the concentration and type of airborne substances is known and the levels are below the criteria for using air purifying respirators.
<p><b>LEVEL D</b></p> <ul style="list-style-type: none"> <li>● Hard Hat</li> <li>● Safety Glasses</li> <li>● Work Uniform / Clothes</li> <li>● Leather Gloves</li> <li>● Safety Boots</li> <li>● Nomex (if required by the Company)</li> </ul>	The atmosphere contains no known hazard and work functions preclude the potential for unexpected inhalation of or contact with hazardous levels of any chemicals.

### 3.7 EMERGENCY MEDICAL TREATMENT AND FIRST AID

#### General

Employees should report all injuries immediately to their supervisor. For minor injuries, the injured employee's supervisor will arrange transportation to and from the hospital.

#### **Dial 911 for ambulance service.**

- State your name.
- Request the ambulance and emergency personnel.
- Give the exact location, number of injured, and if possible, the nature of the injury(s).
- Remain in contact with the other party until they hang up.

For multiple injuries or rescue, the Incident Command System will be activated to the level necessary as determined by the Incident Commander.

#### **Serious Injuries and Illnesses**

The primary concern in dealing with a serious injury or illness is prompt and proper patient care. It is imperative that Emergency Response personnel are notified immediately.

VTDC employees with a suspected serious injury or illness in Live Oak or Nueces County will be transported to either Christus Spohn Hospital of Beeville or Corpus Christi Med Center-NW. The injured employee may choose which hospital he/she prefers to be transported.

Examples of serious injuries/illnesses as determined by EMT/ECA Certified personnel include:

- Any suspected cardiac or pulmonary disorder
- Amputations
- Cuts involving arterial or venous bleeding
- Head injuries
- Any suspected spinal injury
- Femur fractures
- Diabetic emergencies (insulin shock or diabetic coma)
- Heat stroke
- Blunt trauma injuries to the chest or abdomen
- Seizures
- Any injury involving unconsciousness
- Shock
- Burns which may involve the respiratory tract and other serious burns

#### **Emergency Response During Regular Working and Off Hours**

The on site Manager, IC, or a delegate will proceed in a separate vehicle to the hospital, and will arrange for notification of the employees' family. The on site Manager, IC, or delegate will remain at the hospital until the employees' family arrives, or until the employee is released.

**Contractor Employee Injuries**

Contractors are responsible for arranging and providing emergency medical care and ambulance transportation for their employees. If the injury is serious in nature the contractor supervisor shall contact for outside ambulance service will be requested. The employee's supervisor must accompany the employee any outside medical facility.

The contractor must report all injuries immediately to their VTDC Representative. The VTDC Representative shall provide a copy of the "Employer's First Report of Injury" to the HSE Specialist as soon as possible.

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## 4.0 RESPONSE TEAMS

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- 4.1 Introduction
- 4.2 Qualified Individual
- 4.3 LOCAL RESPONSE TEAM
- 4.4 REGIONAL RESPONSE TEAM
- 4.5 Incident Command System (ICS)
- 4.6 Unified Command
- 4.7 ICS Roles and Responsibilities

**Figure 4.1** Incident Command System

**Figure 4.2** Operational Period Planning Cycle

## 4.1 INTRODUCTION

The Company utilizes the Incident Command System (ICS) to manage emergency response activities. The ICS is a management tool that is readily adaptable to very small incidents as well as those of considerable significance. ICS shall be implemented for all discharge incidents. The staffing levels required to meet the specific needs of the incident will be based on its size and severity.

The first response to a discharge originating from the Facility will be provided by the Facility's Spill Response Team. In the event that the response operation is beyond the capability of the Facility's Spill Response Team, the Incident Commander/Qualified Individual (typically the on site Manager) will activate the Regional Response Team. The Facility's Spill Response Team and the Regional Response Team represent the Facility's Spill Management Team.

## 4.2 QUALIFIED INDIVIDUAL

It is the responsibility of the Qualified Individual (QI) or his/her designee to coordinate with the Federal On-Scene Coordinator (FOSC) and State On-Scene Coordinator (SOSC) throughout the response, if applicable.

Vital duties of the Qualified Individual (QI) include:

- Activate internal alarms and hazard communication systems to notify all Facility personnel.
- Notify all response personnel, as needed.
- Identify the character, exact source, amount, and extent of the release, as well as the other items needed for notification.
- Notify and provide necessary information to the appropriate Federal, State and Local authorities with designated response roles, including the National Response Center (NRC), State Emergency Response Commission (SERC), and local response agencies.
- Assess the interaction of the spilled substance with water and/or other substances stored at the Facility and notify response personnel at the scene of that assessment.
- Assess the possible hazards to human health and the environment due to the release. This assessment must consider both the direct and indirect effects of the release (i.e., the effects of any toxic, irritating, or asphyxiating gases that may be generated, or the effects of any hazardous surface water runoffs from water or chemical agents used to control fire and heat-induced explosion).
- Assess and implement prompt removal actions to contain and remove the substance released.
- Coordinate rescue and response actions as previously arranged with all response personnel.
- Activate and engage in contracting with oil spill removal organizations.

- Use authority to immediately access Company funding to initiate cleanup activities.
- Direct cleanup activities until properly relieved of this responsibility.
- Arrangements will be made to ensure that the Qualified Individual (QI) or the Alternate Qualified Individual (AQI) is available on a 24-hour basis and is able to arrive at the Facility in a reasonable time.
- The AQI shall replace the QI in the event of his/her absence and have the same responsibilities and authority.

### 4.3 LOCAL RESPONSE TEAM

The first Company person on scene will function as the Incident Commander (IC) and person-in-charge until relieved by an authorized supervisor who will then assume the position of IC. Transfer of command will take place as more senior management respond to the incident. For response operations within the control of the Local Response Team (LRT), the role of IC will typically be assumed and retained by on site Management.

The number of positions/personnel required to staff the LRT will depend on the size and complexity of the incident. The duties of each position may be performed by the IC directly or delegated as the situation demands. The IC is always responsible for directing the response activities and will assume the duties of all the primary positions until the duties can be delegated to other qualified personnel.

The LRT should try to fill the necessary positions and request additional support from the Spill Management Team to fill/back up all the positions as the incident may dictate. Detailed job descriptions of the primary response team positions.

### 4.4 REGIONAL RESPONSE TEAM

For spill response operations outside the capabilities of the Local Response Team (LRT), the QI/AQI or IC will determine the need for mobilization of the Crisis Management Team (CRT). The members of the LRT will typically become members of the CRT.

The Crisis Response Team (CRT), once fully staffed, is designed to cover all aspects of a comprehensive and prolonged incident response. The number of positions/personnel required to staff the CRT will depend on the size and complexity of the incident. During a prolonged response, additional personnel may be cascaded in, and more than one level within the Team may be involved to sustain 24-hour operations.

The CRT is basically organized according to the NIMS Incident Command System principles. Led by the Incident Commander, the team is composed of the following principal components: a) Command; b) Planning; c) Finance; d) Operations, and e) Logistics.

The Crisis Response Team is staffed by specially trained personnel from various facility/corporate locations, and by various contract resources as the situation requires. The CRT is headed by the Senior Management Advisors (SMA).

## 4.5 INCIDENT COMMAND SYSTEM (ICS)

The Incident Command System is intended to be used as an emergency management tool to aid in mitigating all types of emergency incidents. This system is readily adaptable to very small emergency incidents as well as more significant or complex emergencies. The Incident Command System utilizes the following criteria as key operational factors:

- Assigns overall authority to one individual
- Provides structured authority, roles and responsibilities during emergencies
- The system is simple and familiar, and is used routinely at a variety of incidents
- Communications are structured
- There is a structured system for response and assignment of resources
- The system provides for expansion, escalation, and transfer/transition of roles and responsibilities
- The system allows for "Unified Command" where agency involvement at the command level is required

Effective establishment and utilization of the Incident Command System during response to all types of emergencies can:

- Provide for increased safety
- Shorten emergency mitigation time by providing more effective and organized mitigation
- Cause increased confidence and support from local, State, Federal, and public sector emergency response personnel
- Provide a solid cornerstone for emergency planning efforts

Section 4.7 provides a comprehensive list of every response team member's duty assignment.

## 4.6 UNIFIED COMMAND

As a component of an Incident Command System, the Unified Command (UC) is a structure that brings together the Incident Commanders of all major organizations involved in the incident to coordinate an effective response while still meeting their own responsibilities. The Unified Command links the organizations responding to the incident and provides a forum for the Responsible Party and responding agencies to make consensus decisions. Under the Unified Command, the various jurisdictions and/or agencies and responders may blend together throughout the organization to create an integrated response team. The Incident Command System process requires the Unified Command to set clear objectives to guide the on-scene response resources.

Multiple jurisdictions may be involved in a response effort utilizing Unified Command. These jurisdictions could be represented by any combination of:

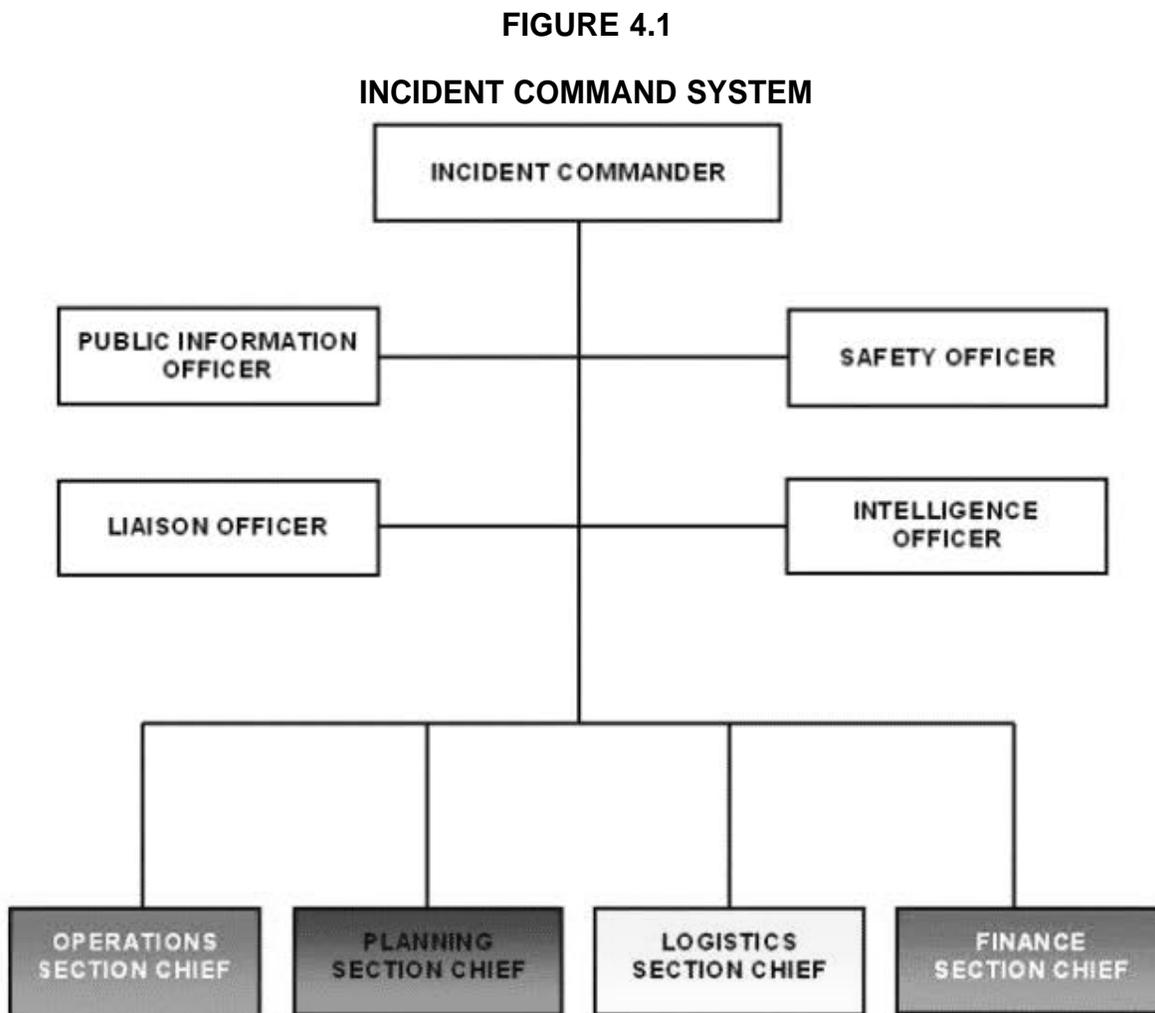
- Geographic boundaries
- Government levels
- Functional responsibilities
- Statutory responsibilities

The participants of Unified Command for a specific incident will be determined taking into account the specifics of the incident and existing response plans and/or decisions reached during the initial meeting of the Unified Command. The Unified Command may change as an incident progresses, in order to account for changes in the situation.

The Unified Command is responsible for overall management of an incident. The Unified Command directs incident activities and approves and releases resources. The Unified Command structure is a vehicle for coordination, cooperation and communication which is essential to an effective response.

Unified Command representatives must be able to:

- Agree on common incident objectives and priorities
- Have the capability to sustain a 24-hour-7-day-per-week commitment to the incident
- Have the authority to commit agency or Company resources to the incident
- Have the authority to spend agency or Company funds
- Agree on an incident response organization
- Agree on the appropriate Command and General Staff assignments
- Commit to speak with "one voice" through the Public Information Officer or Joint Information Center
- Agree on logistical support procedures
- Agree on cost-sharing procedures



## 4.7 ICS ROLES AND RESPONSIBILITIES

### COMMON RESPONSIBILITIES

The following is a checklist applicable to all personnel in an Incident Command System organization:

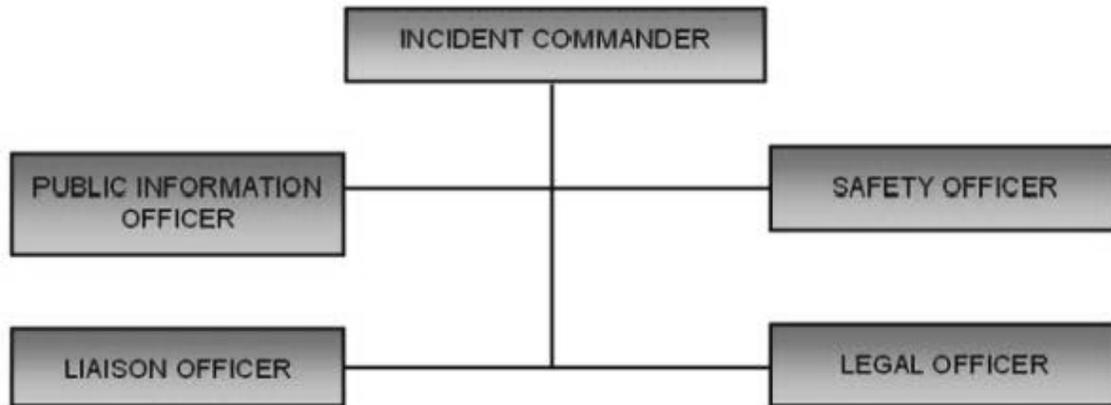
- Receive assignment, including:
  - Job assignment
  - Resource order number and request number
  - Reporting location
  - Reporting time
  - Travel instructions
  - Special communications instructions
- Upon arrival, check-in at designated check-in location.
- Receive briefing from immediate supervisor.
- Acquire work materials.
- Supervisors maintain accountability for assigned personnel.
- Organize and brief subordinates.
- Know your assigned radio frequency(s) and ensure communications equipment is operating properly.
- Use clear text and Incident Command System terminology (no codes) in all communications.
- Complete forms and reports required of the assigned position and send to Documentation Unit.
- Maintain unit records, including Unit Log (ICS Form 214).
- Respond to demobilization orders and brief subordinates regarding demobilization.

### UNIT LEADER RESPONSIBILITIES

In Incident Command System, a Unit Leader's responsibilities are common to all units in all parts of the organization. Common responsibilities of Unit Leaders are listed below.

- Review common responsibilities.
- Receive briefing from Incident Commander, Section Chief or Branch Director, as appropriate.
- Participate in incident planning meetings, as required.
- Determine current status of unit activities.
- Order additional unit staff, as appropriate.
- Determine resource needs.
- Confirm dispatch and estimated time of arrival of staff and supplies.
- Assign specific duties to staff; supervise staff.
- Develop and implement accountability, safety and security measures for personnel and resources.
- Supervise demobilization of unit, including storage of supplies.
- Provide Supply Unit Leader with a list of supplies to be replenished.
- Maintain unit records, including Unit Log (ICS Form 214).

### COMMAND



## INCIDENT COMMANDER

- Assess the situation and/or obtain a briefing from the prior Incident Commander.
- Determine Incident Objectives and strategy.
- Establish the immediate priorities.
- Establish an Incident Command Post.
- Brief Command Staff and Section Chiefs.
- Review meetings and briefings.
- Establish an appropriate organization.
- Ensure planning meetings are scheduled as required. (Refer to Figure 4.2 "Operational Period Planning Cycle" for assistance).
- Approve and authorize the implementation of an Incident Action Plan.
- Ensure that adequate safety measures are in place.
- Coordinate activity for all Command and General Staff.
- Coordinate with key people and officials.
- Approve requests for additional resources or for the release of resources.
- Keep agency administrator informed of incident status.
- Approve the use of trainees, volunteers, and auxiliary personnel.
- Authorize release of information to the news media.
- Ensure incident Status Summary (ICS Form 209-CG) is completed and forwarded to appropriate higher authority.
- Order the demobilization of the incident when appropriate.
- Assign any of the Incident Commander roles and responsibilities to a Deputy Incident Commander as needed.

## PUBLIC INFORMATION OFFICER

- Determine from the Incident Commander if there are any limits on information release.
- Develop material for use in media briefings.
- Obtain Incident Commander approval of media releases.
- Inform media and conduct media briefings.
- Arrange for tours and other interviews or briefings that may be required.
- Obtain media information that may be useful to incident planning.
- Maintain current information summaries and/or displays on the incident and provide information on the status of the incident to assigned personnel.

## LIAISON OFFICER

- Be a contact point for Agency Representatives.
- Maintain a list of assisting and cooperating agencies and Agency Representatives. Monitor check-in sheets daily to ensure that all Agency Representatives are identified.
- Assist in establishing and coordinating interagency contacts.
- Keep agencies supporting the incident aware of incident status.
- Monitor incident operations to identify current or potential inter-organizational problems.
- Participate in planning meetings, providing current resource status, including limitations and capability of assisting agency resources.
- Coordinate response resource needs for Natural Resource Damage Assessment and Restoration (NRDAR) activities with the Operations during oil and HAZMAT responses.
- Coordinate response resource needs for incident investigation activities with the Operations.
- Ensure that all required agency forms, reports and documents are completed prior to demobilization.
- Coordinate activities of visiting dignitaries.

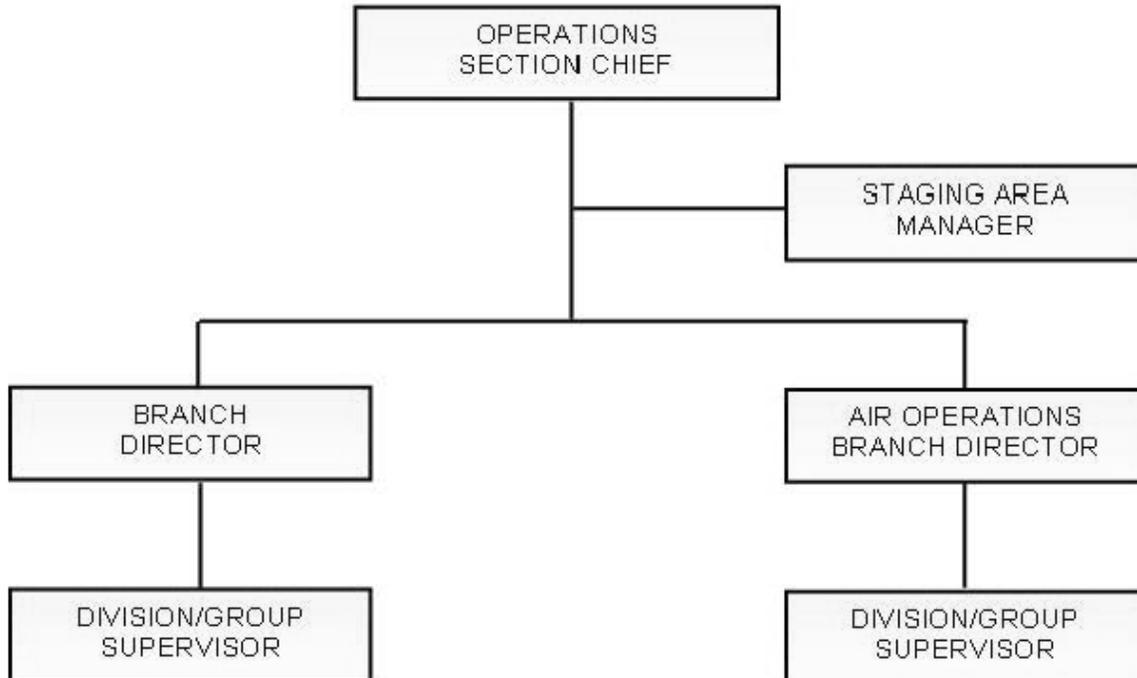
## SAFETY OFFICER

- Participate in planning meetings.
- Identify hazardous situations associated with the incident.
- Review the Incident Action Plan for safety implications.
- Exercise emergency authority to stop and prevent unsafe acts.
- Investigate accidents that have occurred within the incident area.
- Review and approve the medical plan.
- Develop the Site Safety Plan and publish Site Safety Plan summary (ICS Form 208) as required.

## LEGAL OFFICER

- Participate in planning meetings, if requested.
- Advise on legal issues relating to in-situ burning, use of dispersants, and other alternative response technologies.
- Advise on legal issues relating to differences between Natural Resource Damage Assessment Restoration (NRDAR) and response activities.
- Advise on legal issues relating to investigations.
- Advise on legal issues relating to finance and claims.
- Advise on legal issues relating to response.

### OPERATIONS



**OPERATIONS SECTION GENERAL FUNCTIONS**

- Responsible for managing tactical operations at the incident site directed toward reducing the immediate hazard, saving lives and property, establishing situational control, and restoring normal operations.
- Directs and coordinates all incident tactical operations.
- Executes the Incident Action Plan.

**OPERATIONS SECTION CHIEF**

- Develop operations portion of Incident Action Plan.
- Brief and assign Operations Section personnel in accordance with the Incident Action Plan.
- Supervise Operations Section.
- Determine need and request additional resources.
- Review suggested list of resources to be released and initiate recommendation for release of resources.
- Assemble and disassemble strike teams assigned to the Operations Section.
- Report information about special activities, events, and occurrences to the Incident Commander.
- Respond to resource requests in support of National Resource Damage Assessment and Restoration activities.

**BRANCH DIRECTOR**

- Develop with subordinates alternatives for Branch control operations.
- Attend planning meetings at the request of the Operations.
- Review Assignment List (ICS Form 204-CG) for Divisions/Groups within the Branch. Modify lists based on effectiveness of current operations.
- Assign specific work tasks to Division/Group Supervisors.
- Supervise Branch operations.
- Resolve logistic problems reported by subordinates.
- Report to Operations when: the Incident Action Plan is to be modified; additional resources are needed; surplus resources are available; or hazardous situations or significant events occur.
- Approve accident and medical reports originating within the Branch.

**DIVISION/GROUP SUPERVISOR**

- Implement Incident Action Plan for Division/Group.
- Provide the Incident Action Plan to Strike Team Leaders, when available.
- Identify increments assigned to the Division/Group.
- Review Division/Group assignments and incident activities with subordinates and assign tasks.
- Ensure that the Incident Commander and/or Resources Unit is advised of all changes in the status of resources assigned to the Division/Group.
- Coordinate activities with adjacent Division/Group.
- Determine need for assistance on assigned tasks.
- Submit situation and resources status information to the Branch Director or the Operations.
- Report hazardous situations, special occurrences, or significant events (e.g., accidents, sickness, discovery of unanticipated sensitive resources) to the immediate supervisor.
- Ensure that assigned personnel and equipment get to and from assignments in a timely and orderly manner.
- Resolve logistics problems within the Division/Group.
- Participate in the development of Branch plans for the next operational period.

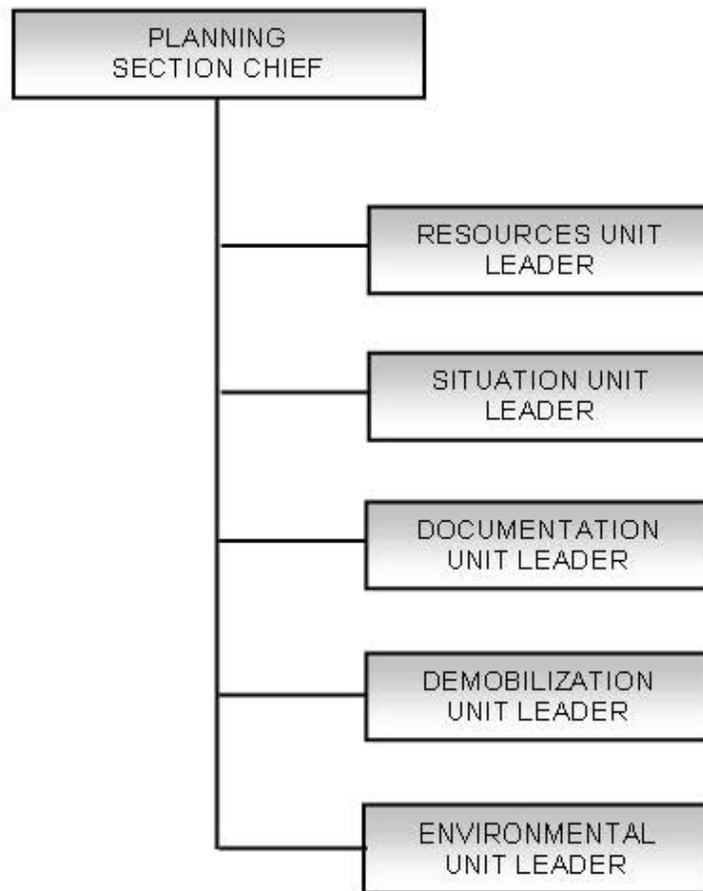
**STAGING AREA MANAGER**

- Establish Staging Area layout.
- Determine any support needs for equipment, feeding, sanitation and security.
- Establish check-in function as appropriate.
- Post areas for identification and traffic control.
- Request maintenance service for equipment at Staging Area as appropriate.
- Respond to request for resource assignments.
- Obtain and issue receipts for radio equipment and other supplies distributed and received at Staging Area.
- Determine required resource levels from the Operations.
- Advise the Operations when reserve levels reach minimums.
- Maintain and provide status to Resource Unit of all resources in Staging Area.
- Demobilize Staging Area in accordance with the Incident Demobilization Plan.

**AIR OPERATIONS BRANCH DIRECTOR**

- Organize preliminary air operations.
- Request declaration (or cancellation) of restricted air space
- Participate in preparation of the Incident Action Plan through the Operations. Insure that the air operations portion of the Incident Action Plan takes into consideration the Air Traffic Control requirements of assigned aircraft.
- Perform operational planning for air operations.
- Prepare and provide Air Operations Summary (ICS Form 220) to the Air Support Group and Fixed-Wing Bases.
- Determine coordination procedures for use by air organization with ground Branches, Divisions, or Groups.
- Coordinate with appropriate Operations Section personnel.
- Supervise all air operations activities associated with the incident.
- Evaluate helibase locations.
- Establish procedures for emergency reassignment of aircraft.
- Schedule approved flights of non-incident aircraft in the restricted air space area.
- Coordinate with the Operations Coordination Center (OCC) through normal channels on incident air operations activities.
- Inform the Air Tactical Group Supervisor of the air traffic situation external to the incident.
- Consider requests for non-tactical use of incident aircraft.
- Resolve conflicts concerning non-incident aircraft.
- Coordinate with Federal Aviation Administration.
- Update air operations plans.
- Report to the Operations on air operations activities.
- Report special incidents/accidents.
- Arrange for an accident investigation team when warranted.

### PLANNING



### PLANNING SECTION GENERAL FUNCTIONS

- Responsible for gathering, evaluating, and disseminating tactical information and intelligence critical to the incident.
- Maintaining incident documentation and providing documentation services.
- Preparing and documenting Incident Action Plans.
- Conducting long-range and/or contingency planning.
- Developing alternative strategies.
- Tracking resources assigned to the incident.
- Developing plans for waste disposal.
- Developing plans for demobilization.

### PLANNING SECTION CHIEF

- Collect and process situation information about the incident.
- Supervise preparation of the Incident Action Plan.
- Provide input to the Incident Commander and the Operations in preparing the Incident Action Plan.
- Chair planning meetings and participate in other meetings as required. (Refer to Figure 4.5 "Operational Period Planning Cycle" for assistance.)
- Reassign out-of-service personnel already on-site to Incident Command System organizational positions as appropriate.
- Establish information requirements and reporting schedules for Planning Section Units (e.g., Resources, Situation Units).
- Determine the need for any specialized resources in support of the incident.
- If requested, assemble and disassemble Strike Teams and Task Forces not assigned to Operations.
- Establish special information collection activities as necessary (e.g., weather, environmental, toxics, etc.).
- Assemble information on alternative strategies.
- Provide periodic predictions on incident potential.
- Report any significant changes in incident status.
- Compile and display incident status information.
- Oversee preparation and implementation of the Incident Demobilization Plan.
- Incorporate plans (e.g., Traffic, Medical, Communications, Site Safety) into the Incident Action Plan.

### RESOURCES UNIT LEADER

- Establish the check-in function at incident locations.
- Prepare Organization Assignment List (ICS Form 203-CG) and Incident Organization (ICS Form 207-CG).
- Prepare appropriate parts of Assignment List (ICS Form 204).
- Prepare and maintain the Incident Command Post display (to include organization chart and resource allocation and deployment).
- Maintain and post the current status and location of all resources.
- Maintain master roster of all resources checked in at the incident.

**SITUATION UNIT LEADER**

- Begin collection and analysis of incident data as soon as possible.
- Prepare, post, or disseminate resource and situation status information as required, including special requests.
- Prepare periodic predictions or as requested by the Planning Section Chief.
- Prepare the Incident Status Summary (ICS Form 209-CG).
- Provide photographic services and maps if required.

**DOCUMENTATION UNIT LEADER**

- Set up work area; begin organization of incident files.
- Establish duplication service; respond to requests.
- File all official forms and reports.
- Review records for accuracy and completeness; inform appropriate units of errors or omissions.
- Provide incident documentation as requested.
- Store files for post-incident use.

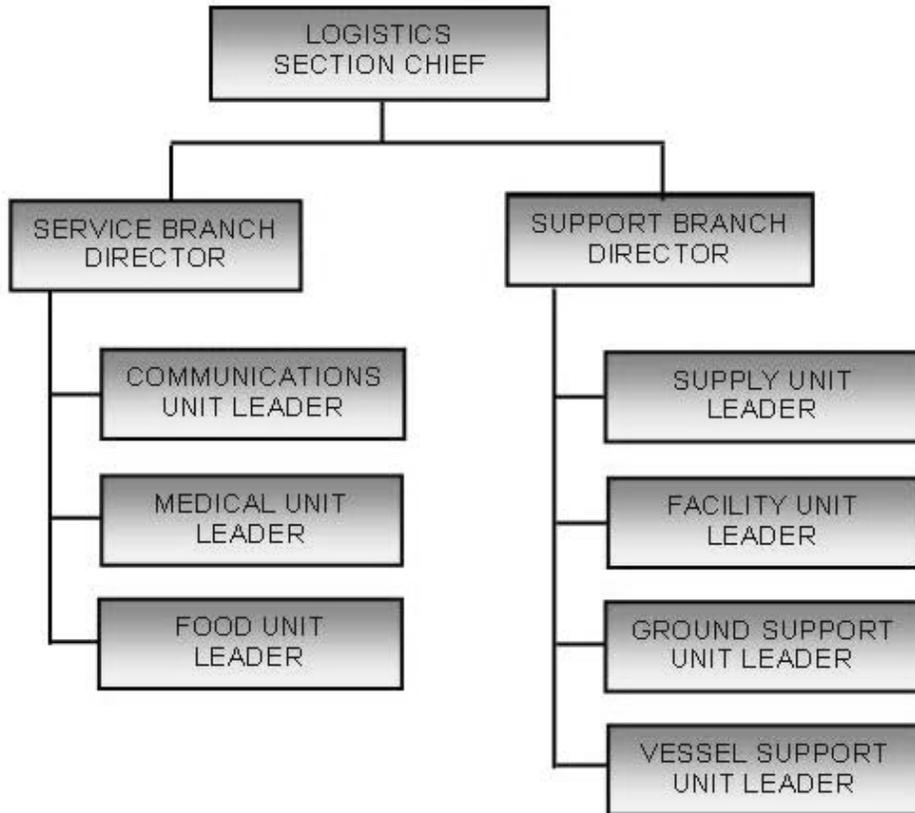
**DEMOBILIZATION UNIT LEADER**

- Participate in planning meetings as required.
- Review incident resource records to determine the likely size and extent of demobilization effort.
- Based on the above analysis, add additional personnel, workspace, and supplies as needed.
- Coordinate demobilization with Agency Representatives.
- Monitor the on-going Operations Section resource needs.
- Identify surplus resources and probable release time.
- Develop incident check-out function for all units.
- Evaluate logistics and transportation capabilities to support demobilization.
- Establish communications with off-incident facilities, as necessary.
- Develop an Incident Demobilization Plan detailing specific responsibilities and release priorities and procedures.
- Prepare appropriate directories (e.g., maps, instructions, etc.) for inclusion in the demobilization plan.
- Distribute demobilization plan (on and off-site).
- Provide status reports to appropriate requestors.
- Ensure that all Sections/Units understand their specific demobilization responsibilities.
- Supervise execution of the Incident Demobilization Plan.
- Brief the Planning Section Chief on demobilization progress.

**ENVIRONMENTAL UNIT LEADER**

- Participate in Planning Section meetings.
- Identify sensitive areas and recommend response priorities.
- Following consultation with natural resource trustees, provide input on wildlife protection strategies (e.g., removing oiled carcasses, pre-emptive capture, hazing, and/or capture and treatment).
- Determine the extent, fate and effects of contamination.
- Acquire, distribute and provide analysis of weather forecasts.
- Monitor the environmental consequences of cleanup actions.
- Develop shoreline cleanup and assessment plans. Identify the need for, and prepare any special advisories or orders.
- Identify the need for, and obtain, permits, consultations, and other authorizations including Endangered Species Act (ESA) provisions.
- Following consultation with the Federal OnScene Commander's Historical/Cultural Resources Technical Specialist identify and develop plans for protection of affected historical/cultural resources.
- Evaluate the opportunities to use various response technologies.
- Develop disposal plans.
- Develop a plan for collecting, transporting, and analyzing samples.

### LOGISTICS



### LOGISTICS SECTION GENERAL FUNCTIONS

- Responsible for all support requirements needed to facilitate effective and efficient incident management, including ordering resources from off-incident locations.
- Ordering, obtaining, maintaining, and accounting for essential personnel, equipment, and supplies.
- Providing communication planning and resources.
- Setting up food services.
- Setting up and maintaining incident facilities.
- Providing support transportation.
- Providing medical services to incident personnel.

### LOGISTICS SECTION CHIEF

- Plan the organization of the Logistics Section.
- Assign work locations and preliminary work tasks to Section personnel.
- Notify the Resources Unit of the Logistics Section units activated including names and locations of assigned personnel.
- Assemble and brief Branch Directors and Unit Leaders.
- Participate in preparation of the Incident Action Plan.
- Identify service and support requirements for planned and expected operations.
- Provide input to and review the Communications Plan, Medical Plan and Traffic Plan.
- Coordinate and process requests for additional resources.
- Review the Incident Action Plan and estimate Section needs for the next operational period.
- Advise on current service and support capabilities.
- Prepare service and support elements of the Incident Action Plan.
- Estimate future service and support requirements.
- Receive Incident Demobilization Plan from Planning Section.
- Recommend release of Unit resources in conformity with Incident Demobilization Plan.
- Ensure the general welfare and safety of Logistics Section personnel.

### SERVICE BRANCH DIRECTOR

- Determine the level of service required to support operations.
- Confirm dispatch of Branch personnel.
- Participate in planning meetings of Logistics Section personnel.
- Review the Incident Action Plan.
- Organize and prepare assignments for Service Branch personnel.
- Coordinate activities of Branch Units.
- Inform the Logistics Section Chief of Branch activities.
- Resolve Service Branch problems.

### COMMUNICATIONS UNIT LEADER

- Prepare and implement the Incident Radio Communications Plan (ICS Form 205-CG).
- Ensure the Incident Communications Center and the Message Center is established.
- Establish appropriate communications distribution/maintenance locations within the Base/Camp(s).
- Ensure communications systems are installed and tested.
- Ensure an equipment accountability system is established.
- Ensure personal portable radio equipment from cache is distributed per Incident Radio Communications Plan.
- Provide technical information as required on:
  - Adequacy of communications systems currently in operation.
  - Geographic limitation on communications systems.
  - Equipment capabilities/limitations.
  - Amount and types of equipment available.
  - Anticipated problems in the use of communications equipment.
- Supervise Communications Unit activities.
- Maintain records on all communications equipment as appropriate.
- Ensure equipment is tested and repaired.
- Recover equipment from Units being demobilized.

### MEDICAL UNIT LEADER

- Participate in Logistics Section/Service Branch planning activities.
- Prepare the Medical Plan (ICS Form 206-CG).
- Prepare procedures for major medical emergency.
- Declare major emergency as appropriate.
- Respond to requests for medical aid, medical transportation, and medical supplies.
- Prepare and submit necessary documentation.

### FOOD UNIT LEADER

- Determine food and water requirements.
- Determine the method of feeding to best fit each facility or situation.
- Obtain necessary equipment and supplies and establish cooking facilities.
- Ensure that well-balanced menus are provided.
- Order sufficient food and potable water from the Supply Unit.
- Maintain an inventory of food and water.
- Maintain food service areas, ensuring that all appropriate health and safety measures are being followed.
- Supervise caterers, cooks, and other Food Unit personnel as appropriate.

**SUPPORT BRANCH DIRECTOR**

- Determine initial support operations in coordination with the Logistic Section Chief and Service Branch Director.
- Prepare initial organization and assignments for support operations.
- Assemble and brief Support Branch personnel.
- Determine if assigned Branch resources are sufficient.
- Maintain surveillance of assigned units work progress and inform the Logistic Section Chief of their activities.
- Resolve problems associated with requests from the Operations Section.

**SUPPLY UNIT LEADER**

- Participate in Logistics Section/Support Branch planning activities.
- Determine the type and amount of supplies en route.
- Review the Incident Action Plan for information on operations of the Supply Unit.
- Develop and implement safety and security requirements.
- Order, receive, distribute, and store supplies and equipment.
- Receive and respond to requests for personnel, supplies, and equipment.
- Maintain an inventory of supplies and equipment.
- Service reusable equipment.
- Submit reports to the Support Branch Director.

**FACILITY UNIT LEADER**

- Review the Incident Action Plan.
- Participate in Logistics Section/Support Branch planning activities.
- Determine requirements for each facility, including the Incident Command Post (See Figure 2.6 for list of hotels).
- Prepare layouts of incident facilities.
- Notify Unit Leaders of facility layout.
- Activate incident facilities.
- Provide Base and Camp Managers and personnel to operate facilities.
- Provide sleeping facilities.
- Provide security services.
- Provide facility maintenance services (e.g., sanitation, lighting, clean up).
- Demobilize Base and Camp facilities.
- Maintain facility records.

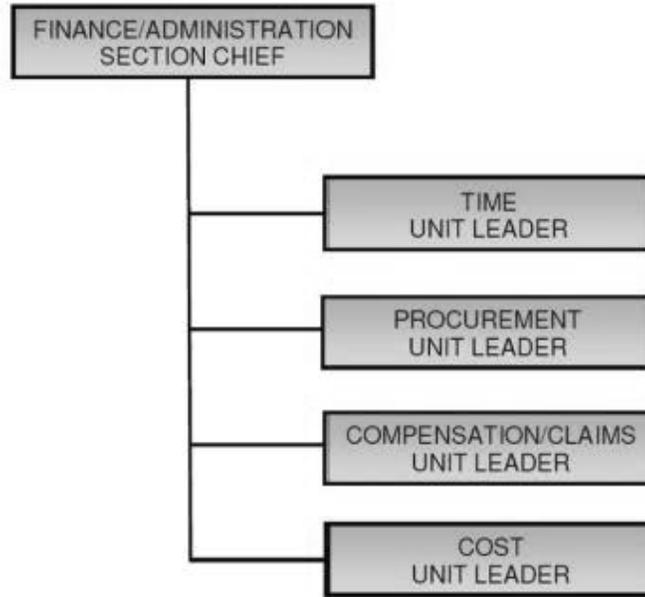
**GROUND SUPPORT UNIT LEADER**

- Participate in Support Branch/Logistics Section planning activities.
- Develop and implement the Traffic Plan.
- Support out-of-service resources.
- Notify the Resources Unit of all status changes on support and transportation vehicles.
- Arrange for and activate fueling, maintenance, and repair of ground resources.
- Maintain Support Vehicle Inventory and transportation vehicles (ICS Form 218).
- Provide transportation services, In accordance with requests from the Logistic Section Chief or Support Branch Director.
- Collect information on rented equipment.
- Requisition maintenance and repair supplies (e.g., fuel, spare parts).
- Maintain incident roads.
- Submit reports to Support Branch Director as directed.

**VESSEL SUPPORT UNIT LEADER**

- Participate in Support Branch/Logistics Section planning activities.
- Coordinate development of the Vessel Routing Plan.
- Coordinate vessel transportation assignments with the Protection and Recovery Branch or other sources of vessel transportation.
- Coordinate water-to-land transportation with the Ground Support Unit, as necessary.
- Maintain a prioritized list of transportation requirements that need to be scheduled with the transportation source.
- Support out-of-service vessel resources, as requested.
- Arrange for fueling, dockage, maintenance and repair of vessel resources, as requested.
- Maintain inventory of support and transportation vessels.

### FINANCE/ADMINISTRATION



### **FINANCE/ADMINISTRATION SECTION GENERAL FUNCTIONS**

- Responsible for all financial and cost analysis aspects of an incident. (Note: Not all incidents will require a separate Finance/Administration Section. In cases that require only one specific function (e.g., cost analysis), this service may be provided by a member of the Planning Section.)
- Administering any contract negotiation.
- Providing cost analysis as it pertains to the Incident Action Plan.
- Maintaining cost associated with the incident.
- Tracking personnel and equipment time.
- Addressing compensation for injury or damage to property issues.

### **FINANCE/ADMINISTRATION SECTION CHIEF**

- Attend planning meetings as required.
- Manage all financial aspects of an incident.
- Provide financial and cost analysis information as requested.
- Gather pertinent information from briefings with responsible agencies.
- Develop an operating plan for the Finance/Administration Section; fill supply and support needs.
- Determine the need to set up and operate an incident commissary.
- Meet with assisting and cooperating agency representatives, as needed.
- Maintain daily contact with agency(s) administrative headquarters on Finance/Administration matters.
- Ensure that all personnel time records are accurately completed and transmitted, according to policy.
- Provide financial input to demobilization planning.
- Ensure that all obligation documents initiated at the incident are properly prepared and completed.
- Brief administrative personnel on all incident-related financial issues needing attention or follow-up prior to leaving incident.

### **TIME UNIT LEADER**

- Determine incident requirements for time recording function.
- Determine resource needs.
- Contact appropriate agency personnel/representatives.
- Ensure that daily personnel time recording documents are prepared and in compliance with policy.
- Establish time unit objectives.
- Maintain separate logs for overtime hours.
- Establish commissary operation on larger or long-term incidents as needed.
- Submit cost estimate data forms to the Cost Unit, as required.
- Maintain records security.
- Ensure that all records are current and complete prior to demobilization.
- Release time reports from assisting agency personnel to the respective Agency Representatives prior to demobilization.
- Brief the Finance/Administration Section Chief on current problems and recommendations, outstanding issues, and follow-up requirements.

### PROCUREMENT UNIT LEADER

- Review incident needs and any special procedures with Unit Leaders, as needed.
- Coordinate with local jurisdiction on plans and supply sources.
- Obtain the Incident Procurement Plan.
- Prepare and authorize contracts and land-use agreements.
- Draft memoranda of understanding as necessary.
- Establish contracts and agreements with supply vendors.
- Provide for coordination between the Ordering Manager, agency dispatch, and all other procurement organizations supporting the incident.
- Ensure that a system is in place that meets agency property management requirements. Ensure proper accounting for all new property.
- Interpret contracts and agreements; resolve disputes within delegated authority.
- Coordinate with the Compensation/Claims Unit for processing claims.
- Coordinate use of impress funds, as required.
- Complete final processing of contracts and send documents for payment.
- Coordinate cost data in contracts with the Cost Unit Leader.
- Brief the Finance/Administration Section Chief on current problems and recommendations, outstanding issues, and follow-up requirements.

### COMPENSATION/CLAIMS UNIT LEADER

- Establish contact with the incident Security Officer and Liason Officer (or Agency Representatives if no Liason Officer is assigned).
- Determine the need for Compensation for Injury and Claims Specialists and order personnel as needed.
- Establish a Compensation for Injury work area within or as close as possible to the Medical Unit.
- Review Medical Plan (ICS Form 206-CG).
- Ensure that Compensation/Claims Specialists have adequate workspace and supplies.
- Review and coordinate procedures for handling claims with the Procurement Unit.
- Brief the Compensation/Claims Specialists on incident activity.
- Periodically review logs and forms produced by the Compensation/Claims Specialists to ensure that they are complete, entries are timely and accurate and that they are in compliance with agency requirements and policies.
- Ensure that all Compensation for Injury and Claims logs and forms are complete and routed appropriately for post-incident processing prior to demobilization.
- Keep the Finance/Administration Section Chief briefed on Unit status and activity.
- Demobilize unit in accordance with the Incident Demobilization Plan.

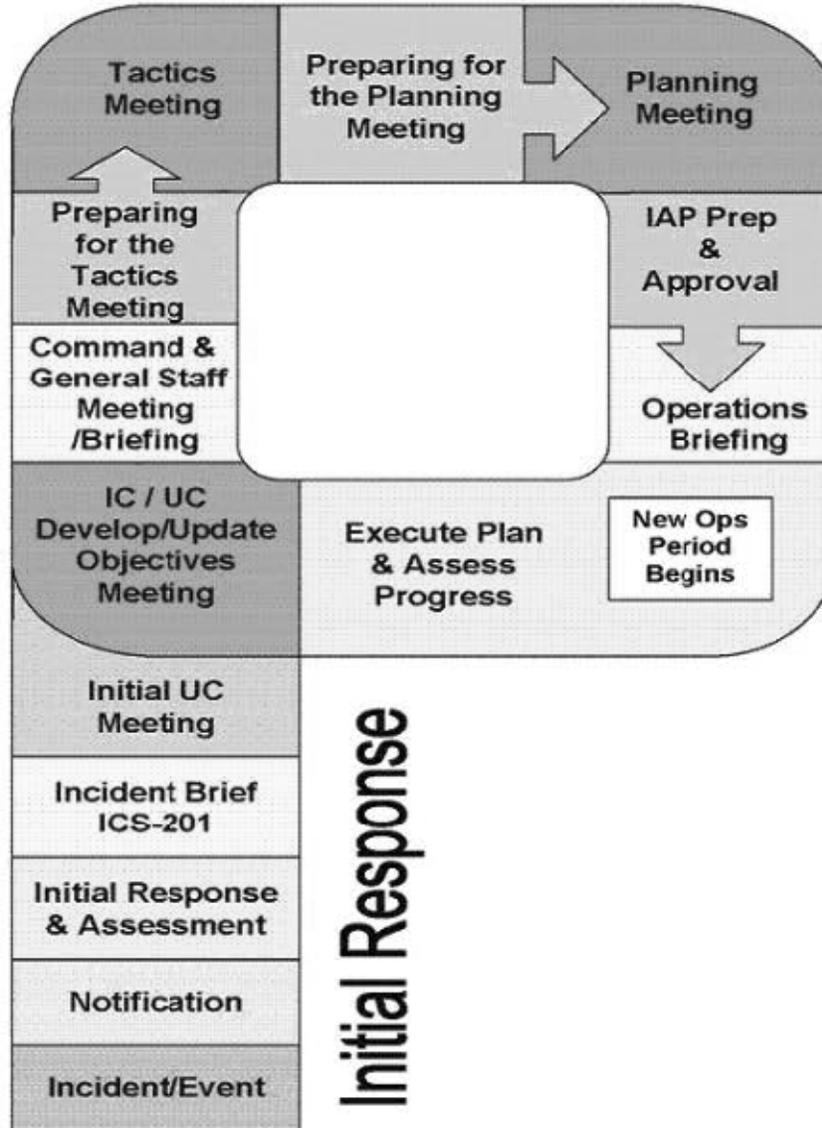
### COST UNIT LEADER

- Coordinate cost reporting procedures.
- Collect and record all cost data.
- Develop incident cost summaries.
- Prepare resources-use cost estimates for the Planning Section.
- Make cost-saving recommendations to the Finance/Administration Section Chief.
- Ensure all cost documents are accurately prepared.
- Maintain cumulative incident cost records.
- Complete all records prior to demobilization.
- Provide reports to the Finance/Administration Section Chief.

FIGURE 4.2

**UNITED STATES COAST GUARD**  
**Operations Period Planning**

**The Operational Planning "P"**



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## 5.0 RESPONSE PLANNING

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5.1 Incident Action Plan

5.2 Site Safety Plan

## 5.1 INCIDENT ACTION PLAN

Emergency response activities are planned and coordinated through the use of an Incident Action Plan (IAP), which is developed for each Operational Period of a response by the Initial Response Team. For small responses, an ICS 201 may be used as the IAP and, for all incidents, the ICS 201 will serve as the initial IAP.

For larger or more complex incidents, a more complete IAP will be necessary. These IAPs are generally created through the completion and compilation of several standard Incident Command System forms. These forms include, but are not limited to:

ICS FORM NUMBER	FORM TITLE	PREPARED BY
IAP Cover Sheet	ICS IAP Cover Sheet	<b>Planning Section</b> - Situation Unit Leader
201-CG	Incident Briefing	<b>Command Section</b> - Initial Response Incident Commander
202-CG	Incident Objectives	<b>Planning Section</b> - Planning Section Chief
203-CG	Organization Assignment List	<b>Planning Section</b> - Resources Unit Leader
204-CG	Assignment List	<b>Operations Section</b> - Chief & Resources Unit Leader
204a-CG	Assignment List Attachment	<b>Operations Section</b> - Chief & Resources Unit Leader
205-CG	Incident Radio Communication Plan	<b>Logistics Section</b> - Communication Unit Leader
205a-CG	Communications List	<b>Logistics Section</b> - Communication Unit Leader
206-CG	Medical Plan	<b>Logistics Section</b> - Medical Unit Leader
207-CG	Incident Organization	<b>Planning Section</b> - Resources Unit Leader
209-CG	Incident Status Summary	<b>Command Section</b> - Incident Commander
211-CG	Check-In List	
213-RR CG	Resource Request Message	
214-CG	Unit Log	<b>Planning Section</b> - Situation Unit Leader
215-CG	Operational Planning Worksheet	
215A-CG	Incident Action Plan Safety Analysis	
218	Support Vehicle Inventory	<b>Logistics Section</b> - Ground Support Unit Leader
220-CG	Air Operations Summary	<b>Operations Section</b> - Air Operations Branch Director
230-CG	Daily Meeting Schedule	
232-CG	Resources at Risk Summary	<b>Planning Section</b> - Situation Unit Leader
232a-CG	ACP Site Index	
233-CG	Incident Open Action Tracker	
234-CG	Work Analysis Matrix	
235-CG	Facility Needs Assessment Worksheet	
	Site Safety Plan	<b>Command Section</b> - Safety Officer
	Employee Certification Page	
	Media Statement	

Depending on the nature and severity of the emergency, additional documents may be included in the Incident Action Plan. These may include:

- Sensitivity Maps (Provided in Section 6)
- Waste Management and Disposal Plans (Provided in Appendix E)
- Plans for use of Alternative Technologies (Dispersant/In-situ Burning/ Bioremediation)
- Security Plans
- Decontamination Plans
- Traffic Plans

## 5.2 SITE SAFETY PLAN

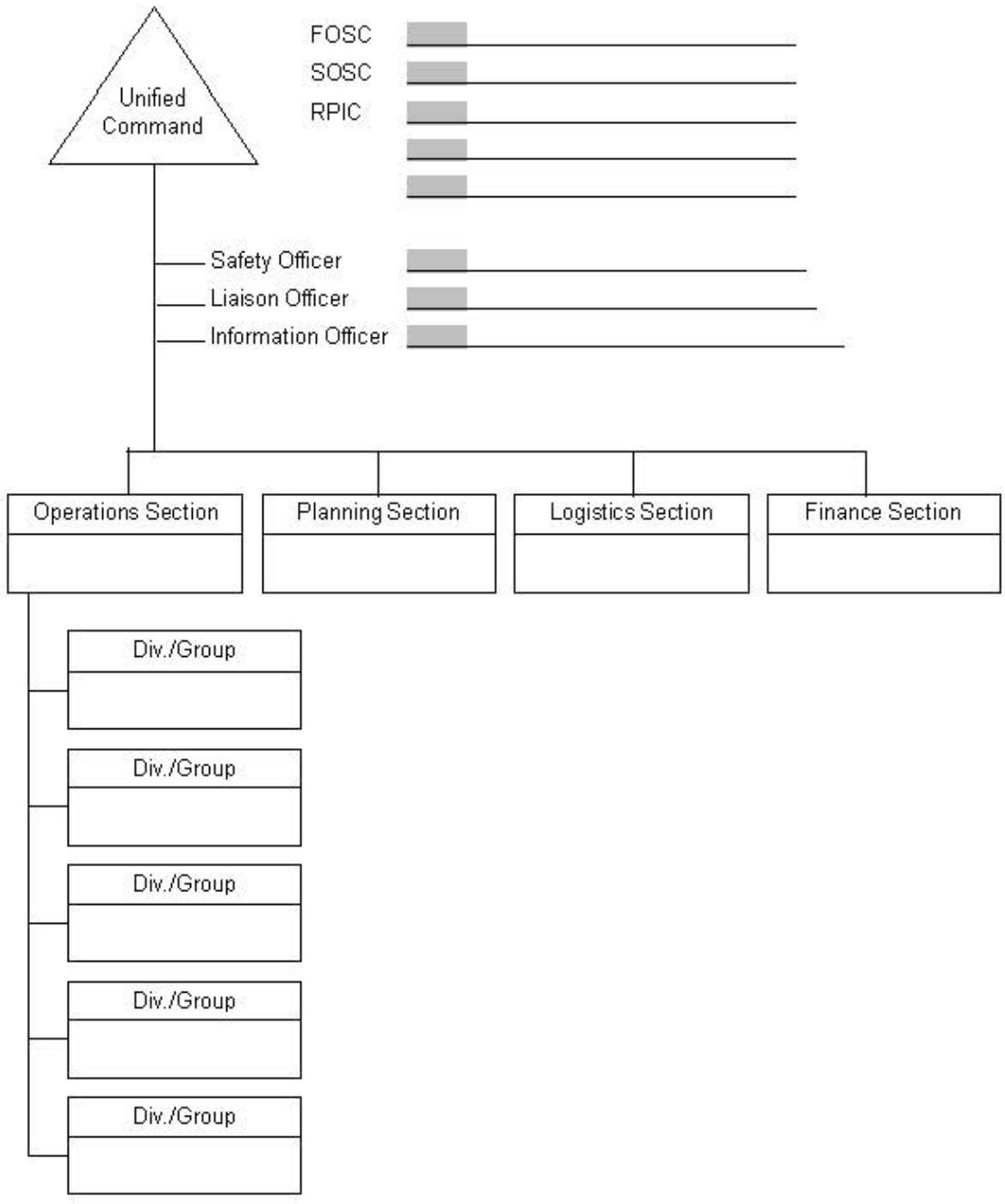
Site Safety Plans (SSPs) are required by United States Occupational Safety and Health Administration (29 CFR 1910.120(b)(4)) for all hazardous waste operations. The Site Safety Plan should address all on-site operations and hazardous as well as on-site emergency procedures.

The Site Safety Plan is typically prepared by the Safety Officer and approved by the Incident Commander. All personnel must be familiar with the contents of the Site Safety Plan and the Site Safety Plan must be updated as conditions, operations and hazards associated with the response change.

1. Incident Name [REDACTED]	2. Operational Period to be covered by IAP (Date/Time) From: [REDACTED] To: [REDACTED]	IAP COVER SHEET
3. Approved by: FOSC [REDACTED] SOSC [REDACTED] RPIC [REDACTED] _____ _____		
<h2>INCIDENT ACTION PLAN</h2> <p>The items checked below are included in this Incident Action Plan:</p> <p><input type="checkbox"/> ICS 202-OS (Response Objectives)</p> <hr/> <p><input type="checkbox"/> ICS 203-OS (Organization List) – OR – ICS 207-OS (Organization Chart)</p> <hr/> <p><input type="checkbox"/> ICS 204-OSs (Assignment Lists) One Copy each of any ICS 204-OS attachments:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Map</li> <li><input type="checkbox"/> Weather forecast</li> <li><input type="checkbox"/> Tides</li> <li><input type="checkbox"/> Shoreline Cleanup Assessment Team Report for location</li> <li><input type="checkbox"/> Previous day's progress, problems for location</li> </ul> <hr/> <p><input type="checkbox"/> ICS 205-OS (Communications List)</p> <hr/> <p><input type="checkbox"/> ICS 206-OS (Medical Plan)</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> [REDACTED]</li> </ul>		
4. Prepared by: [REDACTED] Date/Time [REDACTED]		
IAP COVER SHEET <span style="float: right;">June 2000</span>		

1. Incident Name [Redacted]	2. Prepared by: (name) [Redacted] Date: [Redacted] Time: [Redacted]	INCIDENT BRIEFING ICS 201-CG
3. Map/Sketch (include sketch, showing the total area of operations, the incident site/area, overflight results, trajectories, impacted shorelines, or other graphics depicting situational and response status) [Redacted]		
4. Current Situation: [Redacted]		
[Redacted]		
[Redacted]		
[Redacted]		
[Redacted]		
[Redacted]		
[Redacted]		
[Redacted]		
[Redacted]		
[Redacted]		



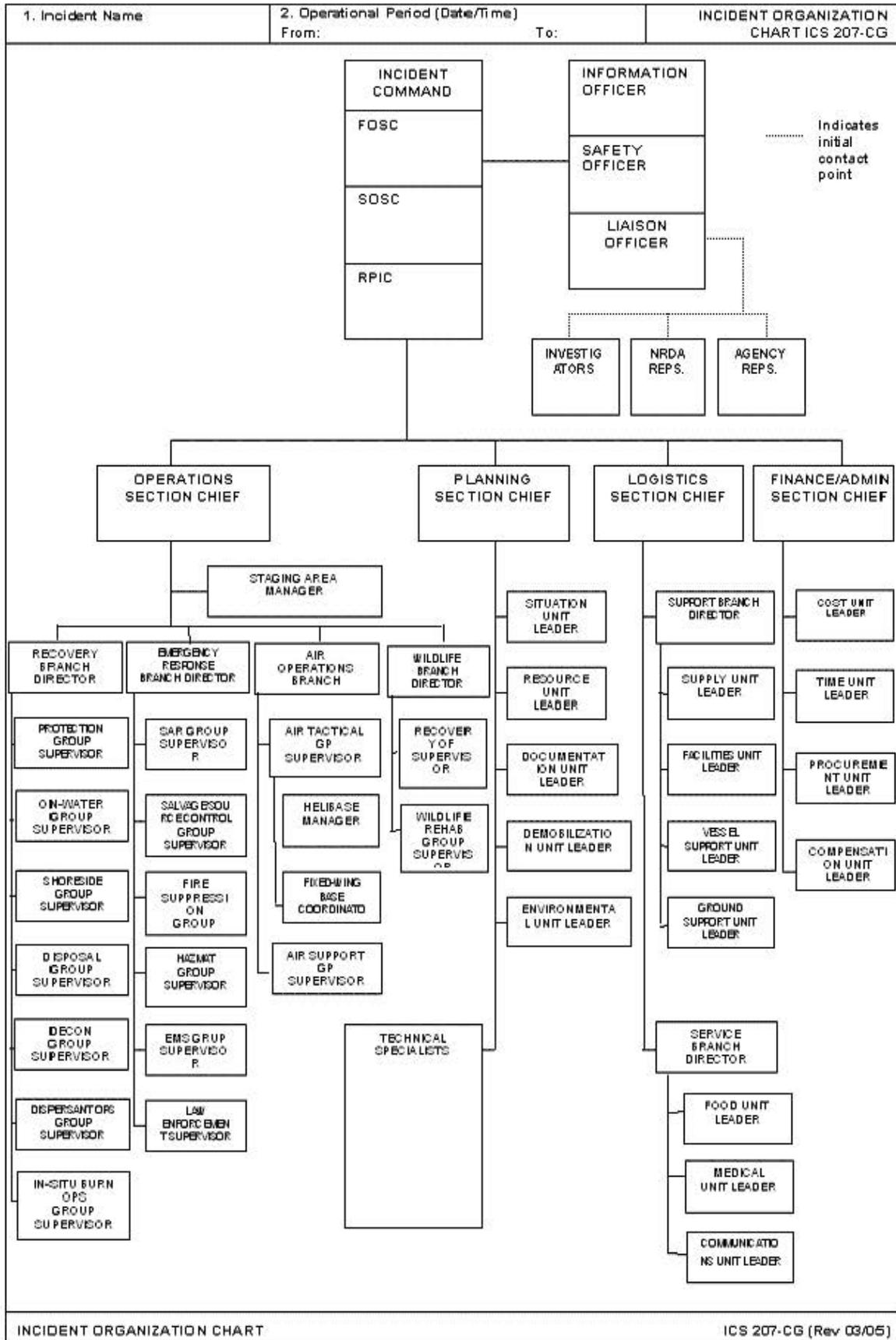
1. Incident Name 	2. Prepared by: (name) _____ Date: _____ Time: _____	INCIDENT BRIEFING ICS 201-CG
3. Current Organization		
		



1. Incident Name █	2. Operational Period (Date/Time) From: █ To: █	INCIDENT OBJECTIVES ICS 202-CG
3. Objective(s) █		
4. Operational Period Command Emphasis (Safety Message, Priorities, Key Decisions/Directions) █		
Approved Site Safety Plan Located at: █		
5. Prepared by: (Planning Section Chief) █	Date/Time █	

1. Incident Name █		2. Operational Period (Date/Time) From: █ To: █		ORGANIZATION ASSIGNMENT LIST ICS 203-CG	
3. Incident Commander(s) and Staff			7. OPERATION SECTION		
Agency	IC	Deputy	Chief	█	█
█	█	█	Deputy	█	█
█	█	█	Deputy	█	█
█	█	█	Staging Area Manager	█	█
█	█	█	Staging Area Manager	█	█
█	█	█	Staging Area Manager	█	█
Safety Officer:	█	█	█	█	█
Information Officer:	█	█	█	█	█
Liaison Officer:	█	█	█	█	█
█	█	█	█	█	█
4. Agency Representatives			a. Branch – Division Groups		
Agency	Name		Branch Director	█	█
█	█		Deputy	█	█
█	█		Division Group	█	█
█	█		Division Group	█	█
█	█		Division Group	█	█
█	█		Division/Group	█	█
█	█		Division/Group	█	█
5. PLANNING/INTEL SECTION			b. Branch – Division/Groups		
Chief	█	█	Branch Director	█	█
Deputy	█	█	Deputy	█	█
Resources Unit	█	█	Division/Group	█	█
Situation Unit	█	█	Division/Group	█	█
Environmental Unit	█	█	Division/Group	█	█
Documentation Unit	█	█	Division/Group	█	█
Demobilization Unit	█	█	Division/Group	█	█
Technical Specialists	█	█	c. Branch – Division/Groups		
█	█	█	Branch Director	█	█
█	█	█	Deputy	█	█
█	█	█	Division/Group	█	█
█	█	█	Division/Group	█	█
6. LOGISTICS SECTION			Division/Group	█	█
Chief	█	█	Division/Group	█	█
Deputy	█	█	Division/Group	█	█
a. Support Branch			d. Air Operations Branch		
Director	█	█	Air Operations Br. Dir	█	█
Supply Unit	█	█	Helicopter Coordinator	█	█
Facilities Unit	█	█	█	█	█
Vessel Support Unit	█	█	8. FINANCE/ADMINISTRATION SECTION		
Ground Support Unit	█	█	Chief	█	█
█	█	█	Deputy	█	█
b. Service Branch			Time Unit	█	█
Director	█	█	Procurement Unit	█	█
Communications Unit	█	█	Compensation/Claims Unit	█	█
Medical Unit	█	█	Cost Unit	█	█
Food Unit	█	█	█	█	█
9. Prepared By: (Resources Unit)			Date/Time		
█	█	█	█	█	█





## SITE SAFETY PLAN

### I. General

Pump Station    Pipeline Spill    Spill to Water    Excavation    Other: \_\_\_\_\_

Location: \_\_\_\_\_

Work to be performed: \_\_\_\_\_

Issuing Date: \_\_\_\_\_ Time: \_\_\_\_\_  
 Temperature: \_\_\_\_\_ ° Wind Direction: \_\_\_\_\_  
 Humidity: \_\_\_\_\_

### II. Hazards to be Evaluated

				SPECIFIC HAZARDS				
Y	H	Y	H	Y	H			
<input type="checkbox"/>	<input type="checkbox"/>	Oxygen Deficient/Enriched	<input type="checkbox"/>	<input type="checkbox"/>	Ingestion / Skin Absorption	<input type="checkbox"/>	<input type="checkbox"/>	Crude Oil
<input type="checkbox"/>	<input type="checkbox"/>	Flammable Atmosphere (Explosion Fire)	<input type="checkbox"/>	<input type="checkbox"/>	Frostbite	<input type="checkbox"/>	<input type="checkbox"/>	Other* (      )
<input type="checkbox"/>	<input type="checkbox"/>	Toxic Atmosphere: _____	<input type="checkbox"/>	<input type="checkbox"/>	Chemical/MSDS # _____ (Must be attached)			
<input type="checkbox"/>	<input type="checkbox"/>	Boat Operations	<input type="checkbox"/>	<input type="checkbox"/>	Physical Hazard _____			
<input type="checkbox"/>	<input type="checkbox"/>	Confined Space	<input type="checkbox"/>	<input type="checkbox"/>	Traffic _____			
			<input type="checkbox"/>	<input type="checkbox"/>	Vapor Cloud			

### III. Testing & Monitoring (Check required items)

*Tests are to be performed in the order listed.*

**ACCEPTABLE ENTRY CONDITIONS**

Y	N	Continuous	Frequency	LEL / HEAVY AREA		
				SPECIAL WORK PRACTICES OR PPE REQUIRED	WORK EFFORTS SHOULD BE REDUCED AT REDUCING CONCENTRATIONS	
<input type="checkbox"/>	<input type="checkbox"/>	Oxygen Level	<input type="checkbox"/> Y <input type="checkbox"/> N _____ every _____	19.5 – 23.0% in air	< 19.5% or 23.0% in air	< 16.0 or ≥ 23.5% in air
<input type="checkbox"/>	<input type="checkbox"/>	LEL	<input type="checkbox"/> Y <input type="checkbox"/> N _____ every _____	< 10% in air	≥ 10.0 but < 20.0% in air	≥ 20.0% in air
<input type="checkbox"/>	<input type="checkbox"/>	Hydrogen Sulfide	<input type="checkbox"/> Y <input type="checkbox"/> N _____ every _____	< 10 ppm	≥ 10 but < 100 ppm	≥ 100 ppm
<input type="checkbox"/>	<input type="checkbox"/>	Benzene	<input type="checkbox"/> Y <input type="checkbox"/> N _____ every _____	< 5 ppm	≥ 5 but < 10 ppm	≥ 10 ppm
<input type="checkbox"/>	<input type="checkbox"/>	Total Hydrocarbons	<input type="checkbox"/> Y <input type="checkbox"/> N _____ every _____	< 300 ppm	≥ 300 but < 750 ppm	≥ 750 ppm
<input type="checkbox"/>	<input type="checkbox"/>	Other: _____	<input type="checkbox"/> Y <input type="checkbox"/> N _____ every _____			

### IV. Required Personal Protective Equipment (Check for required use)

General	Eye Prot.	Respiratory Prot.	Hearing Prot.	Gloves	Footwear	Clothing
<input type="checkbox"/> Hard Hat	<input type="checkbox"/> Safety Glasses	<input type="checkbox"/> SCBA/Air Line w/Escape	<input type="checkbox"/> Ear Plugs	<input type="checkbox"/> Leather	<input type="checkbox"/> Steel-toes	<input type="checkbox"/> FR Coveralls
<input type="checkbox"/> Safety Harness	<input type="checkbox"/> Goggles	<input type="checkbox"/> Air Line	<input type="checkbox"/> Ear Muffs	<input type="checkbox"/> Rubber	<input type="checkbox"/> Rubber	<input type="checkbox"/> Tyvek
<input type="checkbox"/> PFD	<input type="checkbox"/> Face-shield	<input type="checkbox"/> Air Purifying (Full Mask)	<input type="checkbox"/> Combination	<input type="checkbox"/> Nitrile	<input type="checkbox"/> Hip-boots	<input type="checkbox"/> Coated Tyvek
	<input type="checkbox"/> Tinted Lens	Cartridge Type: <input type="checkbox"/> OV	<input type="checkbox"/> Hepa-OV	<input type="checkbox"/> PVC	<input type="checkbox"/> _____	<input type="checkbox"/> Saranyx
				<input type="checkbox"/> _____		<input type="checkbox"/> _____

Any other special PPE: \_\_\_\_\_

### V. Emergency Information and Rescue Services

Emergency Contact Person: \_\_\_\_\_ Contact by: \_\_\_\_\_

Fire Department: \_\_\_\_\_ Contact by: \_\_\_\_\_

Ambulance: \_\_\_\_\_ Contact by: \_\_\_\_\_

Hospital: \_\_\_\_\_ Contact by: \_\_\_\_\_

Rescue Services: \_\_\_\_\_ Contact by: \_\_\_\_\_

(if not provided by above)

**VI. Required Safety & Rescue Equipment (on site)**

<input type="checkbox"/> Lights	<input type="checkbox"/> Fall Protection	<input type="checkbox"/> First Aid Kit	<input type="checkbox"/> Drinking Water	<input type="checkbox"/> Fire Extinguisher	<input type="checkbox"/> Tripod	<input type="checkbox"/> Other: _____
<input type="checkbox"/> Ladder	<input type="checkbox"/> Retrieval Lines	<input type="checkbox"/> Resuscitator	<input type="checkbox"/> Communication Method _____			

**VII. Comments or Special Work Procedures**


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**VIII. Report All Injuries Immediately****IX. Control Measures**

<ul style="list-style-type: none"> <li>Isolation &amp; Lockout (identify items to be locked out)</li> </ul>	<ul style="list-style-type: none"> <li>Ventilation <input type="checkbox"/> Natural <input type="checkbox"/> Mechanical</li> </ul>
<ul style="list-style-type: none"> <li>Establish Work Zones when completed</li> </ul>	<ul style="list-style-type: none"> <li>Continuous <input type="checkbox"/> No <input type="checkbox"/> Yes</li> </ul>
<input type="checkbox"/> Hot Zone = Red Ribbon	<ul style="list-style-type: none"> <li>Flagman / Watchman <input type="checkbox"/></li> </ul>
<input type="checkbox"/> Warm Zone = Yellow Ribbon	<ul style="list-style-type: none"> <li>Confined Space – Safety Watch <input type="checkbox"/></li> </ul>
<input type="checkbox"/> Cold Zone = Blue Ribbon	<ul style="list-style-type: none"> <li>(See Exhibit "B" for Permit)</li> </ul>
	<ul style="list-style-type: none"> <li>Evacuation Routes – (Identify on Map)</li> </ul>
	<input type="checkbox"/> Air Horn – Emergency
	<input type="checkbox"/> Primary Route
	<input type="checkbox"/> Secondary Route

<b>X. Monitoring Results</b>	Zone								
	Time								
	Oxygen Level								
	By								
LEL	Time								
	Level								
	By								
Hydrogen Sulfide	Time								
	Level								
	By								
	Time								
Benzene	Level								
	By								
VOC	Time								
	Level								
	By								
	Time								
	Level								
	By								
	Time								
	Level								
	By								
	Time								
	Level								
	By								
	Time								
	Level								
	By								

Equipment:                      Type: \_\_\_\_\_ Mfger: \_\_\_\_\_ Calibration / Expiration: \_\_\_\_\_  
    Type: \_\_\_\_\_ Mfger: \_\_\_\_\_ Calibration / Expiration: \_\_\_\_\_





## 6.0 SPILL IMPACT CONSIDERATIONS

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- 6.1 Critical Areas to Protect
- 6.2 Environmental/Socio-Economic Sensitivities
- 6.3 Fisheries and Wildlife Protection
- 6.4 Staging Areas
- 6.5 Containment and Recovery of Spilled Product
- 6.6 Vulnerability Analysis
- 6.7 Alternative Response Strategies

**Figure 6.1** On-Water Response Flowchart

**Figure 6.2** Environmental Sensitivity Maps

Live Oak County

Nueces County

**Figure 6.3** Endangered/Threatened Species Listing

## 6.1 CRITICAL AREAS TO PROTECT

The critical areas to protect are classified as high, moderate, and low sensitivity to oil for non-coastal/inland environments. The Federal, State, and Local authorities will further clarify these categories at the time of the response. The categories are defined as follows:

### HIGH SENSITIVITY

- Areas which are high in productivity, abundant in many species, extremely sensitive, difficult to rehabilitate, or inhabited by threatened/endangered species.
- Areas which consist of forested areas, brush/grassy areas, wooded lake areas, freshwater marshes, wildlife sanctuaries/refuges, and vegetated river/stream banks.

### MODERATE SENSITIVITY

- Areas of moderate productivity, somewhat resistant to the effects of oiling.
- Areas which consist of degraded marsh habitat, clay/silt banks with vegetated margins, and gravel/cobble beaches.

### LOW SENSITIVITY

- Areas of low productivity, man-made structures, and/or high energy.
- Areas which consist of gravel, sand, or clay material, barren/rocky riverbanks and lake edges, man-made structures, and concrete/compacted earthen drainage ditches.

## 6.2 ENVIRONMENTAL/SOCIO-ECONOMIC SENSITIVITIES

Environmental/Socio-economic sensitivities are of extreme importance when planning a response effort. The health and safety of the public and the environment, as well as the protection of the various socio-economic sensitivities, must be promptly addressed in order to mitigate the extent of damage and minimize the cost of the clean-up effort.

The Company will explore, where appropriate, equivalent environmental protection systems, methods, devices, or technologies that maintain or may be less damaging to the character of heritage resources or archeological sites. If a release from the pipeline impacts a heritage resource, the Company will respond as outlined in Section 3.0, report to the appropriate authority prescribed by law, cleanup and restore the area as required by regulation, and conduct such sampling, analyses, or associated monitoring during and after restoration.

All environmental/socio-economic sensitivities are worthy of protection, but must be prioritized during a response effort. When making decisions on which areas to designate as collection areas and which to protect, the following sources may be consulted:

- U.S. Fish and Wildlife Service and related state agencies
- Applicable Area Contingency Plans
- Other industry and private experts

The environmental and socio-economic sensitivities in the vicinity of the Pipeline have been broken down into specific categories and identified in this Section. To further clarify the location of the sensitive areas of concern, references to published Area Contingency Plans and Environmental Sensitivity Maps are also provided in this section.

### **6.3 FISHERIES AND WILDLIFE PROTECTION**

The Company will work with Federal, State, and local agency personnel to provide labor and transportation to retrieve, clean, and rehabilitate birds and wildlife affected by an oil spill, as necessary. Oversight of the Company's wildlife preservation activities and coordination with Federal, State, and Local agencies during an oil spill is the responsibility of the Incident Commander.

Protecting fish habitat (e.g. spawning and rearing grounds) is important to both consumers and commercial fisheries. Beyond typical response strategies, other options could include moving floating facilities, temporarily sinking facilities using cages designed for this purpose, temporary suspension of water intakes, or closing sluice gates to isolate the facilities from contamination.

Special consideration should be given to the protection and rehabilitation of endangered species and other wildlife and their habitat in the event of an oil spill and subsequent response. Jurisdictional authorities should be notified and worked with closely on all response/clean-up actions related to wildlife protection and rehabilitation. Laws with significant penalties are in place to ensure appropriate protection of these species.

## Wildlife Rescue

The Company will work with Federal, Province/State, and Local agency personnel to provide labor and transportation to retrieve, clean, and rehabilitate wildlife affected by an oil spill, as the situation demands.

The following are items which should be considered for wildlife rescue and rehabilitation during a spill response:

- Bird relocation can be accomplished using a variety of deterrents, encouraging birds to avoid areas of spilled oil. Bird relocation can be accomplished by utilizing deterrent methods including:
  - Use of visual stimuli, such as inflatable bodies, owls, stationary figures, or helium balloons, etc.
  - Use of auditory stimuli, such as propane cannons, recorded sounds, or shell crackers.
  - Use of herding with aircraft, boats, vehicles, or people (as appropriate). Use of capture and relocation.

## Search and Rescue - Points to consider

- **The Company's involvement should be limited to offering assistance as needed or requested by the agencies.**
- Prior to initiating any organized search and rescue plan, **authorization must be obtained from the appropriate Federal/State agency.**
- **Initial search and rescue efforts, if needed, should be left up to the appropriate agencies.** They have the personnel, equipment, and training to immediately begin capturing contaminated wildlife.
- With or without authorization, it must be anticipated that volunteer citizens will aid distressed/contaminated wildlife on their own. It is important to communicate that it may be illegal to handle wildlife without express authority from appropriate agencies. Provisions should be made to support an appropriate rehabilitator; however, **no support should be given to any unauthorized volunteer rescue efforts.**
- The regulatory agencies and response personnel should be provided the name and location of a qualified rehabilitator in the event contaminated wildlife is captured.
- Resources and contacts that can assist with wildlife rescue and rehabilitation are provided in Section 2.0. This list includes:
  - Outside rehabilitation organizations
  - Local regulatory agencies
  - Other resources

## 6.4 STAGING AREAS

When establishing personnel and equipment staging areas for a response to a Pipeline discharge, the following criteria should be evaluated:

- Access to waterborne equipment launching facilities and/or land equipment.
- Access to open space for staging/deployment of heavy equipment and personnel.
- Access to public services utilities (electricity, potable water, public phone, restroom and washroom facilities, etc.).
- Access to the environmental and socio-economically sensitive areas which are projected for impact.

## 6.5 CONTAINMENT AND RECOVERY OF SPILLED PRODUCT

General descriptions of various specific response techniques that may be applied during a response effort are discussed below. Company responders are free to use all or any combination of these methods as incident conditions require, provided they meet the appropriate safety standards and other requirements relative to the situation encountered. Data was obtained from reports, manuals and pamphlets prepared by the American Petroleum Institute, Environmental Protection Agency, and the United States Coast Guard. The most effective cleanup of a product spill will result from an integrated combination of clean-up methods. Each operation should complement and assist related operations and not merely transfer spillage problems to areas where they could be more difficult to handle.

The spill should be assessed as soon as possible to determine the source, extent and location of travel. Terrain and other physical conditions downgradient of the spill site will determine the methods of control at a point in advance of the moving product. Often, the bulk of a spill can be contained at a single location or a few key locations in the immediate vicinity of the source point. When possible, the execution of this type of initial containment strategy helps confine a spill to a relatively limited area.

## Spill on Land (Soil Surfaces)

### • Confinement Methods

Product can be trapped in ditches and gullies by earth dams. Where excavating machinery is available, dams can be bulldozed to contain lakes of product. Dams, small and large, should be effectively employed to protect priority areas such as inlets to drains, sewers, ducts and watercourses. These can be constructed of earth, sandbags, absorbents, or any other effective method. If time does not permit a large dam, many small ones can be made, each one holding a portion of the spill as it advances. The terrain will dictate the placement of the dams. If the spill is minor, natural dams or earth absorption will usually stop the product before it advances a significant distance. Cleanup is the main concern in such situations.

In situations where vapors from a spill present a clear and present danger to property or life (possible ignition because of passing automobiles, nearby houses, or work vehicles approaching the area), spraying the surface of the spill with dispersant will greatly reduce the release of additional vapors from the product. This method is especially adapted to gasoline spills on soil surfaces.

Prior to the use of dispersant agents, ensure that permission has been granted by government authorities and local landowner. Local government authorities to be contacted may include city council, county board of commissioners, city or county fire chiefs, the county forestry commission or firetower, and the local environmental protection agency. In seeking permission from these authorities, be prepared to convince them that adequate safety precautions have been and will be taken during the operation.

### • Removal Methods

The recovery and removal of free product from soil surfaces is a difficult job. The best approaches at present seem to be:

- Removal with suction equipment to tank truck if concentrated in volumes large enough to be picked up. Channels can be formed to drain pools of product into storage pits. The suction equipment can then be used.
- Small pockets may have to be dipped up by hand.

## Spill on Small to Medium Size Streams (Fast-Flowing Creeks)

### • Confinement Methods

The techniques used for product containment on fast-flowing shallow streams are quite different from the ones used on lakes, ponds, or other still bodies of water. The containment and removal processes require a calm stretch of water to allow the product to separate onto the surface of the water. If a calm stretch of water does not exist naturally, a deep slow-moving area should be created by damming. The dam can be constructed by using sandbags, planks or earth. If a dam is required, it should be situated at an accessible point where the stream has high enough banks. The dam should be constructed soundly and reinforced to support the product and water pressure.

- Underflow dam - The underflow dam is one method that can be used, especially on small creeks. The water is released at the bottom, of the dam using a pipe or pipes which are laid during construction of the dam. The flow rate through the pipe must be sufficient to keep the dam from overflowing. One method is to lay the pipe at an angle through the dam (while dam is being constructed) so that the height of the downstream end of the pipe will determine the height the water will rise behind the dam.
- Overflow dam - Another method of containment is the overflow type dam. The dam is constructed so that water flows over the dam, but a deep pool is created which slows the surface velocity of the water. Therefore, the condition of a calm stretch of water is met. The overflow dam may be used where larger flow rates (medium size creeks) of water are involved.

With this type dam, a separate barrier (floating or stationary boom) must be placed across the pool created by the dam. The separate barrier arrests the surface layer of product. At the same time, the water is flowing under the barrier and over the top of the dam. The barrier should be placed at an angle of 45 % across the pool to decrease the effective water velocity beneath it. Also, it helps to concentrate the product at the bank and not all along the barrier. A second barrier should be placed approximately 10 to 15 feet downstream of the first one as a secondary back-up.

The stationary boom type barrier should be made of wood planks or other suitable material. The stationary boom should be soundly constructed and sealed against the bank. The ends of the planks can be buried in the banks of the stream and timber stakes driven into the stream bed for support as needed. The necessary length of the boom will be approximately 1-1/2 times the width of the waterway.

The plank boom should extend six to eight inches deep into the water and about two inches or higher above the water level. If the increase in velocity under the stationary boom is causing release of trapped product, it should be moved upward slightly. At no time should barrier be immersed more than 20% of the depth of the pool at the barrier location; that is, if the pool created by damming is three feet deep, do not exceed an immersion depth of seven inches with the barrier at the position the barrier is installed.

Another method used with the underflow dam is having the pipe or pipes sized to carry only a portion of the flow needed. The pipe would be placed at the bottom of the dam and level with the creek bed. The remaining flow of the creek could be siphoned or preferably pumped around the dam from a point away from the dam and from the deepest portion of the pool. The pumping or siphoning can be controlled to maintain the desired water level at the dam. The key is the removal of water through or around the dam at the lowest point in the basin. This prevents the oil from escaping with the released water.

A floating boom can be used in place of the stationary type if the created pool's size (bank to bank) and depth will permit. Since changing the depth and/or length of a standard floating boom in a small stream is difficult, the use of the stationary type permits adjustments to be made in depth to provide for a better separation of product and water. The advantages of using a floating boom are the speed of deployment and the fact that there is no need for additional support as with the stationary boom.

- Multiple Impoundments - Since emergency built dams (either underflow or overflow) are seldom perfect, a series of dams is usually required. The first one or two will trap the bulk and the ones that are downstream will trap the last traces of product. Precautions should be taken to ensure that the foundations of emergency dams are not washed away by the released water. If earth is used to construct an overflow dam, a layer of earth-filled bags should be placed on top of the dam so erosion will not take place.

- **Removal Methods**

Once the containment dams are constructed, the problem or removal of the product from the water surface should be the prime consideration. The removal must be continuous or else build-up of product behind the dams or booms might lead to product escaping the traps.

The type of removal procedures used depends largely on the amount of product being trapped in a given span of time, if the amount of product moving down the stream is of sufficient quantity, the first dam or fixed boom would quite possibly trap enough for the floating skimmer to work efficiently. The skimmer will pump the product and possibly some water to a tank truck or other holding tank. Separated water may be released from the bottom of the tank truck if it becomes necessary. The absorbents could then be used at downstream dams or booms. It is inadvisable to place an absorbent in the stream prior to or at the first dam in anticipation of the arriving product. Let the product accumulate at the first dam and use the floating skimmer to recover the product.

Disposal of gross amount of product-soaked absorbent would not then be a problem. Follow directions on use of each absorbent. Some are designed to be placed on water before product arrives; others are intended only to be placed on the product after it accumulates on the water. Plastic sheets should be used to place the product-soaked absorbent on as it is hand skimmed from the water. Alternatively, the material may be placed in drums or lined roll-off boxes.

The containment and removal of spilled product on small to medium fast-flowing streams might require a combination of underflow or overflow dams, fixed booms, skimmers, and absorbents, to ensure a complete cleanup.

### **Spill on Stream which Flows into Lake or Pond**

In certain locations where streams (small and large ones) flow into lakes or ponds at relatively short distances, it is conceivable that a spill could reach the lake before containment and recovery operations are set up. If time permits for containment operations to be set up on the stream in question, it then would be handled as described above depending upon the stream size involved.

However, if product in the stream is near the lake site or if product is flowing into the lake with a significant amount yet to arrive, a different containment should be employed.

- **Confinement Methods**

Product on a stream flowing into a lake should be boomed as close to the entrance as possible. The boom should be positioned on the lake at an angle to the residential stream current so as to direct the surface water to a slower moving area. The area where the product is being deflected should be enclosed by booms to contain it. An additional boom for sweeping the product to the bank will be required. This area of containment should not have a current velocity of more than 1/2 knot (0.8 ft./sec.), preferably less.

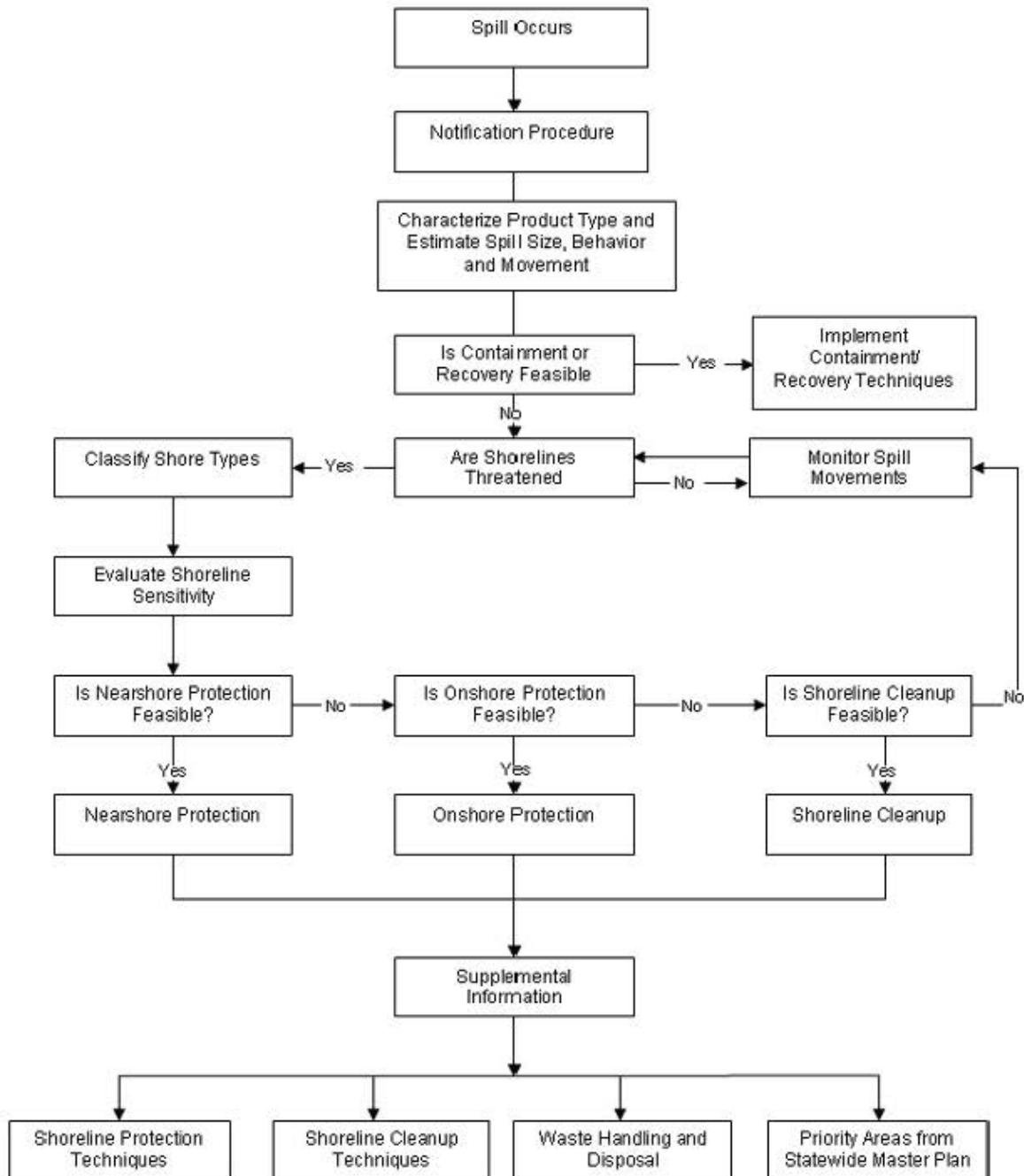
- **Removal Methods**

The removal of product from the lake or pond's surface would be handled as described earlier.

For sizable releases, collected product will usually be pumped into tank trucks and transported to a storage facility. Tank trucks are available at several locations throughout.

FIGURE 6.1

## ON-WATER RESPONSE FLOWCHART



## 6.6 VULNERABILITY ANALYSIS

The thorough examination of published Area Contingency Plans (ACPs) was conducted to identify sensitive areas in all the response zones.

The Environmental Sensitivity Maps located in Figure 6.2 identify sensitive areas along the Pipeline. The appropriate Area Contingency Plan maps are also included to provide more detailed information on sensitivities and possible potential response options.

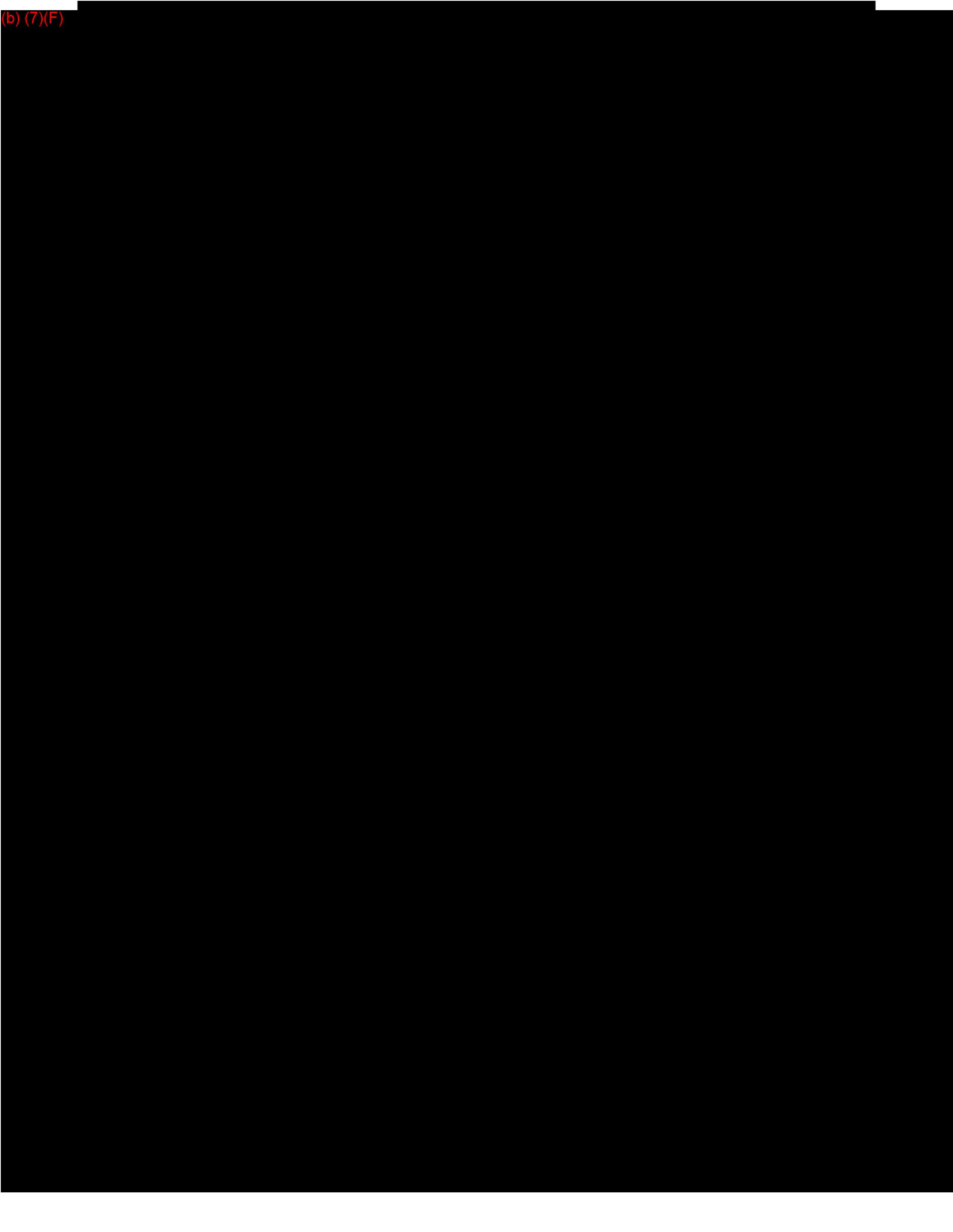
## 6.7 ALTERNATIVE RESPONSE STRATEGIES

There are no pre-approved response options for inland spills within the United States. Any plans to use dispersants or in situ burn by the Company will be submitted to the Federal On-Scene Coordinator for Regional Response Team approval prior to such action being taken.

**FIGURE 6.2****ENVIRONMENTAL SENSITIVITY MAPS**

Remember these maps are to be utilized as guidelines only. During a real response effort Federal, State, and local agencies should be contacted to provide further assistance in the proper identification and protection of the various environmental and socio-economic sensitive areas

<b>Live Oak County</b>	
<b>Three Rivers 12 Inch Crude</b>	<b>Three Rivers Area</b>
<b>Line</b>	

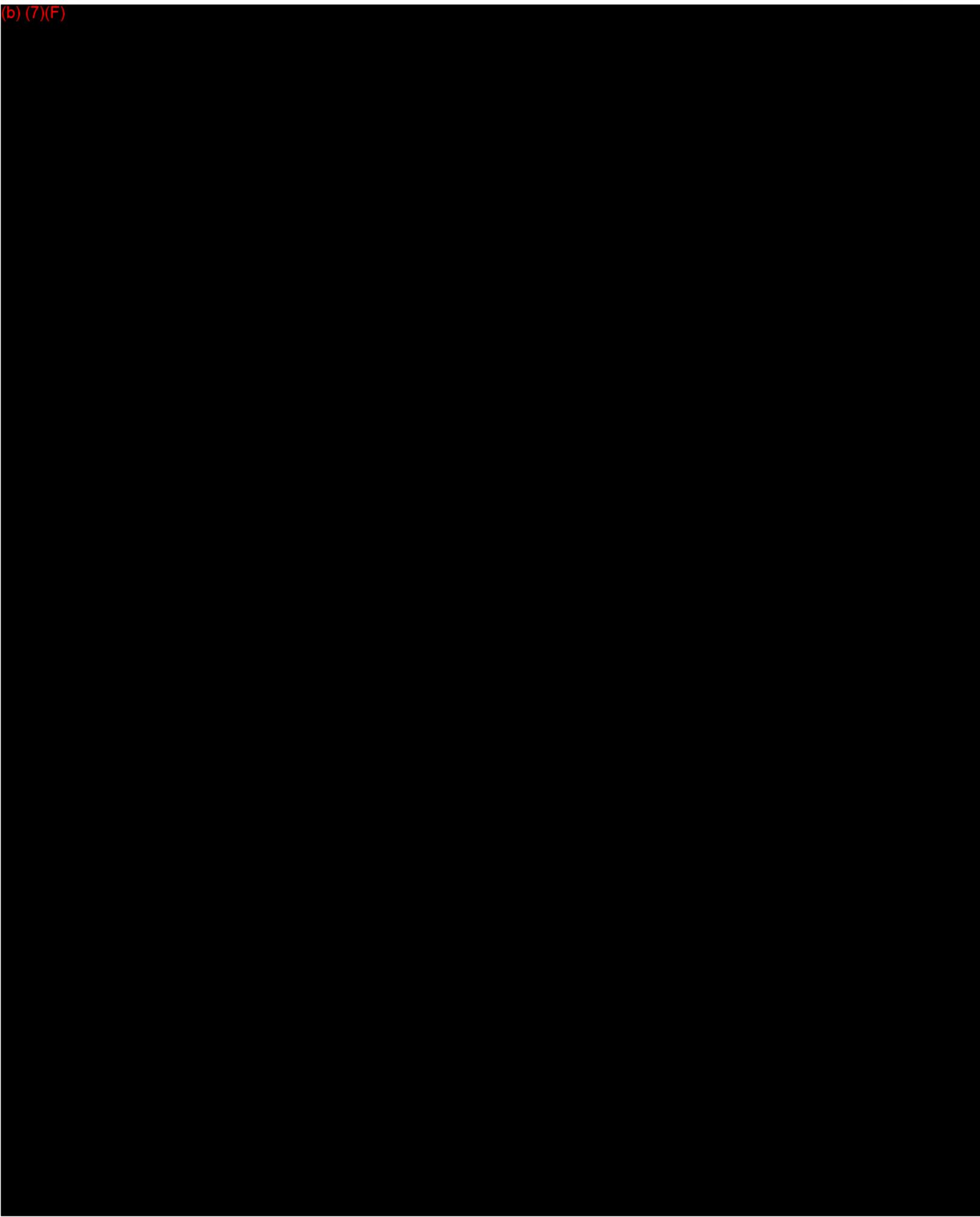


(b) (7)(F)



**Nueces County**  
**Corpus to Plains**

(b) (7)(F)



**FIGURE 6.3**  
**ENDANGERED/THREATENED SPECIES LISTING**

<b>Texas</b>		
<b>Animals</b>		
<b>Status</b>	<b>Species Name</b>	<b>Scientific Name</b>
E	Amphipod, Peck's cave	<i>Stygobromus (=Stygonectes) pecki</i>
E	Bat, Mexican long-nosed	<i>Leptonycteris nivalis</i>
T	Bear, Louisiana black	<i>Ursus americanus luteolus</i>
E	Beetle, American burying	<i>Nicrophorus americanus</i>
E	Beetle, Coffin Cave mold	<i>Batrisodes texanus</i>
E	Beetle, Comal Springs dryopid	<i>Stygoparnus comalensis</i>
E	Beetle, Comal Springs riffle	<i>Heterelmis comalensis</i>
E	Beetle, Helotes mold	<i>Batrisodes venyivi</i>
E	Beetle, Kretschmarr Cave mold	<i>Texamaurops reddelli</i>
E	Beetle, Tooth Cave ground	<i>Rhadine persephone</i>
E	Crane, whooping except where EXPN	<i>Grus americana</i>
E	Curlew, Eskimo	<i>Numenius borealis</i>
E	Darter, fountain	<i>Etheostoma fonticola</i>
E	Falcon, northern aplomado	<i>Falco femoralis septentrionalis</i>
E	Flycatcher, southwestern willow	<i>Empidonax traillii extimus</i>
E	Gambusia, Big Bend	<i>Gambusia gaigei</i>
E	Gambusia, Clear Creek	<i>Gambusia heterochir</i>
E	Gambusia, Pecos	<i>Gambusia nobilis</i>
E	Gambusia, San Marcos	<i>Gambusia georgei</i>
E	Ground beetle, [unnamed]	<i>Rhadine exilis</i>
E	Ground beetle, [unnamed]	<i>Rhadine infernalis</i>
E	Harvestman, Bee Creek Cave	<i>Texella reddelli</i>
E	Harvestman, Bone Cave	<i>Texella reyesi</i>
E	Harvestman, Cokendolpher Cave	<i>Texella cokendolpheri</i>
E	Jaguar	<i>Panthera onca</i>
E	Jaguarundi, Gulf Coast	<i>Herpailurus (=Felis) yagouaroundi cacomitli</i>
E	Manatee, West Indian	<i>Trichechus manatus</i>

Texas (Cont'd)		
Animals		
Status	Species Name	Scientific Name
E	Margay Mexico southward	<i>Leopardus (=Felis) wiedii</i>
E	Meshweaver, Braken Bat Cave	<i>Cicurina venii</i>
E	Meshweaver, Government Canyon Bat Cave	<i>Cicurina vespera</i>
E	Meshweaver, Madla's Cave	<i>Cicurina madla</i>
E	Meshweaver, Robber Baron Cave	<i>Cicurina baronia</i>
T	Minnow, Devils River	<i>Dionda diaboli</i>
E	Minnow, Rio Grande silvery	<i>Hybognathus amarus</i>
E	Ocelot	<i>Leopardus (=Felis) pardalis</i>
T	Owl, Mexican spotted	<i>Strix occidentalis lucida</i>
E	Pelican, brown except U.S. Atlantic coast, FL, AL	<i>Pelecanus occidentalis</i>
T	Plover, piping except Great Lakes watershed	<i>Charadrius melodus</i>
E	Prairie-chicken, Attwater's greater	<i>Tympanuchus cupido attwateri</i>
E	Pseudoscorpion, Tooth Cave	<i>Tartarocreagris texana</i>
E	Pupfish, Comanche Springs	<i>Cyprinodon elegans</i>
E	Pupfish, Leon Springs	<i>Cyprinodon bovinus</i>
E	Salamander, Barton Springs	<i>Eurycea sosorum</i>
T	Salamander, San Marcos	<i>Eurycea nana</i>
E	Salamander, Texas blind	<i>Typhlomolge rathbuni</i>
E	Sawfish, smalltooth	<i>Pristis pectinata</i>
T	Sea turtle, green except where endangered	<i>Chelonia mydas</i>
E	Sea turtle, hawksbill	<i>Eretmochelys imbricata</i>
E	Sea turtle, Kemp's ridley	<i>Lepidochelys kempii</i>
E	Sea turtle, leatherback	<i>Dermochelys coriacea</i>
T	Sea turtle, loggerhead	<i>Caretta caretta</i>
T	Shiner, Arkansas River Arkansas R. Basin	<i>Notropis girardi</i>
E	Snail, Pecos assiminea	<i>Assiminea pecos</i>
T	Snake, Concho water	<i>Nerodia paucimaculata</i>

Texas (Cont'd)		
Animals		
Status	Species Name	Scientific Name
E	Spider, Government Canyon Bat Cave	<i>Neoleptoneta microps</i>
E	Spider, Tooth Cave	<i>Leptoneta myopica</i>
E	Tern, least interior pop.	<i>Sterna antillarum</i>
E	Toad, Houston	<i>Bufo houstonensis</i>
E	Vireo, black-capped	<i>Vireo atricapilla</i>
E	Warbler (=wood), golden-cheeked	<i>Dendroica chrysoparia</i>
E	Whale, finback	<i>Balaenoptera physalus</i>
E	Whale, humpback	<i>Megaptera novaeangliae</i>
E	Wolf, gray Lower 48 States, except where delisted and where EXPN. Mexico.	<i>Canis lupus</i>
E	Wolf, red except where EXPN	<i>Canis rufus</i>
E	Woodpecker, ivory-billed	<i>Campephilus principalis</i>
E	Woodpecker, red-cockaded	<i>Picoides borealis</i>

Texas		
PLANTS		
Status	Species Name	Scientific Name
E	Ambrosia, south Texas	<i>Ambrosia cheiranthifolia</i>
E	Ayenia, Texas	<i>Ayenia limitaris</i>
E	Bladderpod, white	<i>Lesquerella pallida</i>
E	Bladderpod, Zapata	<i>Lesquerella thamnophila</i>
E	Cactus, black lace	<i>Echinocereus reichenbachii</i> var. <i>albertii</i>
T	Cactus, Chisos Mountain hedgehog	<i>Echinocereus chisoensis</i> var. <i>chisoensis</i>
T	Cactus, Lloyd's Mariposa	<i>Echinomastus mariposensis</i>
E	Cactus, Nellie cory	<i>Coryphantha minima</i>
E	Cactus, Sneed pincushion	<i>Coryphantha sneedii</i> var. <i>sneedii</i>
E	Cactus, star	<i>Astrophytum asterias</i>
E	Cactus, Tobusch fishhook	<i>Ancistrocactus tobuschii</i>
E	Cat's-eye, Terlingua Creek	<i>Cryptantha crassipes</i>
T	Cory cactus, bunched	<i>Coryphantha ramillosa</i>
E	Dawn-flower, Texas prairie	<i>Hymenoxys texana</i>
E	Dogweed, ashy	<i>Thymophylla tephroleuca</i>
E	Frankenia, Johnston's	<i>Frankenia johnstonii</i>
E	Ladies'-tresses, Navasota	<i>Spiranthes parksii</i>
E	Manioc, Walker's	<i>Manihot walkerae</i>
T	Oak, Hinckley	<i>Quercus hinckleyi</i>
E	Phlox, Texas trailing	<i>Phlox nivalis</i> ssp. <i>texensis</i>
E	Pitaya, Davis' green	<i>Echinocereus viridiflorus</i> var. <i>davisii</i>
E	Pondweed, Little Aguja (=Creek)	<i>Potamogeton clystocarpus</i>
E	Poppy-mallow, Texas	<i>Callirhoe scabriuscula</i>
E	Rush-pea, slender	<i>Hoffmannseggia tenella</i>
E	Sand-verbena, large-fruited	<i>Abronia macrocarpa</i>
E	Snowbells, Texas	<i>Styrax texanus</i>
T	Sunflower, Pecos (=puzzle, =paradox)	<i>Helianthus paradoxus</i>

Texas (Cont'd)		
PLANTS (Cont'd)		
Status	Species Name	Scientific Name
E	Wild-rice, Texas	<i>Zizania texana</i>

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## APPENDIX A

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### RESPONSE EQUIPMENT/RESOURCES

A.1 Company Owned Response Equipment

A.2 Other Company Resources

A.3 Contract Resources

A.4 Cooperative/Mutual Aid Resources

A.5 Volunteers

A.6 Communications

Figure A.1 Company Owned Spill Response Equipment

Figure A.2 Response Resources

Figure A.3 USCG OSRO Classifications

Figure A.4 OSRO Contracts

## A.1 COMPANY OWNED RESPONSE EQUIPMENT

Valero VTDC relies on its contracted OSRO's for all equipment and response needs and other clean-up contractors that are capable of responding to all discharges along the Pipeline. Figure A.2 lists the contracted Oil Spill Removal Organizations.

The Qualified Individual has the authority to activate other private contractors, experts, and consultants as the situation demands.

All Pipeline personnel who might be involved in an oil spill have been informed that detergents or other surfactants are prohibited from being used on an oil spill in the water and that dispersants can only be used with the approval of the US Regional Response Team, the interagency group composed of Federal and State agency representatives that coordinates oil spill response.

## A.2 OTHER COMPANY RESOURCES

Additional Company spill response equipment and manpower resources are not available to supplement the response operation, however third party contractors will be activated on an as needed basis.

## A.3 CONTRACT RESOURCES

In the event of a discharge which is beyond the initial response capabilities of the Local Response Team, contract manpower and equipment resources can be obtained through Oil Spill Removal Organization(s) (OSRO). These OSROs can provide manpower and containment/clean-up equipment for the response operation.

The resources will be secured from a Company approved contractor. Management will typically handle notification/implementation of these resources. Figure A.2 provides a quick reference to the Oil Spill Removal Organizations and details their response capability and estimated response times. **Telephone reference is provided in Figure 2.5.** *(Note: The Company will ensure that each OSRO has a comprehensive maintenance program and applicable training / drills programs in place at contract renewal.)*

## A.4 COOPERATIVE/MUTUAL AID RESOURCES

Valero will not utilize Cooperative for the response operations.

## A.5 VOLUNTEERS

Volunteers will not be utilized by the Company for the response operations.

## A.6 COMMUNICATIONS

Effective and efficient communications systems are essential for emergency response at every level. The communications system will be utilized to gather information and current status reports as well as to provide coordination and direction to widely separated work groups involved in search, containment/diversion, repair, traffic control, public control or evacuation, and restoration. (Note: All communication equipment used within an area that may potentially contain a flammable atmosphere will be intrinsically safe. During regular operations, any device that is not intrinsically safe will not be allowed in transfer areas, safety zones, or any area containing flammable atmospheres.)

### ***Central Communications System***

Prearranged communication channels are of the utmost importance in dealing with Company emergencies. The notification procedures and telephone contacts documented in Section 2.0 will be reviewed in accordance with the earlier documented updating procedures. The predetermined communications channels include the following:

- A list of emergency telephone numbers for internal management and emergency response personnel (Figures 2.2 and 2.5).
- A list of emergency telephone numbers for various external resources such as the Fire Departments, Public Officials and local agencies is provided in the Annexes.
- A list of emergency telephone numbers for contract response resources (Figure 2.5).

### ***Communications Equipment***

Field communications during a spill response will be handled via radios, telephones, cellular phones, fax machines, and computers and will be maintained by Company personnel. In the event of a Worst Case Discharge, field communications will be enhanced with contract resources as the situation demands.

### ***Communications Type***

Voice communications may be conducted over the public telephone system or Company provided two-way radio equipment.

***Radios-*** Valero response personnel have portable handheld radios that work off of batteries. These radios have a limited range and are used in conjunction with the 800 MHz radios.

***Telephone (Conventional)-*** Terminals have phones available for emergency responses.

***Cellular-*** All VTDC maintenance personnel have cellular phones. In the event of a sustained response effort additional mobile and/or hand held cellular phones can be purchased, installed and activated, in a few hours time, to establish a more secure network of communications between the Command Center and remote work locations.

***FAX Machines-*** Terminals have fax machines available for emergency responses.

***Computers-*** Terminals have computers available for emergency responses.

**FIGURE A.1**  
**COMPANY OWNED SPILL RESPONSE EQUIPMENT**

Company Owned Response Equipment		
NAME	LOCATION	DESCRIPTION
N/A _____	N/A	Facility relies on contracted OSRO's and other outside resources.

**FIGURE A.2**  
**RESPONSE RESOURCES**

**Zone : Live Oak County Zone**

Area : Live Oak County Response Area						
OSRO Name	Contract Number	Environment Type	Facility Classification Level			
			MM	W1	W2	W3
National Response Corporation	10000014825	River/Canal	X	X	X	X
		Inland	X	X	X	X
		Open Ocean			X	X
		OffShore			X	X
		Near Shore			X	X
		Great Lakes				

**FIGURE A.3****USCG OSRO CLASSIFICATIONS**

The USCG has classified OSROs according to their response capabilities, within each Captain of the Port (COTP) zone, for vessels and for facilities in four types of environments. Response capabilities are rated MM, W1, W2, or W3 as described below.

<b>MINIMUM EQUIPMENT REQUIREMENTS FOR OSRO CLASSIFICATIONS</b>				
<b>Classification</b>	<b>Resource Quantity Guidelines</b>		<b>Maximum Facility Response Times</b>	<b>Maximum Vessel Response Times</b>
<b>Rivers/Canals</b>				
<b>MM</b>	Protective Boom:	4,000*ft	High Volume Ports: 6 hours	High Volume Ports: 12 hours
	EDRC:	1,200 bbls	Other Ports: 12 hours	Other Ports: 24 hours
	TSC:	2,400 bbls		
<b>W1</b>	Protective Boom:	25,000*ft	High Volume Ports: 12 hours	High Volume Ports: 12 hours
	EDRC:	1,875 bbls	Other Ports: 24 hours	Other Ports: 24 hours
	TSC:	3,750 bbls		
<b>W2</b>	Protective Boom:	25,000*ft	High Volume Ports: 30 hours	High Volume Ports: 36 hours
	EDRC:	3,750 bbls	Other Ports: 36 hours	Other Ports: 48 hours
	TSC:	7,500 bbls		
<b>W3</b>	Protective Boom:	25,000*ft	High Volume Ports: 54 hours	High Volume Ports: 60 hours
	EDRC:	7,500 bbls	Other Ports: 60 hours	Other Ports: 72 hours
	TSC:	15,000 bbls		
<b>Great Lakes</b>				
<b>MM</b>	Protective Boom:	6,000*ft	All Ports: 6 hours	All Ports: 12 hours
	EDRC:	1,250 bbls		
	TSC:	2,500 bbls		
<b>W1</b>	Protective Boom:	30,000*ft	High Volume Ports: 12 hours	High Volume Ports: 12 hours
	EDRC:	6,250 bbls	Other Ports: 24 hours	Other Ports: 24 hours
	TSC:	12,500 bbls		
<b>W2</b>	Protective Boom:	30,000*ft	All Ports: 36 hours	All Ports: 42 hours
	EDRC:	12,500 bbls		
	TSC:	25,000 bbls		
<b>W3</b>	Protective Boom:	30,000*ft	All Ports: 60 hours	All Ports: 66 hours
	EDRC:	25,000 bbls		
	TSC:	50,000 bbls		

<b>MINIMUM EQUIPMENT REQUIREMENTS FOR OSRO CLASSIFICATIONS</b>				
<b>Classification</b>	<b>Resource Quantity Guidelines</b>		<b>Maximum Facility Response Times</b>	<b>Maximum Vessel Response Times</b>
<b>Inland</b>				
<b>MM</b>	Protective Boom:	6,000*ft	High Volume Ports: 6 hours	High Volume Ports: 12 hours
	EDRC:	1,200 bbls	Other Ports: 12 hours	Other Ports: 24 hours
	TSC:	2,400 bbls		
<b>W1</b>	Protective Boom:	30,000*ft	High Volume Ports: 12 hours	High Volume Ports: 12 hours
	EDRC:	12,500 bbls	Other Ports: 24 hours	Other Ports: 24 hours
	TSC:	25,500 bbls		
<b>W2</b>	Protective Boom:	25,000*ft	High Volume Ports: 30 hours	High Volume Ports: 36 hours
	EDRC:	12,500 bbls	Other Ports: 36 hours	Other Ports: 48 hours
	TSC:	25,500 bbls		
<b>W3</b>	Protective Boom:	25,000*ft	High Volume Ports: 54 hours	High Volume Ports: 60 hours
	EDRC:	50,500 bbls	Other Ports: 60 hours	Other Ports: 72 hours
	TSC:	100,500 bbls		
<b>Great Lakes</b>				
<b>MM</b>	Protective Boom:	8,000*ft	High Volume Ports: 6 hours	High Volume Ports: 12 hours
	EDRC:	1,200 bbls	Other Ports: 12 hours	Other Ports: 24 hours
	TSC:	2,400 bbls		
<b>W1</b>	Protective Boom:	30,000*ft	High Volume Ports: 12 hours	High Volume Ports: 12 hours
	EDRC:	12,500 bbls	Other Ports: 24 hours	Other Ports: 24 hours
	TSC:	25,500 bbls		
<b>W2</b>	Protective Boom:	30,000*ft	High Volume Ports: 30 hours	High Volume Ports: 36 hours
	EDRC:	25,500 bbls	Other Ports: 36 hours	Other Ports: 48 hours
	TSC:	50,500 bbls		
<b>W3</b>	Protective Boom:	30,000*ft	High Volume Ports: 54 hours	High Volume Ports: 60 hours
	EDRC:	50,000 bbls	Other Ports: 60 hours	Other Ports: 72 hours
	TSC:	100,000 bbls	(for open ocean, plus travel time from shore)	(for open ocean, plus travel time from shore)

MINIMUM EQUIPMENT REQUIREMENTS FOR OSRO CLASSIFICATIONS					
Classification	Resource Quantity Guidelines		Maximum Facility Response Times		Maximum Vessel Response Times
<b>Offshore</b>					
<b>MM</b>	Protective Boom:	6,000*ft	High Volume Ports:	6 hours	High Volume Ports: 12 hours
	EDRC:	1,200 bbls	Other Ports:	12 hours	Other Ports: 24 hours
	TSC:	2,400 bbls			
<b>W1</b>	Protective Boom:	15,000*ft	High Volume Ports:	24 hours	High Volume Ports: 24 hours
	EDRC:	12,500 bbls	Other Ports:	48 hours	Other Ports: 48 hours
	TSC:	25,500 bbls			
<b>W2</b>	Protective Boom:	15,000*ft	High Volume Ports:	30 hours	High Volume Ports: 36 hours
	EDRC:	25,000 bbls	Other Ports:	36 hours	Other Ports: 48 hours
	TSC:	50,000 bbls			
<b>W3</b>	Protective Boom:	15,000*ft	High Volume Ports:	54 hours	High Volume Ports: 60 hours
	EDRC:	50,000 bbls	Other Ports:	60 hours	Other Ports: 72 hours
	TSC:	100,000 bbls			
<b>Open Ocean</b>					
<b>MM</b>	Protective Boom:	0*ft	High Volume Ports:	6 hours	High Volume Ports: 12 hours
	EDRC:	1,200 bbls	Other Ports:	12 hours	Other Ports: 24 hours
	TSC:	2,400 bbls			
<b>W1</b>	Protective Boom:	0*ft	High Volume Ports:	6 hours	High Volume Ports: 12 hours
	EDRC:	12,500 bbls	Other Ports:	12 hours	Other Ports: 24 hours
	TSC:	25,500 bbls			
<b>W2</b>	Protective Boom:	0*ft	High Volume Ports:	30 hours	High Volume Ports: 36 hours
	EDRC:	25,000 bbls	Other Ports:	36 hours	Other Ports: 48 hours
	TSC:	50,000 bbls			
<b>W3</b>	Protective Boom:	0*ft	High Volume Ports:	54 hours	High Volume Ports: 60 hours
	EDRC:	50,000 bbls	Other Ports:	60 hours	Other Ports: 72 hours
	TSC:	100,000 bbls			

1. Rivers/canals include bodies of water, including the Intracoastal Waterway and other bodies artificially created for navigation, confined within an inland area and having a project depth of 12 feet (3.66 meters).
2. EDRC stands for "effective daily recovery capacity," or the calculated recovery capacity of oil recovery devices determined by using a formula that takes into account limiting factors such as daylight, weather, sea state, and emulsified oil in the recovered material.
3. TSC stands for "temporary storage capacity," meaning sufficient storage capacity equal to twice the EDRC of an OSRO. Temporary storage may include inflatable bladders, rubber barges, certified barge capacity, or other temporary storage that can be utilized on scene at a spill response and which is designed and intended for the storage of flammable or combustible liquids. It does not include vessels or barges of opportunity for which no pre-arrangements have been made. Fixed shore-based storage capacity, ensured available by contract or other means, will be acceptable.

\* In addition, 1,000 feet of containment boom plus 300 feet per skimming system.

**FIGURE A.4**  
**AGREEMENTS/CONTRACTS**

[Click to view the file - NRC Contract 2 2 2010 17 32 37.pdf](#)



## SPILL RESPONSE CONTRACT CERTIFICATION

National Response Corporation (NRC), by its President, hereby certifies that the entities listed in Schedule 1 (the "Clients") have ensured, by contract with NRC, the availability of private personnel and equipment necessary to respond, to the maximum extent practicable, to a worst case discharge for the named Facilities in Schedule 1. NRC agrees that the Clients have the right to name NRC and its resources, including those within its Independent Contractor Network (ICN), for Oil Pollution Act of 1990 (OPA) coverage for the named Facilities in Schedule 1. NRC has filed its Spill Response Plan Appendix with the U.S. Coast Guard, and the Clients are authorized to reference this Appendix in their Facility Response Plan. This Appendix presently covers all ports in the U.S. East, West and Gulf Coasts, Great Lakes and the U.S. Caribbean. NRC reserves the right to rescind this authorization in the event of termination of its contractual arrangements with the Facilities.

### Covered Facilities

(SEE ATTACHED SCHEDULE)

Acknowledged by:  
National Response Corporation

Date: September 6, 2007

A handwritten signature in black ink, appearing to read "S. Candito", written over a horizontal line.

Steven A. Candito  
President, NRC



Covered Facilities:

**Diamond Shamrock Refining and Marketing Company**

- McKee-Stewart Pipeline System
- McKee-ConCarb Pipeline
- Turpin Terminal

**Michigan Reutilization, LLC**

- Arkansas City Asphalt Terminal

**The Premcor Pipeline Co.**

- Delaware City Pipeline
- Collierville Crude Pipeline
- Sun to Lucas Crude Pipeline
- Lucas to Valero Port Arthur Refinery Crude Pipeline
- Valero Lucas Terminal to Teppco Terminal Products Pipeline
- Valero Port Arthur Refinery to Premcor Pipeline's Lucas Terminal Products Pipeline
- Valero Port Arthur Refinery to Port Arthur Products System Terminal Products Pipeline
- Port Arthur Products System Terminal to Colonial and Explorer Products Pipeline
- Memphis Airport Jet Line
- East Chicago Pipeline
- Hammond Pipeline
- Shorthorn Products Pipeline
- Fannett 4" LPG Pipeline
- Fannett 6" LPG Pipeline
- Fannett 8" LPG Pipeline
- Amdel Crude Pipeline
- Hammond Terminal
- Collierville Terminal
- Fannett Terminal
- Lucas Terminal
- El Vista Tankage
- Port Arthur Products System (PAPS) Joint Interest
- St. James Tankage

**The Premcor Refining Group Inc.**

- Delaware City Truck Rack



- Memphis Truck Rack
- Riverside Terminal
- Riverside Dock
- West Memphis Terminal
- Alsip Terminal
- Hartford Terminal
- Memphis Refinery
- Delaware City Refinery
- Port Arthur Refinery

#### **The Shamrock Pipe Line Corporation**

- Texas Gathering System
- Perryton Station
- Waka Station
- Coble Truckhaul
- Farnsworth Truckhaul
- Hitchland Truckhaul
- Hooker Truckhaul
- Clawson Truckhaul
- Merten #1 Truckhaul
- Merten #2 Truckhaul
- Miles Truckhaul
- Piper #1 Truckhaul
- Piper #2 Truckhaul
- Tubbs Truckhaul

#### **Sigmor Corporation**

- Refugio Pipeline
- Sigmor Natural Gas Pipeline

#### **Valero Marketing and Supply Company**

- Corpus Christi Asphalt Blending Plant
- Houston Asphalt Blending Plant
- Louisiana (St. James) Asphalt Blending Plant

#### **Valero Refining Company – Oklahoma**

- Oklahoma-Texas Ardmore Gas Pipeline
- Ardmore Refinery



**Valero Terminaling and Distribution Company (f/n/a, Emerald Pipe Line Corporation)**

- Turpin Refined Products Pipeline

**Valero Refining-Texas, L.P.**

- Bill Greehey Refinery East & West
- Houston Refinery
- Texas City Refinery

**Diamond Shamrock Refining Company, L.P.**

- Three Rivers Refinery
- McKee Refinery

**Ultramar Inc.**

- Wilmington Refinery

**Valero Refining Company – California**

- Benicia Refinery
- Benicia Asphalt Plant
- Wilmington Asphalt Plant

**Valero Refining Company - Louisiana**

- Krotz Springs

**Valero Refining Company - New Orleans, L.L.C.**

- St. Charles Refinery

**Valero Refining Company - New Jersey**

- Paulsboro

**Lima Refining Company**

- Lima

**Port Arthur Coker Company LP**

**Valero Refining - Aruba N.V.**

- Aruba Refinery

**Valero Coker Company - Aruba N.V.**



**Ultramar Ltée/Ultramar Ltd.**

- Jean Gaullin Refinery

Term: 5 years from the effective date of the Agreement, unless earlier terminated in accordance with the provisions of this Agreement.

Client:

**Diamond Shamrock Refining and Marketing Company**

- McKee-Stewart Pipeline System
- McKee-ConCarb Pipeline
- Turpin Terminal

**Michigan Reutilization, LLC**

- Arkansas City Asphalt Terminal

**The Premcor Pipeline Co.**

- Delaware City Pipeline
- Collierville Crude Pipeline
- Sun to Lucas Crude Pipeline
- Lucas to Valero Port Arthur Refinery Crude Pipeline
- Valero Lucas Terminal to Teppco Terminal Products Pipeline
- Valero Port Arthur Refinery to Premcor Pipeline's Lucas Terminal Products Pipeline
- Valero Port Arthur Refinery to Port Arthur Products System Terminal Products Pipeline
- Port Arthur Products System Terminal to Colonial and Explorer Products Pipeline
- Memphis Airport Jet Line
- East Chicago Pipeline
- Hammond Pipeline
- Shorthorn Products Pipeline
- Fannett 4" LPG Pipeline
- Fannett 6" LPG Pipeline
- Fannett 8" LPG Pipeline
- Amdel Crude Pipeline
- Hammond Terminal
- Collierville Terminal
- Fannett Terminal
- Lucas Terminal



- Louisiana (St. James) Asphalt Blending Plant

**Valero Refining Company – Oklahoma**

- Oklahoma-Texas Ardmore Gas Pipeline
- Ardmore Refinery

**Valero Terminaling and Distribution Company (f/n/a, Emerald Pipe Line Corporation)**

- Turpin Refined Products Pipeline

**Valero Refining-Texas, L.P.**

- Bill Greehey Refinery East & West
- Houston Refinery
- Texas City Refinery

**Diamond Shamrock Refining Company, L.P.**

- Three Rivers Refinery
- McKee Refinery

**Ultramar Inc.**

- Wilmington Refinery

**Valero Refining Company – California**

- Benicia Refinery
- Benicia Asphalt Plant
- Wilmington Asphalt Plant

**Valero Refining Company - Louisiana**

- Krotz Springs

**Valero Refining Company - New Orleans, L.L.C.**

- St. Charles Refinery

**Valero Refining Company - New Jersey**

- Paulsboro

**Lima Refining Company**

- Lima

**Port Arthur Coker Company LP**



**Valero Refining - Aruba N.V.**

- Aruba Refinery

**Valero Coker Company - Aruba N.V.**

**Ultramar Ltée/Ultramar Ltd.**

- Jean Gaullin Refinery

**North East Region**

1. Alsip Distribution Center & Blue Island/Hammond Pipeline  
3600 W. 131<sup>st</sup> St.  
Alsip, IL 60803
2. Delaware City Terminal  
River Road & J Street  
Delaware City, DE 19706
3. Delaware City Pipeline  
1811 River Road  
Delaware City, DE 19706
4. Hammond Terminal / Hammond Pipeline  
East Chicago Pipeline  
1020 141<sup>st</sup> St.  
Hammond, IN 46320
5. Hartford Distribution Center  
201 E. Hawthorne St.  
Hartford, IL 62048

**South East Region**

1. Arkansas City  
1400 S. M  
Arkansas City, KS 67005
2. Collierville Terminal  
772 Wingo Road  
Byhalia, MS 38611  
(P.O. Box 522, Collierville, TN 38027)

3. Memphis Truck Terminal  
321 West Mallory Ave.  
Memphis, TN 38109
4. West Memphis Terminal  
1282 South 8<sup>th</sup> St.  
West Memphis, AR 72301  
(P.O. Box 975, 72303)
5. Mobile, AL  
1437 Cochrane Causeway N.  
Mobile, AL 36652  
(P.O. Box 3128, 36652)
6. Riverside Terminal  
1237 Riverside Blvd.  
Memphis, TN 38106

### **Southern Region**

1. Corpus Christi  
6746 Up River Road  
Corpus Christi, TX 78409  
(P.O. Box 4606, 78469)
2. Fannett Terminal  
16151 Craigen Road  
Beaumont, TX 77705
3. Lucas Terminal  
9405 West Port Arthur Road  
Beaumont, TX 77705

4. Houston  
9704 Clinton Drive  
Houston, TX 77029
5. St. James, LA  
Highway 18 # 10455  
St. James, LA 70086
6. Texas Gathering P& T  
21 S. Juniper  
P.O. Box 708  
Perryton, TX 79070
7. Turpin Terminal  
Junction of Hwy. 83 & 64 (3 mi. North of Turpin)  
P.O. Box 98  
Turpin, OK 73950

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## APPENDIX B

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### WORST CASE DISCHARGE ANALYSIS AND SCENARIOS

#### Introduction

#### Live Oak County Zone

##### Worst Case Discharge Planning Volume Calculations

#### Nueces County Zone

##### Worst Case Discharge Planning Volume Calculations

## INTRODUCTION

This Appendix identifies potential causes for oil discharges and discusses the response efforts that are necessary for successful mitigation. Included in this Appendix are hypothetical scenarios for various types of spills that have the potential to occur along the system. It is anticipated that the Company will respond to spills in a consistent manner regardless of the location. Therefore, the guidelines discussed in this appendix will apply to all spills whenever possible.

### United States Department of Transportation/Pipeline and Hazardous Materials Safety Administration Discharge Volume Calculation

- **Worst Case Discharge**

*The largest volume (Bbls) of the following:*

- *Pipeline's maximum release time (hrs), plus the maximum shutdown response time (hrs), multiplied by the maximum flow rate (bph), plus the largest line drainage volume after shutdown of the line section.*

--OR--

- *Largest foreseeable discharge for the line section is based on the maximum historic discharge, if one exists, adjusted for any subsequent corrective action or preventive action taken.*

--OR--

- *Capacity of the single largest breakout tank or battery of tanks within a single secondary containment system, adjusted for the capacity or size of the secondary containment system.*

### Scenario Types

The response actions to each of these scenarios are outlined in Section 3.1 and Figure 3.1. The response resources are identified in a quick reference format in Figure 2.5. Pipeline response personnel list/telephone numbers and other internal/external resources telephone numbers are detailed in Figures 2.2 and 2.5.

**RESPONSE CAPABILITY SCENARIOS****Live Oak County Zone**

<b>PHMSA Worst Case Discharge = (b) (7)(F)</b>
A worst case discharge for the Live Oak County Zone is considered to be discharge that does not exceed (b) (7)(F).
<b>Pipeline Worst Case Discharge = (b) (7)(F)</b>
<b>Description</b>
Worst case discharge volume was determined based on DOT definitions.
<b>Volume</b>

(b) (7)(F)

**Response Requirement**

The Company has identified sufficient response resources, by contract or other approved means, to respond to a Worst Case Discharge to the maximum extent practicable. These response resources include:

- Resources capable of arriving at the staging area within the applicable response tier requirements for non-high volume areas (Tier 1 = 12 hours; Tier 2 = 36 hours; Tier 3 = 60 hours).
- Resources capable of arriving at the staging area within the applicable response tier requirements for high volume areas (Tier 1 = 6 hours; Tier 2 = 30 hours; Tier 3 = 54 hours).
- Resources capable of oil recovery in inclement weather conditions (i.e. heavy rain, snow, ice).

**Notes**

- Contracted and Company owned equipment and manpower resources are detailed in Figure 2.5 and Appendix A.
- Telephone references are provided in Figures 2.2 and 2.5.

**Breakout Tank Worst Case Discharge = 0 Bbls*****Volume***

There are no breakout tanks in the Response Zone, therefore there is no volume calculations.

## Live Oak County Zone

## RESPONSE PLANNING VOLUME CALCULATIONS

Location Data			
Location Type			River/Canal
Port Type			Non-High Volume
WCD Product Type			Crude
Product Group			3
Pipeline and Hazardous Materials Safety Administration WCD Volume (bbls)			(b) (7)(F)
Discharge Volumes/Calculations			
Worst Case Discharge - Based on Pipeline and Hazardous Materials Safety Administration criteria (bbls)			(b) (7)(F)
Selected Calculation Factors (Based on USCG Tables)			
Removal Capacity Planning Volume - Percent Natural Dissipation			20%
Removal Capacity Planning Volume - Percent Recovered Floating Oil			15%
Removal Capacity Planning Volume - Percent Oil Onshore			65%
Emulsification Factor			2
Tier 1 - On Water Oil Recovery Resource Mobilization Factor			30%
Tier 2 - On Water Oil Recovery Resource Mobilization Factor			40%
Tier 3 - On Water Oil Recovery Resource Mobilization Factor			60%
Response Planning Volume Calculation			
On-Water Recovery Volume (bbls)			(b) (7)(F)
Shoreline Recovery Volume (bbls)			(b) (7)(F)
Shoreline Cleanup Volume (bbls)			(b) (7)(F)
	Tier 1	Tier 2	Tier 3
On-Water Recovery Cpcty (bbls/day)	239	319	478
Shallow Water Resp Cpblty (bbls/day)	48	64	96
Storage Capacity (bbls/day)	478	638	956
On-Water Response Caps (bbls/day)	1,875	3,750	7,500
Additional Response Req'd (bbls/day)	0	0	0
Response Time (hrs)	12	36	60

## RESPONSE CAPABILITY SCENARIOS

### Nueces County Zone

PHMSA Worst Case Discharge = (b) (7)(F)
A worst case discharge for the Nueces County Zone is considered to be discharge that does not exceed (b) (7)(F)
Pipeline Worst Case Discharge (b) (7)(F)
<i>Description</i>
<i>Volume</i>



**Response Requirement**

The Company has identified sufficient response resources, by contract or other approved means, to respond to a Worst Case Discharge to the maximum extent practicable. These response resources include:

- Resources capable of arriving at the staging area within the applicable response tier requirements for non-high volume areas (Tier 1 = 12 hours; Tier 2 = 36 hours; Tier 3 = 60 hours).
- Resources capable of arriving at the staging area within the applicable response tier requirements for high volume areas (Tier 1 = 6 hours; Tier 2 = 30 hours; Tier 3 = 54 hours).
- Resources capable of oil recovery in inclement weather conditions (i.e. heavy rain, snow, ice).

**Notes**

- Contracted and Company owned equipment and manpower resources are detailed in Figure 2.5 and Appendix A.
- Telephone references are provided in Figures 2.2 and 2.5.

**Breakout Tank Worst Case Discharge = 0 Bbls*****Volume***

There are no breakout tanks in the Response Zone, therefore there is no volume calculations.

## Nueces County Zone

## RESPONSE PLANNING VOLUME CALCULATIONS

Location Data			
Location Type			River/Canal
Port Type			Non-High Volume
WCD Product Type			Crude
Product Group			3
Pipeline and Hazardous Materials Safety Administration WCD Volume (bbls)			(b)
Discharge Volumes/Calculations			
Worst Case Discharge - Based on Pipeline and Hazardous Materials Safety Administration criteria (bbls)			(b)
Selected Calculation Factors (Based on USCG Tables)			
Removal Capacity Planning Volume - Percent Natural Dissipation			20%
Removal Capacity Planning Volume - Percent Recovered Floating Oil			15%
Removal Capacity Planning Volume - Percent Oil Onshore			65%
Emulsification Factor			2
Tier 1 - On Water Oil Recovery Resource Mobilization Factor			30%
Tier 2 - On Water Oil Recovery Resource Mobilization Factor			40%
Tier 3 - On Water Oil Recovery Resource Mobilization Factor			60%
Response Planning Volume Calculation			
On-Water Recovery Volume (bbls)			(b) (7)(F)
Shoreline Recovery Volume (bbls)			
Shoreline Cleanup Volume (bbls)			
	Tier 1	Tier 2	Tier 3
On-Water Recovery Cpcty (bbls/day)	393	523	785
Shallow Water Resp Cpblty (bbls/day)	79	105	157
Storage Capacity (bbls/day)	786	1,046	1,570
On-Water Response Caps (bbls/day)	1,875	3,750	7,500
Additional Response Req'd (bbls/day)	0	0	0
Response Time (hrs)	12	36	60

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## APPENDIX C

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### EMERGENCY PRE-PLANNING

- C.1 Release Detection
- C.2 Leak Detection Systems
- C.3 Discharge Prevention Systems

## EMERGENCY PRE-PLANNING

Leak detection and discharge prevention is accomplished through safe operating procedures and maintenance procedures outlined in the Company Operations and Maintenance (O&M) Manual. The Company Operations and Maintenance Manual is designed to meet the requirements found in Title 49, US Code of Federal Regulations, Part 195, Transportation of Hazardous Liquids by Pipeline.

### C.1 RELEASE DETECTION

All VTDC personnel are assigned the responsibility to immediately report any type of release within the facility. A telephone number **(866) 382-5376** is constantly manned to receive any emergency reports. Discharge detection is a key job responsibility of all personnel.

Operations personnel are trained to handle spills or uncontrolled releases in their areas of responsibility. Emergency Operating Procedures have been developed for facility personnel to use in the event of an uncontrolled release or spill. These procedures are kept at each facility. In addition to unit specific emergency procedures, a set of generic checklists have been developed as part of this spill response plan. Tab B. 2(a) contains several checklists designed to guide Initial Emergency Actions of the first responder.

Operating procedures call for operations to monitor and record all active tanks (product moving in or out) on a frequent basis. This monitoring of level activity safeguards against tank overfills.

## C.2 LEAK DETECTION SYSTEMS

Line balancing is correlated hourly from the differentiation of barrels in to barrels out. In addition, aerial and/or surface patrols are conducted.

## C.3 DISCHARGE PREVENTION SYSTEMS

Valero Terminaling and Distribution Company's (VTDC) primary objective is to prevent the release of petroleum. VTDC will respond and continue response activities for any petroleum release until it can be positively determined that the release did not come from a VTDC pipeline, pump station, tank farm or other facility.

The pipeline, pumping and storage systems are subject to extensive maintenance and inspection programs, that meet or exceed all applicable regulations. The programs include:

### 1. External Corrosion Protection

VTDC has a regularly monitored impressed current cathodic protection system consisting of; rectifiers, ground beds, sacrificial anodes, test stations, and trend monitoring. The program is coordinated with adjacent or nearby systems or utilities to address the possibility of interference. Underground piping at the pump stations and other facilities are similarly protected and monitored. Pipe to soil surveys are performed on a scheduled routine basis to locate possible areas of coating damage or inadequate cathodic protection.

Buried piping at pump stations and tank farms as well as tankage are electrically inspected. Supplementary cathodic protection is installed based on the results of the survey and inspection.

All tankage is inspected for cathodic protection on an annual basis and records are kept electronically in a Cathodic Protection Data Management System at Headquarters and paper copies of these inspections are kept at the at the respective facilities. All above grounded piping is protected from atmospheric corrosion with paint.

### 2. Internal Corrosion Protection

All pipelines have corrosion coupons to monitor internal corrosion. These coupons are inspected quarterly.

### 3. Safety Inspection and Maintenance

VTDC technicians conduct regular inspections, tests, and recalibration of all instruments and devices to ensure their continued protection of the pipeline system. Shutdown and relief devices and their circuitry, as well as the data routes are routinely exercised to confirm proper operation. Relief devices are deadweight tested and recertified in accordance with a predetermined frequency. All sectionalization and block valves are routinely exercised for proper closure, and ease of operation. Visual and instrument examinations of flanges, mechanical joints and seals, packages and other potential failure points are routinely conducted.

### 4. Damage Prevention

Many pipeline leaks occur as a result of physical damage to the buried pipe by outside construction parties. VTDC takes several measures to prevent such damage. VTDC flies patrol flights along the pipeline routes weekly. The pilots are instructed to observe evidence of any construction or other activities in the area of the pipeline. When such activities are reported, VTDC contacts the responsible parties, informs them of the presence and location of the underground line, and installs warning stakes to mark the line. VTDC also determines when the excavation will be made along or across the pipeline, and arranges for a representative to be present. VTDC also maintains membership and provides details of line locations to the Texas Excavation Safety System (TESS) service. This organization provides a toll free telephone number to provide contractors and other interested parties with buried cable, piping and utility location and contact information. VTDC maintains an extensive pipeline marking system along the pipeline right of way. The marker signs carry the name of the company, a contact telephone number that is answered 24 hours a day.

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## APPENDIX D

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### TRAINING AND DRILLS

#### D.1 Response Team Training

Oil Spill Response Plan Review

Hazardous Waste Operations and Emergency Response (29 CFR 1910.120)

Incident Command System

Training Records Maintenance

Contractor Training

Training Qualifications

#### D.2 Response Team Exercises

Quarterly QI Notification Exercise

Annual Equipment Deployment Exercise

Annual Response Team Tabletop Exercise

Government-Initiated Unannounced Exercise

Area Exercises

Exercise Documentation

#### D.3 Purpose of Review and Evaluation

Outline of Review

Detection

Notification

Assessment/Evaluation

Mobilization

Response - Strategy

Response - Resources Used

Response - Effectiveness

Command Structure

Measurement

Government Relations

Public Relations

## D.1 RESPONSE TEAM TRAINING

Valero Terminating and Distribution Company (VTDC) has an annual training and education plan and a long range training process, which meets the requirements of 49 CFR §195.403, 29 CFR §1910.120, and TAC Rule 95. The annual plan consists of classroom and team-based training that includes safety and environmental issues. A qualified trainer provides the HAZWOPER annual update training. Training includes classroom training that is highly structured. The team-based training has a standard lesson plan, but is structured to be specific to the team's operations. All training is documented and records are kept for each individual and each instructor for as long as they are assigned duties under the plan. Training records are kept in an electronic database system, and in files for individual personnel at each VTDC facility.

This annual training plan and associated training activities include both annually required and periodically required training. All employees participate in this training. Field and supervisory employees receive additional safety and environmental training specific to work practices in field work environment. On an annual basis, training on this Emergency Response Plan is conducted. The following information is covered in this training session:

- Individual responsibilities under the plan
- Name, address, and procedures for contacting the Control Center on a 24-hour basis
- Name of, and procedures for contacting the Qualified Individual on a 24-hour basis
- The content of the Core Plan Information Summary
- The telephone number of the National Response Center
- The notification process
- The characteristics and hazards of the oil discharged
- The conditions that are likely to worsen emergencies, including facility malfunctions, and the appropriate corrective actions
- The steps necessary to control any accidental discharge of oil and to minimize the potential for fire, explosion, toxicity, or environmental damage
- The proper firefighting procedures and the use of equipment, fire suits, and breathing apparatus.

Training records for Contractor personnel that may be utilized in spill response activities are maintained by the Contractor. In order to gain further experience in the application of the process learned in the classroom, and to practice the local emergency response plan, training and hypothetical drills are conducted.

### Guidelines For Drill Requirements

Drills are categorized as either internal or external exercises and are intended to ensure the preparedness of the facility and its resources to respond to a spill emergency. The PREP Guidelines, 31 TAC 19.14 (11), have been adopted for the implementation of the internal drill/exercise program. The HSE Specialist will be responsible for implementing and scheduling the drills.

Through the various training methods described below the Company's training program is intended to ensure the following results:

***That all personnel know:***

- Their responsibilities under the Plan.
- The name, address and procedures for contacting the Control Center on a 24-hour basis.
- The name of and procedures for contacting the Qualified Individual on a 24-hour basis.

***That all reporting personnel know:***

- The Pipelines and Response Zone details for the affected area (Response Zones Annexes).
- The telephone number of the Federal, State and local agencies and other required notifications (Section 2.0).
- The notification process. (Section 2.0).

***That all response personnel know:***

- The characteristics and hazards of the oil discharged (Section 3.0 and Appendix H - MSDS).
- The conditions that is likely to worsen emergencies, including the consequences of pipeline malfunctions, and the appropriate corrective actions.
- The steps necessary to control any accidental discharge of oil and to minimize the potential for fire, explosion, toxicity or environmental damage (Section 3.0).

***Oil Spill Response Plan Review***

All Response Team Members should review their Oil Spill Response Plan whenever their job position or responsibilities change under the Plan. A copy of this Plan will be available at all times to Team Members.

### **HAZARDOUS WASTE OPERATIONS AND EMERGENCY RESPONSE (29 CFR 1910.120)**

Federal and State regulations require that Response Team Members maintain up-to-date Hazardous Waste Operations and Emergency Response training necessary to function in their assigned positions. At a minimum, team members will receive "First Responder Awareness Level" training. All personnel responding to an incident must satisfy the applicable Hazardous Waste Operations and Emergency Response training requirements of 29 CFR 1910.120.

<b>OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION HAZARDOUS WASTE OPERATIONS AND EMERGENCY RESPONSE TRAINING REQUIREMENTS</b>		
<b>Responder Classification</b>	<b>Required Training Hours</b>	<b>Refresher</b>
<b>29CFR 1910.120(q) Emergency Response</b>		
First Responder - Awareness Level	2-4 hrs demonstration of competency	same
First Responder - Operations Level	8 hrs	8 hrs
Hazardous Materials Technician	24 hrs plus competency	8 hrs
Hazardous Materials Specialist	24 hrs plus competency in specialized areas	8 hrs
Incident Commander	24 hrs plus competency	8 hrs
<b>29CFR 1910.120(e) Clean Up Sites</b>		
General Site Workers	40 hrs / 3 days on the job training	8 hrs
Occasional Workers (Limited Tasks)	24 hrs / 1 day on the job training	8 hrs
General Site Workers (Low Hazard)	24 hrs / 1 day on the job training	8 hrs
Supervisors	8 hrs supervisor training	8 hrs
* Previous work experience and/or training certified as equivalent by employer.		

#### ***Incident Command System***

Response Team Members will receive Incident Command System training and may also receive supplemental training in other related general topics.

#### ***Training Records Maintenance***

Emergency response training records are maintained at the Company's office. Training records for response personnel will be maintained for as long as personnel have duties in this Emergency Response Plan.

#### ***Contractor Training***

The Company also recognizes that contract personnel must also have sufficient training to respond emergency response situations. The Company communicates this training need to its key contractors during contract negotiations and often specifically spells out this requirement in its contracts. The Company uses well-known spill response contractors whose reputation and experience levels help ensure personnel who respond will be trained to appropriate levels.

### **Training Qualifications**

As no formalized method of certifying training instructors has been provided by the Occupational Safety and Health Administration, the Company ensures the competency of its instructors and training organizations by selecting trainers and/or organizations with professional reputations and extensive hands-on and classroom experience in their subject matter. The Company personnel with responsibility to coordinate the training program also conduct periodic informal audits of training courses selected for the Company training program to ensure their suitability for the program.

## **D.2 RESPONSE TEAM EXERCISES**

Spill Management Team members, government agencies, contractors, and other resources must participate in response exercises required by Federal, State, or local regulations and as detailed in the "National Preparedness for Response Exercise Program (PREP) Guidelines." The Company will conduct announced drills to maintain compliance, and each plan-holder must participate in at least one exercise annually. The following table lists the triennial exercise cycle for facilities (see National Preparedness for Response Exercise Program Guidelines for full details).

<b>TRIENNIAL CYCLE</b>		
<b>Total Number</b>	<b>Frequency</b>	<b>Exercise Type/Description</b>
12	Quarterly	Qualified Individual Notification Exercise
3	Annually	Equipment Deployment Exercise ( <i>Facility-owned equipment</i> )
3	Annual	Response Team Tabletop Exercise
3	Annual	Equipment Deployment Exercise ( <i>facilities with Oil Spill Removal Organization-owned equipment</i> )
3	3 per Triennial Cycle	Unannounced Exercise ( <i>not a separate exercise</i> ) Actual response can be considered as an unannounced exercise. Credit can also be given for unannounced equipment deployment and Response Team tabletop exercises.
NOTES: 1) All Emergency Response Plan components must be exercised at least once in the Cycle. 2) Triennial cycle is completed for each response zone.		

### **Quarterly QI Notification Exercise**

- **Scope:** Exercise communication between Pipeline personnel and the Qualified Individual(s) and/or designated alternate(s). At least once each year, one of the notification exercises should be conducted during non-business hours.
- **Objective:** Contact must be made with a Qualified Individual or designated alternate, as identified in the Plan.
- **General:** All personnel receiving notification shall respond to the notification and verify their receipt of the notification. Personnel who do not respond should be contacted to determine whether or not they received the notification.

### ***Annual Equipment Deployment Exercise (for operator and/or Oil Spill Removal Organization equipment)***

- **Scope:** Demonstrate ability to deploy spill response equipment identified in the Oil Spill Response Plan.

May consist entirely of operator or OSRO owned equipment, or a combination of OSRO and operator equipment.

The number of equipment deployment exercises conducted should be such that equipment and personnel assigned to each Response Zone are exercised at least once a year and semi-annually for each terminal with response equipment. If the same personnel and equipment respond to multiple zones, they need only exercise once per year. If different personnel and equipment respond to various Response Zones, each must participate in an annual equipment deployment exercise.

- **Objective:** Demonstrate personnel's ability to deploy and operate response equipment. Ensure that the response equipment is in proper working order.
- **General:** The Facility may take credit for actual equipment deployment to a spill, or for training sessions, as long as the activities are properly documented.

### ***Annual Response Team Tabletop Exercise***

- **Scope:** Exercise the response team's organization, communication, and decision-making in managing a spill response. Each team identified within the Plan must conduct an annual Response Team Tabletop Exercise.

- **Objective:** Exercise the response team in a review of the following:
  - Knowledge of the Plan.
  - Proper notifications.
  - Communications system.
  - Ability to access an OSRO.
  - Coordination of internal spill response personnel.
  - Review of the transition from an initial team to a regional team.
  - Ability to effectively coordinate response activity with the National Response System (NRS) Infrastructure.
  - Ability to access information in the Area Contingency Plan.
- **General:** A minimum of one Response Team Tabletop Exercise in a triennial cycle will involve a Worst Case Discharge scenario.

### ***Government-Initiated Unannounced Exercise***

- **Scope:** Demonstrate ability to respond to a Worst Case Discharge spill event.
- **Objectives:** Designated Oil Spill Response Team Members should demonstrate adequate knowledge of their Emergency Response Plan and the ability to organize, communicate, coordinate, and respond in accordance with that Plan.

- **General:** Maximum of 20 unannounced Pipeline and Hazardous Materials Safety Administration exercises conducted annually for the pipeline industry as a whole. A single owner or operator will not be required to participate in a PHMSA-initiated unannounced exercise if they have already participated in one within the previous 36 months.

### ***Area Exercises***

- **Objective:** The purpose of the area exercise is to exercise the entire response community in a particular area. An area is defined as that geographic area for which a separate and distinct Area Contingency Plan has been prepared, as described in Oil Pollution Act 90. The response community includes the Federal, State, and local government and industry. The area exercises are designed to exercise the government and industry interface for spill response.
- **General:** The goal is to ensure that all areas of the country are exercised triennially. All of the area exercises will be developed by an exercise design team. The exercise design team is comprised of representatives from the Federal, State, and local government and industry. A lead plan holder would lead each area exercise. The lead plan holder is the organization (government or industry) that holds the primary plan that is exercised in the area exercise. The lead plan holder would have the final word on designing the scope and scenario of the exercise.

### ***Exercise Documentation***

- All exercises should be documented and maintained at the Company office; documentation should specify:
  - The type of exercise;
  - Date and time of the exercise;
  - A description of the exercise;
  - The objectives met in the exercise;
  - The components of the response plan exercised; and
  - Lessons learned.
- Exercise documentation should be kept on file for the required length of time depending on the regulating agency (three (3) years for the U.S. Coast Guard and five (5) years for the Pipeline and Hazardous Materials Safety Administration and the U.S. Environmental Protection Agency).

### D.3 PURPOSE OF REVIEW AND EVALUATION

This Section provides procedures and information useful to responders for post incident/exercise review and evaluation. Post incident/exercise reviews should be conducted in a timely manner following an incident/exercise. The Plan should be evaluated to determine its usefulness during the incident/exercise and appropriate revisions should be made. All incident/exercise documentation should be included in the Plan evaluation process.

#### ***Outline of Review***

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

#### ***Detection***

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

#### ***Notification***

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

#### ***Assessment/Evaluation***

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

**Mobilization**

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

**Response - Strategy**

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

**Response - Resources Used**

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

**Response - Effectiveness**

- Was containment effective and prompt?
- How could it have been improved?
- Should the location or the local cooperative have additional resources for containment?
- Was recovery effective and prompt?
- How could it have been improved?
- Should the location or the local cooperative have additional resources for recovery of spilled product?
- Was contaminated equipment disposed promptly and safely?

- Was there adequate in-house product separation, recovery, and disposal?
- How could it have been improved?
- Was there adequate outside disposal resources available?

### ***Command Structure***

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

### ***Measurement***

- Was there adequate measurement or estimation of the volume of product spilled?
- Was there adequate measurement or estimation of the volume of product recovered?
- Was there adequate measurement or estimation of the volume of product disposed?
- Should better measurement procedures be developed for either phase of operations?
- If so, what would be appropriate and acceptable?

### ***Government Relations***

- What are the roles and effects of the various government agencies which were involved?
- Was there a single focal point among the government agencies for contact?
- Should there have been better focus of communications to the agencies?
- Were government agencies adequately informed at all stages?
- Were too many agencies involved?
- Are any changes needed in procedures to manage government relations?
- Examples of affected U.S. agencies (there may be others):
  - U.S. Coast Guard
  - Environmental Protection Agency
  - National Oceanic and Atmospheric Administration
  - Dept of Fish and Wildlife
  - State Parks
  - Harbors and Marinas
  - States
  - Cities
  - Counties

- Was there adequate agreement with the government agencies on disposal methods?
- Was there adequate agreement with the government agencies on criteria for cleanup?
- How was this agreement developed?
- Were we too agreeable with the agencies in accepting their requests for specific action items (e.g., degree of cleanup)?
- Should there be advance planning of criteria for cleanup, aimed at specific local environmentally sensitive areas? (Such criteria should probably also be designed for different types of product.)

### ***Public Relations***

- How were relations with the media handled?
- What problems were encountered?
- Are improvements needed?
- How could public outcry have been reduced? Was it serious?
- Would it be useful to undertake a public information effort to "educate" reporters about product and effects to it if spilled?
- These areas should be investigated shortly after the incident to assure that actions taken are fresh in peoples' minds.

---

## APPENDIX E

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### DISPOSAL PLAN

**E.1**    Overview

**E. 2**    Waste Classification

**E. 3**    Waste Handling

**E. 4**    Waste Storage

**E. 5**    Waste Disposal

**Figure E. 1**    Temporary Storage Methods

**Figure E. 2**    Oily Waste Separation and Disposal Methods

**Figure E. 3**    Comparative Evaluation of Oil Spill Transfer Systems

## E.1 OVERVIEW

A major oil spill response would generate significant quantities of waste materials ranging from oily debris and sorbent materials to sanitation water and used batteries. All these wastes need to be classified and separated (i.e., oily, liquid, etc.), transported from the site, and treated and/or disposed of at approved disposal sites. Each of these activities demands that certain health and safety precautions be taken, which are strictly controlled by federal and state laws and regulations. This section provides an overview of the applicable state regulations governing waste disposal, and a discussion of various waste classification, handling, transfer, storage, and disposal techniques. It is the responsibility of the Company's HSE Specialist to manage waste disposal needs during an oil spill cleanup.

## E.2 WASTE CLASSIFICATION

### Environmental Department Representative

Waste containing any kind of oil is considered hazardous unless it can be shown to be non-hazardous by a certified laboratory analysis. To be classified as non-hazardous, the waste must be certified not to possess any of the following characteristics: ignitability, corrosivity, reactivity or toxicity. Laboratory analysis will be required by any disposal facility before they will accept oily waste for disposal. VTDC has contracts with various laboratories.

## E.3 WASTE HANDLING

### Waste Disposal Leader

Materials deemed non-recyclable will be:

- 1) Sold to a commercial recycler, or
- 2) Disposed of off-site.

## E.4 WASTE STORAGE

### **Transportation to Temporary Storage or Disposal**

Areas potentially threatened by a spill are largely accessible via roadway or boat. Special permits to position spill equipment (such as oversize load permits) are not anticipated. If such permits are required, the HSE Department will be responsible for obtaining them.

Recovered oil and oily debris are considered to be Class 1 waste. Proper shipments of Class 1 waste (hazardous and non-hazardous) to the disposal and storage sites will be coordinated by the Waste Disposal Leader to ensure compliance with DOT and TCEQ regulations in transportation of hazardous waste.

## Recovered Materials Storage

Depending on the magnitude of the spill, large quantities of recovered oil and waste and oily debris may need to be temporarily stored prior to recycling or disposal. Vacuum trucks and/or skimmers are the primary equipment used to recover spilled oil. If large amounts of oily debris must be temporarily stored, a storage site will have to be constructed, which has the following characteristics:

- Good access to the recovery site operations
- Good access to nearby roads or highways
- Be located above the ocean's high water mark
- Away from steep slope areas
- Away from populated areas

Storage within the site may include leak resistant containers such as:

- Roll-off bins lined with plastic sheeting
- Dump trucks lined with plastic sheeting
- Drums, garbage cans, plastic bags, etc.

## E.5 WASTE DISPOSAL

### Disposal

Recovery, reuse, and recycling are the best choices for remediation of a spill, thereby reducing the amount of oily debris to be bermed onsite or disposed of at a solid waste landfill. Treatment is the next best alternative, but incineration and burning for energy recovery have more options within the state. There are some limitations and considerations in incinerating for disposal. Environmental quality of incineration varies with the type and age of the facility. Therefore, when incineration becomes an option during an event, local air quality authorities would be contacted for advice about efficiency and emissions of facilities within their authority. Approval of the local air authorities is a requirement for any incineration option. Landfilling is the last option. Final disposal at a solid or dangerous waste landfill is the least environmentally sound method of dealing with a waste problem such as oily debris.

During an oil spill incident, the Company representative will consult with the federal and state On Scene Coordinators (OSCs) to identify the acceptable disposal methods and sites appropriately authorized to receive such wastes. The Company maintains a list of approved disposal sites that satisfy local, state, and federal regulations and company requirements. This identification of suitable waste treatment and disposal sites will be prepared by a HSE Specialist of the Company's Response Team in the form of an Incident Disposal Plan which must then be authorized by the U.S. Coast Guard and/or the EPA. An Incident Disposal Plan should include predesignated interim storage sites, segregation strategies, methods of treatment and disposal for various types of debris, and the locations/contacts of all treatment and disposal site selections. Onsite treatment/disposal is preferred.

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

The different types of wastes generated during response operations will require different disposal methods. To facilitate the disposal of wastes, they should be separated by type for temporary storage, transport and disposal. Table E-3 lists some of the options that are available to segregate oily wastes. The table also depicts methods that can be employed to separate free and/or emulsified water from the oily liquid waste.

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

### **Recycling**

This technique entails removing water from the oil and blending the oil with uncontaminated oil. Recovered oil can be shipped to refineries provided that it is exempt from hazardous waste regulations. There it can be treated to remove water and debris, and then blended and sold as a commercial product.

The Company's HSE Specialist is responsible for ensuring that all waste materials are disposed of at a Company internally approved disposal site.

### **Incineration**

This technique entails the complete destruction of the recovered oil by high temperature incineration. There are licensed incineration facilities as well as portable incinerators that may be brought to a spill site. Incineration may require the approval of the local Air Pollution Control Authority. Factors to consider when selecting an appropriate site for onsite incineration include:

- Proximity to recovery locations.
- Access to recovery locations.
- Adequate fire control.
- Approval of the local air pollution control authorities.

### **In Situ Burning/Open Burning**

Burning techniques entail igniting oil or oiled debris and allowing it to burn under ambient conditions. These disposal techniques are subject to restrictions and permit requirements established by federal, state and local laws. They cannot be used to burn PCBs, waste oil containing more than 1,000 parts per million of halogenated solvents, or other substances regulated by the EPA. Permission for in situ burning may be difficult to obtain when the burn takes place near populated areas.

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

### **Landfill Disposal**

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

With local health department approval, non-burnable debris which consists of oiled plastics, gravel and oiled seaweed, kelp, and other organic material may be transported to a licensed, lined, approved municipal or private landfill and disposed of in accordance with the landfill guidelines and regulations. Landfill designation should be planned only for those wastes that have been found to be unacceptable by each of the other disposal options (e.g., waste reduction, recycling, energy recovery). Wastes are to be disposed of only at Company-approved disposal facilities. The Company's HSE Specialist is responsible for ensuring that all waste materials are disposed of at a Company-approved disposal site. Disposal at a non-approved facility would require approval by the Company's HSE Specialist prior to sending any waste to such a facility.

**FIGURE E-1**  
**TEMPORARY STORAGE METHODS**

CONTAINER	ONSHORE	OFFSHORE	SOLIDS	LIQUIDS	NOTES
Barrels	x	x	x	x	May require handling devices. Covered and clearly marked.
Tank Trucks	x	x		x	Consider road access. Barge-mounted offshore.
Dump/Flat Bed Trucks-Roll-offs	x		x		May require impermeable liner and cover. Consider flammability of vapors at mufflers.
Barges		x	x	x	Liquids only in tanks. Consider venting of tanks.
Oil Storage Tanks	x	x		x	Consider problems of large volumes of water in oil.
Bladders	x	x		x	May require special hoses or pumps for oil transfer.
Frac Tanks	x			x	Consider road access.

FIGURE E-2

## OILY WASTE SEPARATION AND DISPOSAL METHODS

TYPE OF MATERIAL	SEPARATION METHODS	DISPOSAL METHODS
<b>LIQUIDS</b>		
Non-emulsified oils	Gravity separation of free water	Incineration Use of recovered oil as refinery/production facility feedstock
Emulsified oils	Emulsion broken to release water by: <ul style="list-style-type: none"> <li>• heat treatment</li> <li>• emulsion breaking chemicals</li> <li>• mixing with sand</li> <li>• centrifuge</li> <li>• filter/belt press</li> </ul>	Use of recovered oil as refinery/production facility feedstock
<b>SOLIDS</b>		
Oil mixed with sand and soil	Collection of liquid oil leaching from sand during temporary storage Extraction of oil from sand by washing with water or solvent Removal of solid oils by sieving	Incineration Use of recovered oil as refinery/production facility feedstock Direct disposal Stabilization with inorganic material Degradation through land farming or composting
Oil mixed with cobbles or pebbles	Screening Collection of liquid oil leaching from materials during temporary storage Extraction of oil from materials by washing with water or solvent	Incineration Direct Disposal Use of recovered oil as refinery/production facility feedstock
Oil mixed with wood and sorbents	Screening Collection of liquid oil leaching from debris during temporary storage Flushing of oil from debris with water	Incineration Direct disposal Degradation through land farming or composting for oil mixed with seaweed or natural sorbents

FIGURE E-3

## COMPARATIVE EVALUATION OF OIL SPILL TRANSFER SYSTEMS

CHARACTERISTICS OF TRANSFER SYSTEM	CENTRIFUGAL PUMP	LOBE PUMP	GEAR PUMP	INTERMESHING SCREW	VALVE PUMP	FLEXIBLE IMPELLER	SCREW/AUGER PUMP	PROGRESSING CAVITY	PISTON PUMP	DIAPHRAGM PUMP	AIR CONVEYOR	VACUUM TRUCK	PORTABLE VACUUM PUMP	CONVEYOR BELT	SCREW CONVEYOR	WHEELED VEHICLES
High Viscosity Fluids	1	5	5	5	3	2	5	5	5	3	5	4	4	5	4	5
Low Viscosity Fluids	5	2	2	2	3	4	1	3	3	4	5	5	5	1	1	5
Transfer Rate	5	2	1	1	3	4	1	2	2	3	4	5	3	2	2	2
Debris Tolerance																
● Silt/Sand	5	3	1	1	1	4	5	5	3	4	5	5	5	5	5	5
● Gravel/Particulate	5	2	1	1	1	2	5	3	2	3	5	5	4	5	4	5
● Seaweed/Stringy Matter	2	3	4	3	2	2	4	4	3	3	4	4	3	5	4	5
Tendency to Emulsify Fluids	1	4	3	3	3	3	5	5	2	5	5	5	5	5	5	5
Ability to Run Dry	5	3	2	1	2	3	4	3	3	2	5	5	5	4	3	
Ability to Operate Continuously	5	3	2	2	2	3	3	3	4	4	3	3	3	3	2	4
Self Priming	1	3	2	2	2	5	1	5	4	4	5	5	5	5	5	
Suction/Head	2	3	2	2	3	4	1	5	5	2	5	4	3			
Back Pressure/Head	1	5	5	5	4	3	4	5	2	4	1	1	1	3	3	
Portability	5	3	3	2	4	4	3	2					2	1	1	
Ease of Repair	5	3	2	2	3	4	3	2	3	5	1	1	2	3	2	3
Cost	5	B	2	2	3	3	1	2	3	5	1	1	2	2	2	3
Comments	E,J	B	B	B,J		F	A	B	B,D	A,C,D	F,G,I	F,G,I	F,G			G,H,I

## KEY TO RATING

5=Best; 1=Worst

## KEY TO COMMENTS

- A. Normally require remote power source, thus are safe around flammable fluids.  
 B. Should have a relief valve in the outlet line to prevent bursting hoses.  
 C. Air powered units tend to freeze up in sub-freezing temperatures.  
 D. Units with work ball valves are difficult to prime.  
 E. Some remotely powered types are designed to fit in a tanker's butterworth hatch.  
 F. Can also pump air at low pressure.  
 G. Transfer is batch-wise rather than continuous.  
 H. Waste must be in separate container for efficient transfer.  
 I. Transportable with its own prime mover.  
 J. High shear action tends to emulsify oil and water mixtures.

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## APPENDIX F

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### MISCELLANEOUS FORMS

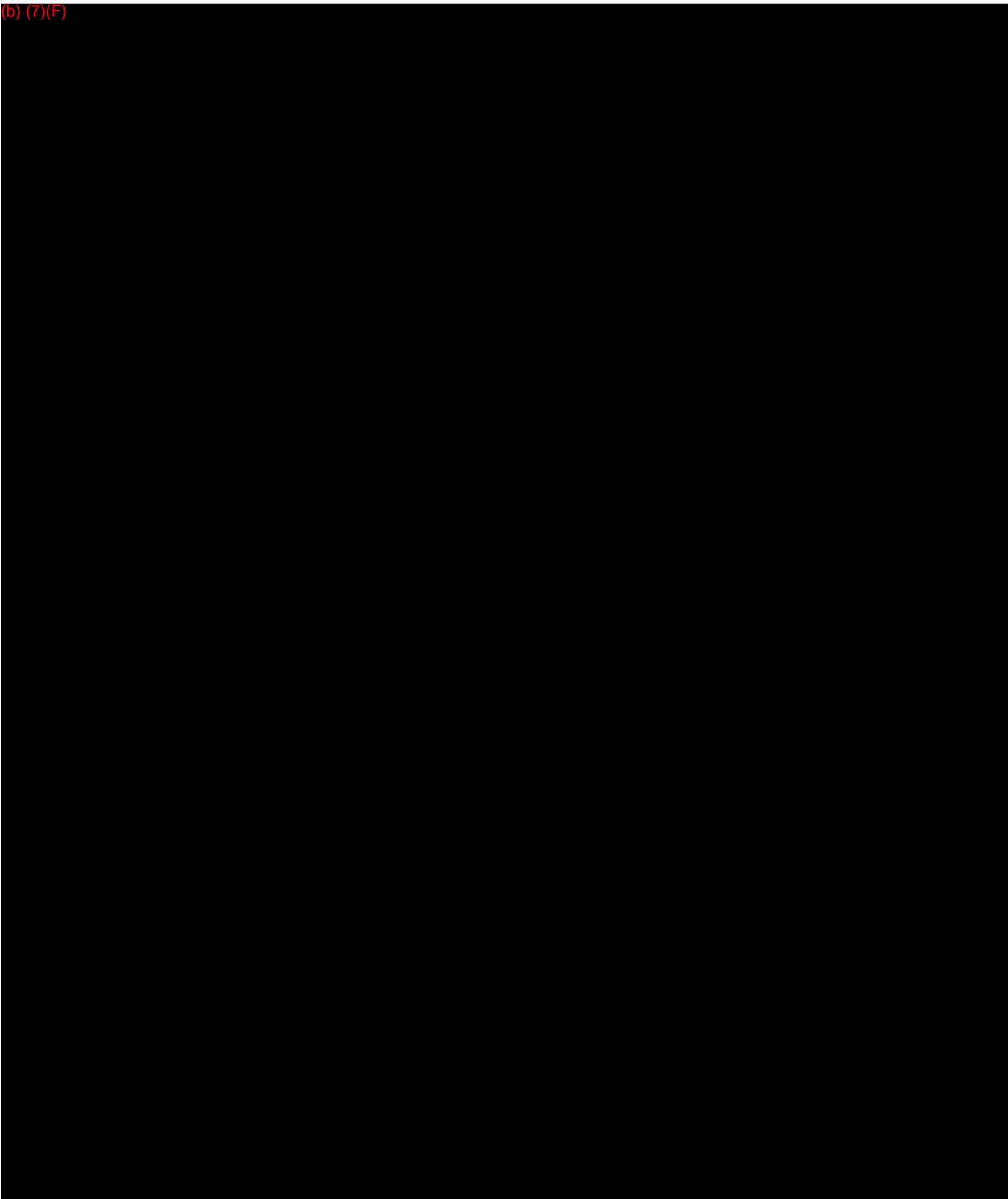
#### Forms and Exercise Documentation File Maintenance Procedures

- Forms and exercise documentation records should be maintained in a separate file in the Facility's office filing system.
- These files must be available for presentation upon request by regulatory agency personnel.

## Caller Characteristics Checklist

[Click to view the file - Caller Characteristics Checklist 27 1 2010 16 19 45.pdf](#)

(b) (7)(F)



Department of Transportation Liquid Pipeline Accident Report

[Click to view the file - Department of Transportation Liquid Pipeline Accident Report 27 1 2010 16 19 58.pdf](#)

## DEPARTMENT OF TRANSPORTATION LIQUID PIPELINE ACCIDENT REPORT

**Instructions:** Submit in duplicate for each accident reportable under Code of Federal Regulations, Title 49, Part 195, Subpart B.

If the space provided for any question is not adequate, attach an additional sheet. File both copies of this report within 30 days after discovery of the accident with the Information Resources Manager (Room 2335), Office of Pipeline Safety, Department of Transportation, 400 Seventh Street, S.W., Washington, D.C. 20590. However, reports for intrastate pipelines subject to the jurisdiction of a State agency pursuant to certification under Section 205 of the Hazardous Liquid Pipelines Safety Act of 1979 may be submitted in duplicate to State agency if the regulations of that agency require submissions of these reports and provide for further transmittal of one copy within 10 days of receipt to the Information Resource Manager.

Please write or call the Information Resource Manager (202-366-4758) concerning questions about this report or these instructions, or to obtain copies of DOT Form 7000-1.

Each operator shall prepare each report of an accident of Form DOT 7000-1 or a facsimile as follows:

- (1) General. Each applicable item must be marked or filled in fully and as accurately as information accessible to the operator at the time of filing the report will permit. More than one item may apply.
- (2) Part A. Enter the complete corporate name of the operator. Enter the address of the operator's principal place of business, including zip code.
- (3) Part B, Item 1. Enter the date the accident occurred or was discovered. If the accident was not discovered on the date it occurred, state this under Part K. Indicate whether the accident occurred on Federal Lands. For purpose of the report "Federal lands" means all lands owned by the United States except lands in the National Park System, lands held in trust for an Indian or Indian tribe, and lands on the Outer Continental Shelf.  
  
Item 2. Enter the time the accident occurred according to a 24 hour clock (e.g. 1945). If the time of occurrence is not known, enter the time the accident was discovered state this fact under Part K.
- (4) Part E. Give the number of deaths and injuries known at the time of filing this report even if they were previously reported telephonically to the Department of Transportation. If none, state none.
- (5) Part F. Indicate the total estimated property damage in the present day costs including the cost of the commodity not recovered, damage to other parties, and cost of clean up. If none, state none.
- (6) Part G. Item 1. State the commonly used name of the commodity spilled such as #2 fuel oil, regular gasoline, propane, etc.  
  
Item 2. Give the classification of the commodity spilled and if it is a petroleum product, indicate whether it is a highly volatile liquid (HVL) or non "HVL" means a hazardous liquid which will form a vapor cloud when released to the atmosphere and which has a vapor pressure exceeding 276Pa (40 psia) at 37.8° c (100° F). If the commodity spilled is not anhydrous ammonia, petroleum, or a petroleum product, it is not necessary to file this report.
- (7) Part K. Give an account of the accident sufficiently complete and detailed to convey an understanding of the cause of the accident. Continue on an extra sheet of paper if more space is needed.

## Dike Drain Checklist

[Click to view the file - Dike Drain Checklist 25 2 2010 9 53 44.pdf](#)

### DIKE DRAIN CHECKLIST

Date: \_\_\_\_\_

Valve #: \_\_\_\_\_

Inspector: \_\_\_\_\_

Valve operates easily?       YES       NO       Needs Lubrication

Paint Condition:       GOOD       FAIR       POOR       Needs Paint

Valve inlet free of debris?       YES       NO       Needs Cleaning

Valve inlet free of silt?       YES       NO       Needs Removal

Comment on any other condition you observed that needs repair or work to ensure a clean and safe dike draining operation:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Status board indicates the actual position of the drain valve?       YES       NO

\_\_\_\_\_  
SIGNATURE

-----

Date given to Operators for corrective action: \_\_\_\_\_

Date corrective action complete: \_\_\_\_\_

\_\_\_\_\_  
SIGNATURE

This form shall be completed by the Terminal Supervisor on a quarterly basis.

## Dike Drainage Report

[Click to view the file - Dike Drainage Report 27 1 2010 16 21 7.pdf](#)

### DIKE DRAINING REPORT

Date: \_\_\_\_\_ Valve #: \_\_\_\_\_

Indicate Tank #s in dike area to be drained: \_\_\_\_\_

Products stored in dike area: \_\_\_\_\_

Water checked for contamination by: \_\_\_\_\_ (Initials)

Contamination found?  YES  NO

If contamination found, what was done to clean it up? \_\_\_\_\_

Time dike valve opened: \_\_\_\_\_

Time drain checked: \_\_\_\_\_

(Must be checked hourly)

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Time dike valve closed: \_\_\_\_\_

Describe anything unusual about the draining: \_\_\_\_\_

Valve position status board changed?  YES  NO

\_\_\_\_\_  
SIGNATURE

TIME: \_\_\_\_\_

Supervisor observing draining: \_\_\_\_\_ (Initials)

This form is to be completed by the Terminal Operator each time a dike is drained. A separate form shall be completed for each dike that is drained.

Internal Exercise Documentation Form (Semi-Annual) Equipment Deployment Exercise

[Click to view the file - Internal Exercise Documentation Form \(Semi-Annual\) Equipment Deployment Exercise 27 1 2010 16 21 46.pdf](#)

# Internal Exercise Documentation Form (Semiannual)

## Equipment Deployment Exercise

1. Date(s) performed: \_\_\_\_\_
  2. Exercise or actual response? \_\_\_\_\_  
If an exercise, announced or unannounced? \_\_\_\_\_
  3. Deployment location(s):  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  4. Time started: \_\_\_\_\_  
Time completed: \_\_\_\_\_
  5. Equipment deployed was:  
\_\_\_\_\_ Facility - owned  
\_\_\_\_\_ Oil Spill Removal Organization-owned if so, which OSRO? \_\_\_\_\_  
\_\_\_\_\_ Both
  6. List type and amount of all equipment (e.g., boom and skimmers) deployed and number of support personnel employed:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  7. Describe goals of the equipment deployment and list any Area Contingency Plan strategies tested (Attach a sketch of equipment deployments and booming strategies):  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
  8. For deployment of facility-owned equipment, was the amount of equipment deployed at least the amount necessary to respond to your facility's average most probable spill?  
\_\_\_\_\_  
\_\_\_\_\_
- Was the equipment deployed in its intended operating environment?  
\_\_\_\_\_  
\_\_\_\_\_

## Internal Exercise Documentation Form (Semiannual)

### Equipment Deployment Exercise (Cont'd)

9. For deployment of OSRO-owned equipment, was a representative sample of each type deployed?

---



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Was the equipment deployed in its intended operating environment?

---



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10. Are all pipeline personnel that are responsible for response operations involved in a comprehensive training program, and all pollution response equipment involved in a comprehensive maintenance program? \_\_\_\_\_

---

If so, describe the program: \_\_\_\_\_

---



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---

Date of last equipment inspection: \_\_\_\_\_

11. Was the equipment deployed by personnel responsible for its deployment in the event of an actual spill? \_\_\_\_\_

12. Was all deployed equipment operational? If not, why not?

---



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### Response Equipment Inspection Log

Inspector	Date	Comments

Internal Exercise Documentation Form (Spill Management Team Tabletop Exercise)

[Click to view the file - Internal Exercise Documentation Form \(Spill Management Team Tabletop Exercise\) 19 2 2010 15 33 7.pdf](#)



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

e) Spill Management Team's ability to operate within a Unified Command:

f) 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:

	Notifications		Disposal
	Staff Mobilization		Communications
	Operate in Response Mgmt. System		Transportation
	Discharge Contained		Personnel Support
	Assessment		Equipment Maintenance
	Containment		Procurement
	Recovery		Documentation
	Protection		

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

---

Raymond G. Meyer  
 Director of Response Services  
 Response Management Associates, Inc.

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

## Notification Data Sheet

[Click to view the file - Notification Data Sheet 27 1 2010 16 22 50.pdf](#)

## NOTIFICATION DATA SHEET

### NOTIFICATION DATA SHEET

**Date:** \_\_\_\_\_ **Time:** \_\_\_\_\_

#### INCIDENT DESCRIPTION

**Reporter's Full Name:** \_\_\_\_\_ **Position:** \_\_\_\_\_  
**Day Phone Number:** \_\_\_\_\_ **Evening Phone Number:** \_\_\_\_\_  
**Company:** \_\_\_\_\_ **Organization Type:** \_\_\_\_\_  
  
**Facility Address:** \_\_\_\_\_ **Owner's Address:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
  
**Facility Latitude:** \_\_\_\_\_ **Facility Longitude:** \_\_\_\_\_  
**Spill Location (if not at Facility):** \_\_\_\_\_  
**Responsible Party's Name** \_\_\_\_\_ **Phone Number:** \_\_\_\_\_  
**Responsible Party's Address:** \_\_\_\_\_  
**Source and/or cause of discharge (Description):** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Nearest City:** \_\_\_\_\_ **Distance from City:** \_\_\_\_\_ **Unit of Measure:** \_\_\_\_\_  
**County:** \_\_\_\_\_ **State:** \_\_\_\_\_ **Zip code:** \_\_\_\_\_  
**Section:** \_\_\_\_\_ **Township:** \_\_\_\_\_ **Range:** \_\_\_\_\_ **Borough:** \_\_\_\_\_  
**Distance from City:** \_\_\_\_\_ **Direction from City:** \_\_\_\_\_  
**Container Type:** \_\_\_\_\_ **Container Storage Capacity:** \_\_\_\_\_  
**Facility Oil Storage Capacity:** \_\_\_\_\_ **Unit of Measure:** \_\_\_\_\_  
**Were Materials Discharged?** \_\_\_\_\_ (Y/N) **Confidential?** \_\_\_\_\_ (Y/N) **Material:** \_\_\_\_\_

CHRIS Code	Total Quantity Released	Unit of Measure	Water Impact (YES or NO)	Quantity into Water	Unit of Measure

#### RESPONSE ACTION(S)

**Action(s) taken to Correct, Control, or Mitigate Incident:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Number of Injuries:** \_\_\_\_\_ **Number of Deaths:** \_\_\_\_\_

**Evacuation(s):** \_\_\_\_\_ **Number Evacuated:** \_\_\_\_\_

**Damage in Dollars (approximate):** \_\_\_\_\_

**Medium Affected:** \_\_\_\_\_

**Description:** \_\_\_\_\_

**More Information about Medium:** \_\_\_\_\_

#### CALLER NOTIFICATIONS

**National Response Center (NRC):** \_\_\_\_\_ 1-800-424-8802

**Additional Notifications (Circle all applicable):**    **USCG**    **EPA**    **State**    **Other**

**Describe:** \_\_\_\_\_

**NRC Incident Assigned No:** \_\_\_\_\_

#### ADDITIONAL INFORMATION

**Any information about the incident not recorded elsewhere in this report:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Meeting Federal Obligations to Report?** \_\_\_\_\_ (Y/N) **Date Called:** \_\_\_\_\_

**Calling for Responsible Party?** \_\_\_\_\_ (Y/N) **Time Called:** \_\_\_\_\_

NOTE: DO NOT DELAY NOTIFICATION PENDING COLLECTION OF ALL INFORMATION.

## VTDC Activity Log

[Click to view the file - VTDC Activity Log 23 2 2010 14 46 28.pdf](#)



Qualified Individual (QI) Notification Exercise (Internal ExerciseDocumentation)

[Click to view the file - Qualified Individual \(QI\) Notification Exercise \(Internal ExerciseDocumentation\) 27 1 2010 16 23 26.pdf](#)

**QUALIFIED INDIVIDUAL (QI) NOTIFICATION EXERCISE**  
**Internal Exercise Documentation**  
*(Excerpted from the PREP Guidelines)*

**PIPELINE NAME** \_\_\_\_\_ **MMS COMPLEX ID NO.** \_\_\_\_\_

1. Date performed: \_\_\_\_\_

2. Exercise or actual response: \_\_\_\_\_

3. Person initiating exercise: \_\_\_\_\_

4. Name of person notified: \_\_\_\_\_

Is this person identified in the response plan as the:  QI  AQI

5. Time initiated: \_\_\_\_\_

Time QI or AQI responded: \_\_\_\_\_

6. Method used to contact:

Telephone  Pager  Radio

Other \_\_\_\_\_

7. Description of notification procedure:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

8. Identify which components of your response plan were exercised during this particular exercise:

**Organizational Design**

- Notifications
- Staff Mobilization
- Ability to Operate Within the Response Management System Described in the Plan

**Response Support**

- Communications
- Transportation
- Personnel Support

**Operational Response**

- Discharge Control
- Assessment of Discharge
- Containment of Discharge
- Recovery of Spilled Material
- Protection of Economically and Environmentally Sensitive Areas
- Disposal of Recovered Product

- Equipment Maintenance and Support
- Procurement
- Documentation

Certifying Signature: \_\_\_\_\_ Name (Printed): \_\_\_\_\_

Date: \_\_\_\_\_

Response Team Tabletop Exercise (Internal Exercise Documentation)

[Click to view the file - Response Team Tabletop Exercise \(Internal Exercise Documentation\)  
27 1 2010 16 23 46.pdf](#)

# Response Team Tabletop Exercise

## Internal Exercise Documentation

1. Date(s) performed: \_\_\_\_\_
2. Exercise or actual response: \_\_\_\_\_  
Exercise type:  Announced  Unannounced
3. Location of exercise: \_\_\_\_\_
4. Time started: \_\_\_\_\_  
Time completed: \_\_\_\_\_
5. Response plan scenario used (check one):  
 Small  Medium  Worst Case Discharge  
Size of (simulated) spill \_\_\_\_\_ Bbls
6. Describe how the following objectives were exercised:

a) Response Team's knowledge of Integrated Contingency Plan:

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b) Proper notifications:

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c) Communications system:

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## Response Team Tabletop Exercise

### Internal Exercise Documentation (Cont'd)

d) Response Team's ability to access contracted OSRO:

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

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

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

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

Certifying Signature: \_\_\_\_\_ Name (Printed): \_\_\_\_\_

Date: \_\_\_\_\_

## Revision Record

[Click to view the file - Revision Record 27 1 2010 16 24 1.pdf](#)



RSPA F 7000-1

[Click to view the file - RSPA F 7000-1 27 1 2010 16 24 16.pdf](#)

NOTICE: This report is required by 49 CFR Part 195. Failure to report can result in a civil penalty not to exceed \$25,000 for each violation for each day that such violation persists except that the maximum civil penalty shall not exceed \$500,000 as provided in 49 USC 60122 Form Approved OMB No. 2137-0047

 <p>U.S. Department of Transportation Research and Special Programs Administration</p>	<h2 style="margin: 0;">ACCIDENT REPORT – HAZARDOUS LIQUID PIPELINE SYSTEMS</h2>	Report Date _____ No. _____ (DOT Use Only)
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**INSTRUCTIONS**

**Important:** Please read the separate instructions for completing this form before you begin. They clarify the information requested and provide specific examples. If you do not have a copy of the instructions, you can obtain one from the Office Of Pipeline Safety Web Page at <http://ops.dot.gov>.

**PART A – GENERAL REPORT INFORMATION** Check:  Original Report  Supplemental Report  Final Report

1. a. Operator's OPS 5-digit Identification Number (if known) \_\_\_\_\_
- b. If Operator does not own the pipeline, enter Owner's OPS 5-digit Identification Number (if known) \_\_\_\_\_
- c. Name of Operator \_\_\_\_\_
- d. Operator street address \_\_\_\_\_
- e. Operator address \_\_\_\_\_  
 City, County, State and Zip Code \_\_\_\_\_

**IMPORTANT: IF THE SPILL IS SMALL, THAT IS, THE AMOUNT IS AT LEAST 5 GALLONS BUT IS LESS THAN 5 BARRELS, COMPLETE THIS PAGE ONLY, UNLESS THE SPILL IS TO WATER AS DESCRIBED IN 49 CFR §195.52(A)(4) OR IS OTHERWISE REPORTABLE UNDER §195.50 AS REVISED IN CY 2001.**

2. Time and date of the accident  
 \_\_\_\_\_ hr. \_\_\_\_\_ month \_\_\_\_\_ day \_\_\_\_\_ year
3. Location of accident  
 (If offshore, do not complete a through d. See Part C.1)  
 a. Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_  
 (If not available, see instructions for how to provide specific location)  
 b. \_\_\_\_\_  
 City, and County or Parish  
 c. \_\_\_\_\_  
 State and Zip Code  
 d. Mile post/valve station  or survey station no.  (whichever gives more accurate location)  
 \_\_\_\_\_
4. Telephone report  
 \_\_\_\_\_  
 NRC Report Number \_\_\_\_\_ month \_\_\_\_\_ day \_\_\_\_\_ year

5. Losses (Estimated)

<b>Public/Community Losses reimbursed by operator:</b>	
Public/private property damage	\$ _____
Cost of emergency response phase	\$ _____
Cost of environmental remediation	\$ _____
Other Costs	\$ _____
(describe) _____	
<b>Operator Losses:</b>	
Value of product lost	\$ _____
Value of operator property damage	\$ _____
Other Costs	\$ _____
(describe) _____	
<b>Total Costs</b>	<b>\$ _____</b>

6. Commodity Spilled  Yes  No  
 (If Yes, complete Parts a through c where applicable)
  - a. Name of commodity spilled \_\_\_\_\_
  - b. Classification of commodity spilled:
    - HVLs /other flammable or toxic fluid which is a gas at ambient conditions
    - CO<sub>2</sub> or other non-flammable, non-toxic fluid which is a gas at ambient conditions
    - Gasoline, diesel, fuel oil or other petroleum product which is a liquid at ambient conditions
    - Crude oil

c. Estimated amount of commodity involved :  
 Barrels  
 Gallons (check only if spill is less than one barrel)

Amounts: Spilled : \_\_\_\_\_  
 Recovered: \_\_\_\_\_

**CAUSES FOR SMALL SPILLS ONLY (5 gallons to under 5 barrels) :** (For large spills [5 barrels or greater] see Part H)

- Corrosion     Natural Forces     Excavation Damage     Other Outside Force Damage  
 Material and/or Weld Failures     Equipment     Incorrect Operation     Other

**PART B – PREPARER AND AUTHORIZED SIGNATURE**

_____ (type or print) Preparer's Name and Title	_____ Area Code and Telephone Number
_____ Preparer's E-mail Address	_____ Area Code and Facsimile Number
_____ Authorized Signature	_____ (type or print) Name and Title
_____ Date	_____ Area Code and Telephone Number

**PART C – ORIGIN OF THE ACCIDENT (Check all that apply)**

- 1. Additional location information
  - a. Line segment name or ID \_\_\_\_\_
  - b. Accident on Federal land other than Outer Continental Shelf  Yes  No
  - c. Is pipeline interstate?  Yes  No

Offshore:  Yes  No (complete if offshore)  
 d. Area \_\_\_\_\_ Block # \_\_\_\_\_  
 State / / / or Outer Continental Shelf

- 2. Location of system involved (check all that apply)
  - Operator's Property
  - Pipeline Right of Way
  - High Consequence Area (HCA)? Describe HCA \_\_\_\_\_

- 3. Part of system involved in accident
  - Above Ground Storage Tank
  - Cavern or other below ground storage facility
  - Pump/meter station; terminal/tank farm piping and equipment, including sumps
  - Other Specify: \_\_\_\_\_

- Onshore pipeline, including valve sites
- Offshore pipeline, including platforms

If failure occurred on Pipeline, complete items a - g:

- 4. Failure occurred on
 

<input type="radio"/> Body of Pipe	<input type="radio"/> Pipe Seam	<input type="radio"/> Scraper Trap
<input type="radio"/> Pump	<input type="radio"/> Sump	<input type="radio"/> Joint
<input type="radio"/> Component	<input type="radio"/> Valve	<input type="radio"/> Metering Facility
<input type="radio"/> Repair Sleeve	<input type="radio"/> Welded Fitting	<input type="radio"/> Bolted Fitting
<input type="radio"/> Girth Weld		

Other (specify) \_\_\_\_\_  
 Year the component that failed was installed: / / / / /

- 5. Maximum operating pressure (MOP)
  - a. Estimated pressure at point and time of accident: \_\_\_\_\_ PSIG
  - b. MOP at time of accident: \_\_\_\_\_ PSIG
  - c. Did an over pressurization occur relating to the accident?  Yes  No

- a. Type of leak or rupture
  - Leak:  Pinhole  Connection Failure (complete sec. H5)
    - Puncture, diameter (inches) \_\_\_\_\_
  - Rupture:  Circumferential – Separation
    - Longitudinal – Tear/Crack, length (inches) \_\_\_\_\_
  - Propagation Length, total, both sides (feet) \_\_\_\_\_
  - O/N/A
  - Other \_\_\_\_\_

- b. Type of block valve used for isolation of immediate section:
  - Upstream:  Manual  Automatic  Remote Control  Check Valve
  - Downstream:  Manual  Automatic  Remote Control  Check Valve

c. Length of segment isolated \_\_\_\_\_ ft

d. Distance between valves \_\_\_\_\_ ft

e. Is segment configured for internal inspection tools?  Yes  No

- f. Had there been an in-line inspection device run at the point of failure?  Yes  No  Don't Know
  - Not Possible due to physical constraints in the system

- g. If Yes, type of device run (check all that apply)
 

<input type="checkbox"/> High Resolution Magnetic Flux tool	Year run: _____
<input type="checkbox"/> Low Resolution Magnetic Flux tool	Year run: _____
<input type="checkbox"/> UT tool	Year run: _____
<input type="checkbox"/> Geometry tool	Year run: _____
<input type="checkbox"/> Caliper tool	Year run: _____
<input type="checkbox"/> Crack tool	Year run: _____
<input type="checkbox"/> Hard Spot tool	Year run: _____
<input type="checkbox"/> Other tool	Year run: _____

**PART D – MATERIAL SPECIFICATION**

- 1. Nominal pipe size (NPS) \_\_\_\_\_ in.
- 2. Wall thickness \_\_\_\_\_ in.
- 3. Specification \_\_\_\_\_ SMYS / / / / /
- 4. Seam type \_\_\_\_\_
- 5. Valve type \_\_\_\_\_
- 6. Manufactured by \_\_\_\_\_ in year / / / / /

**PART E – ENVIRONMENT**

- 1. Area of accident
 

<input type="radio"/> Under pavement	<input type="radio"/> Above ground
<input type="radio"/> Underground	<input type="radio"/> Under water
<input type="radio"/> Inside/under building	<input type="radio"/> Other _____
- 2. Depth of cover: \_\_\_\_\_ inches

**PART F – CONSEQUENCES**

- 1. Consequences (check and complete all that apply)
 

a.	<b>Fatalities</b>	<b>Injuries</b>
Number of operator employees:	_____	_____
Contractor employees working for operator:	_____	_____
General public:	_____	_____
<b>Totals:</b>	_____	_____

- c. Product ignited  Yes  No
- d. Explosion  Yes  No
- e.  Evacuation (general public only) / / / / / people

- b. Was pipeline/segment shutdown due to leak?  Yes  No
- If Yes, how long? \_\_\_\_\_ days \_\_\_\_\_ hours \_\_\_\_\_ minutes

- f. Elapsed time until area was made safe: \_\_\_\_\_ / / hr. \_\_\_\_\_ / / min.

- 2. Environmental Impact
  - a. Wildlife Impact:
 

Fish/aquatic	<input type="radio"/> Yes <input type="radio"/> No
Birds	<input type="radio"/> Yes <input type="radio"/> No
Terrestrial	<input type="radio"/> Yes <input type="radio"/> No
  - b. Soil Contamination  Yes  No
  - If Yes, estimated number of cubic yards: \_\_\_\_\_
  - c. Long term impact assessment performed:  Yes  No
  - d. Anticipated remediation  Yes  No
  - If Yes, check all that apply:  Surface water  Groundwater  Soil  Vegetation  Wildlife

- e. Water Contamination:  Yes  No (If Yes, provide the following)
 

Amount in water _____ barrels
Ocean/Seawater <input type="radio"/> No <input type="radio"/> Yes
Surface <input type="radio"/> No <input type="radio"/> Yes
Groundwater <input type="radio"/> No <input type="radio"/> Yes
Drinking water <input type="radio"/> No <input type="radio"/> Yes (If Yes, check below.)
<input type="radio"/> Private well <input type="radio"/> Public water intake

**PART G – LEAK DETECTION INFORMATION**

1. Computer based leak detection capability in place?  Yes  No
2. Was the release initially detected by? (check one):  CPM/SCADA-based system with leak detection  
 Static shut-in test or other pressure or leak test  
 Local operating personnel, procedures or equipment  
 Remote operating personnel, including controllers  
 Air patrol or ground surveillance  
 A third party  Other (specify) \_\_\_\_\_
3. Estimated leak duration    days            hours

**PART H – APPARENT CAUSE**

**Important:** There are 25 numbered causes in this Part H. Check the box corresponding to the primary cause of the accident. Check one circle in each of the supplemental categories corresponding to the cause you indicate. See the instructions for guidance.

- |   |  |   |  |
|---|--|---|--|
| <p>H1 – CORROSION</p> <p>1. <input type="checkbox"/> External Corrosion</p> <p>2. <input type="checkbox"/> Internal Corrosion</p> <p>(Complete items a – e where applicable.)</p> | <p>a. Pipe Coating</p> <p><input type="radio"/> Bare</p> <p><input type="radio"/> Coated</p> | <p>b. Visual Examination</p> <p><input type="radio"/> Localized Pitting</p> <p><input type="radio"/> General Corrosion</p> <p><input type="radio"/> Other _____</p> | <p>c. Cause of Corrosion</p> <p><input type="radio"/> Galvanic            <input type="radio"/> Atmospheric</p> <p><input type="radio"/> Stray Current       <input type="radio"/></p> <p>Microbiological</p> <p><input type="radio"/> Cathodic Protection Disrupted</p> <p><input type="radio"/> Stress Corrosion Cracking</p> <p><input type="radio"/> Selective Seam Corrosion</p> <p><input type="radio"/> Other _____</p> |
|---|--|---|--|
- d. Was corroded part of pipeline considered to be under cathodic protection prior to discovering accident?  
 No  Yes, Year Protection Started: / / / / /
- e. Was pipe previously damaged in the area of corrosion?  
 No  Yes ⇒ Estimated time prior to accident: / / / years / / / months Unknown

**H2 – NATURAL FORCES**

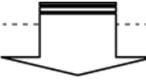
- |   |   |   |   |   |
|---|---|---|---|---|
| <p>3. <input type="checkbox"/> Earth Movement</p> <p>4. <input type="checkbox"/> Lightning</p> <p>5. <input type="checkbox"/> Heavy Rains/Floods</p> <p>6. <input type="checkbox"/> Temperature</p> <p>7. <input type="checkbox"/> High Winds</p> | <p>⇒ <input type="radio"/> Earthquake</p> <p>⇒ <input type="radio"/> Washouts</p> <p>⇒ <input type="radio"/> Thermal stress</p> | <p><input type="radio"/> Subsidence</p> <p><input type="radio"/> Flotation</p> <p><input type="radio"/> Frost heave</p> | <p><input type="radio"/> Landslide</p> <p><input type="radio"/> Mudslide</p> <p><input type="radio"/> Frozen components</p> | <p><input type="radio"/> Other _____</p> <p><input type="radio"/> Scouring</p> <p><input type="radio"/> Other _____</p> |
|---|---|---|---|---|

**H3 – EXCAVATION DAMAGE**

8.  Operator Excavation Damage (including their contractors/Not Third Party)
9.  Third Party (complete a-f)
- a. Excavator group
- General Public     Government     Excavator other than Operator/subcontractor
- b. Type:  Road Work     Pipeline     Water     Electric     Sewer     Phone/Cable
- Landowner-not farming related             Farming     Railroad
- Other liquid or gas transmission pipeline operator or their contractor
- Nautical Operations     Other \_\_\_\_\_
- c. Excavation was:  Open Trench     Sub-strata (boring, directional drilling, etc...)
- d. Excavation was an ongoing activity (Month or longer)  Yes     No            If Yes, Date of last contact / / / / /
- e. Did operator get prior notification of excavation activity?
- Yes; Date received: / / / mo. / / / day / / / / / yr.             No
- Notification received from:  One Call System     Excavator     Contractor     Landowner
- f. Was pipeline marked as result of location request for excavation?  No     Yes (If Yes, check applicable items i - iv)
- i. Temporary markings:     Flags     Stakes     Paint
- ii. Permanent markings:
- iii. Marks were (check one) :     Accurate     Not Accurate
- iv. Were marks made within required time?  Yes     No

**H4 – OTHER OUTSIDE FORCE DAMAGE**

10.  Fire/Explosion as primary cause of failure ⇒ Fire/Explosion cause:  Man made     Natural
11.  Car, truck or other vehicle not relating to excavation activity damaging pipe
12.  Rupture of Previously Damaged Pipe
13.  Vandalism

H5 – MATERIAL AND/OR WELD FAILURES						
<b>Material</b>						
14. <input type="checkbox"/> Body of Pipe	⇒	<input type="checkbox"/> Dent	<input type="checkbox"/> Gouge	<input type="checkbox"/> Bend	<input type="checkbox"/> Arc Burn	<input type="checkbox"/> Other _____
15. <input type="checkbox"/> Component	⇒	<input type="checkbox"/> Valve	<input type="checkbox"/> Fitting	<input type="checkbox"/> Vessel	<input type="checkbox"/> Extruded Outlet	<input type="checkbox"/> Other _____
16. <input type="checkbox"/> Joint	⇒	<input type="checkbox"/> Gasket	<input type="checkbox"/> O-Ring	<input type="checkbox"/> Threads		<input type="checkbox"/> Other _____
<b>Weld</b>						
17. <input type="checkbox"/> Butt	⇒	<input type="checkbox"/> Pipe	<input type="checkbox"/> Fabrication			<input type="checkbox"/> Other _____
18. <input type="checkbox"/> Fillet	⇒	<input type="checkbox"/> Branch	<input type="checkbox"/> Hot Tap	<input type="checkbox"/> Fitting	<input type="checkbox"/> Repair Sleeve	<input type="checkbox"/> Other _____
19. <input type="checkbox"/> Pipe Seam	⇒	<input type="checkbox"/> LF ERW	<input type="checkbox"/> DSAW	<input type="checkbox"/> Seamless	<input type="checkbox"/> Flash Weld	<input type="checkbox"/> Other _____
		<input type="checkbox"/> HF ERW	<input type="checkbox"/> SAW	<input type="checkbox"/> Spiral		<input type="checkbox"/> Other _____
						
<p><i>Complete a-g if you indicate any cause in part H5.</i></p> <p>a. Type of failure:  <input type="checkbox"/> Construction Defect ⇒ <input type="checkbox"/> Poor Workmanship    <input type="checkbox"/> Procedure not followed    <input type="checkbox"/> Poor Construction Procedures  <input type="checkbox"/> Material Defect</p> <p>b. Was failure due to pipe damage sustained in transportation to the construction or fabrication site?    <input type="checkbox"/> Yes    <input type="checkbox"/> No</p> <p>c. Was part which leaked pressure tested before accident occurred?    <input type="checkbox"/> Yes, <i>complete d-g</i>    <input type="checkbox"/> No</p> <p>d. Date of test:    <u>   </u> / <u>   </u> / <u>   </u> yr.    <u>   </u> / <u>   </u> / <u>   </u> mo.    <u>   </u> / <u>   </u> / <u>   </u> day</p> <p>e. Test medium:    <input type="checkbox"/> Water    <input type="checkbox"/> Inert Gas    <input type="checkbox"/> Other _____</p> <p>f. Time held at test pressure:    <u>   </u> / <u>   </u> / <u>   </u> hr.</p> <p>g. Estimated test pressure at point of accident: _____ PSIG</p>						
H6 – EQUIPMENT						
20. <input type="checkbox"/> Malfunction of Control/Relief Equipment	⇒	<input type="checkbox"/> Control valve	<input type="checkbox"/> Instrumentation	<input type="checkbox"/> SCADA	<input type="checkbox"/> Communications	
		<input type="checkbox"/> Block valve	<input type="checkbox"/> Relief valve	<input type="checkbox"/> Power failure	<input type="checkbox"/> Other _____	
21. <input type="checkbox"/> Threads Stripped, Broken Pipe Coupling	⇒	<input type="checkbox"/> Nipples	<input type="checkbox"/> Valve Threads	<input type="checkbox"/> Dresser Couplings	<input type="checkbox"/> Other _____	
22. <input type="checkbox"/> Seal Failure	⇒	<input type="checkbox"/> Gasket	<input type="checkbox"/> O-Ring	<input type="checkbox"/> Seal/Pump Packing	<input type="checkbox"/> Other _____	
H7 – INCORRECT OPERATION						
23. <input type="checkbox"/> Incorrect Operation						
a. Type:		<input type="checkbox"/> Inadequate Procedures	<input type="checkbox"/> Inadequate Safety Practices	<input type="checkbox"/> Failure to Follow Procedures	<input type="checkbox"/> Other _____	
b. Number of employees involved who failed a post-accident test:	drug test:	<u>   </u> / <u>   </u> / <u>   </u> / <u>   </u>	alcohol test:	<u>   </u> / <u>   </u> / <u>   </u> / <u>   </u>		
H8 – OTHER						
24. <input type="checkbox"/> Miscellaneous, <i>describe:</i>	_____					
25. <input type="checkbox"/> Unknown	<input type="checkbox"/> Investigation Complete <input type="checkbox"/> Still Under Investigation ( <i>submit a supplemental report when investigation is complete</i> )					
<b>PART I – NARRATIVE DESCRIPTION OF FACTORS CONTRIBUTING TO THE EVENT</b> <span style="float: right;"><i>(Attach additional sheets as necessary)</i></span>						

## Sample Discharge Prevention Meeting Log

[Click to view the file - Sample Discharge Prevention Meeting Log 27 1 2010 16 24 32.pdf](#)



## Sample Personnel Response Training Log

[Click to view the file - Sample Personnel Response Training Log 27 1 2010 16 24 49.pdf](#)



## Secondary Containment Inspection Checklist

[Click to view the file - Secondary Containment Inspection Checklist 27 1 2010 16 27 44.pdf](#)

## Secondary Containment Inspection Checklist

Inspected By: \_\_\_\_\_ Date: \_\_\_\_\_

Facility Secondary Containment systems are visually inspected daily. The following checklist is a sample that may be used, if applicable:

Inspection Item	Inspection Results			Remarks
	OK	Needs Further Attention	N/A	
<u>Dike or berm system</u>				
Level of precipitation in dike/available capacity				
Operational status of drainage valves				
Dike or berm permeability				
Permeability of the earthen floor of diked area				
Location/status of pipes, inlets, drainage beneath tanks, etc.				
Inspection Item	Is condition present?			Remarks
	Yes	No	N/A	
<u>Dike or berm system</u>				
Debris				
Erosion				
<u>Secondary containment</u>				
Cracks				
Discoloration				
Presence of spilled or leaked material (standing liquid)				
Corrosion				
Valve conditions				
<u>Retention and drainage ponds (as applicable)</u>				
Erosion				
Available capacity				
Presence of spilled or leaked material				
Debris				
Stressed vegetation				

Records of the daily and annual inspection are maintained at the Facility. These records are available for review at any time at the Facility Office.

## Tank Farm Drainage Procedures

[Click to view the file - Tank Farm Drainage Procedures 27 1 2010 16 25 33.pdf](#)

## TANK FARM DRAINAGE PROCEDURES

### PURPOSE:

Petroleum product storage tanks are enclosed inside dikes to contain the product in the event of a leak or spill. These dikes minimize the damage to the environment should a leak or spill occur and prevent the leak or spill from becoming a larger safety hazard.

The drainage of water from the dike areas must be done under controlled conditions to assure that contaminants do not escape thereby creating an environmental or safety hazard.

By the utilization of the following procedures, we can be certain that the necessary precautions have been taken to control the release of petroleum products that may be released due to a leak or spill.

### OPERATING PROCEDURES:

1. All tank dike drain valves are to remain in the **closed position and locked** at all times, EXCEPT when it is necessary to drain water from the diked area. The draining of diked areas must be approved by a Supervisor when there is a Supervisor at the Terminal. Draining of diked areas only will be performed while Terminal staff is in attendance.
2. Before draining water from the diked area, the water must be visually inspected for any signs of product contamination. Should any contamination be present, such as an oil sheen, it will be removed prior to draining the water.
3. The tank dike drain valves must be kept free of debris or other material that would hamper the proper operation of the drain valve.
4. Dike drains shall be checked every hour by the person responsible for draining the water. This inspection shall be noted on the Dike Draining Report.
5. The Supervisor who approved the dike draining shall periodically observe the draining of the dike and initial the Dike Draining Report.

## Tank High Level Alarm Systems Operations Check - Inspection Report Form

[Click to view the file - Tank High Level Alarm Systems Operations Check - Inspection Report Form 27 1 2010 16 25 47.pdf](#)

## TANK HIGH LEVEL ALARM SYSTEMS OPERATIONS CHECK / INSPECTION REPORT FORM

PLANT: \_\_\_\_\_ DATE: \_\_\_\_\_

OPERATIONS CHECKS (Checker should initial appropriate boxes)

TANK NO.							
ANNUNCIATOR PANEL TEST							
ALARM TEST	HI						
	HI – HI						
REMARKS							

### PERIODIC INSPECTIONS

DATE:	
INSPECTIONS PERFORMED: (describe)	
REMARKS:	
INSPECTION CONDUCTED BY:	

DATE:	
INSPECTIONS PERFORMED: (describe)	
REMARKS:	
INSPECTION CONDUCTED BY:	

## Tank Inspection Checklist

[Click to view the file - Tank Inspection Checklist 27 1 2010 16 26 6.pdf](#)

## Tank Inspection Checklist

Inspected By: \_\_\_\_\_ Date: \_\_\_\_\_

Facility Tanks are visually inspected daily and are thoroughly inspected annually as detailed in the Facility's SPCC Plan. The following checklist is a sample that may be used, if applicable:

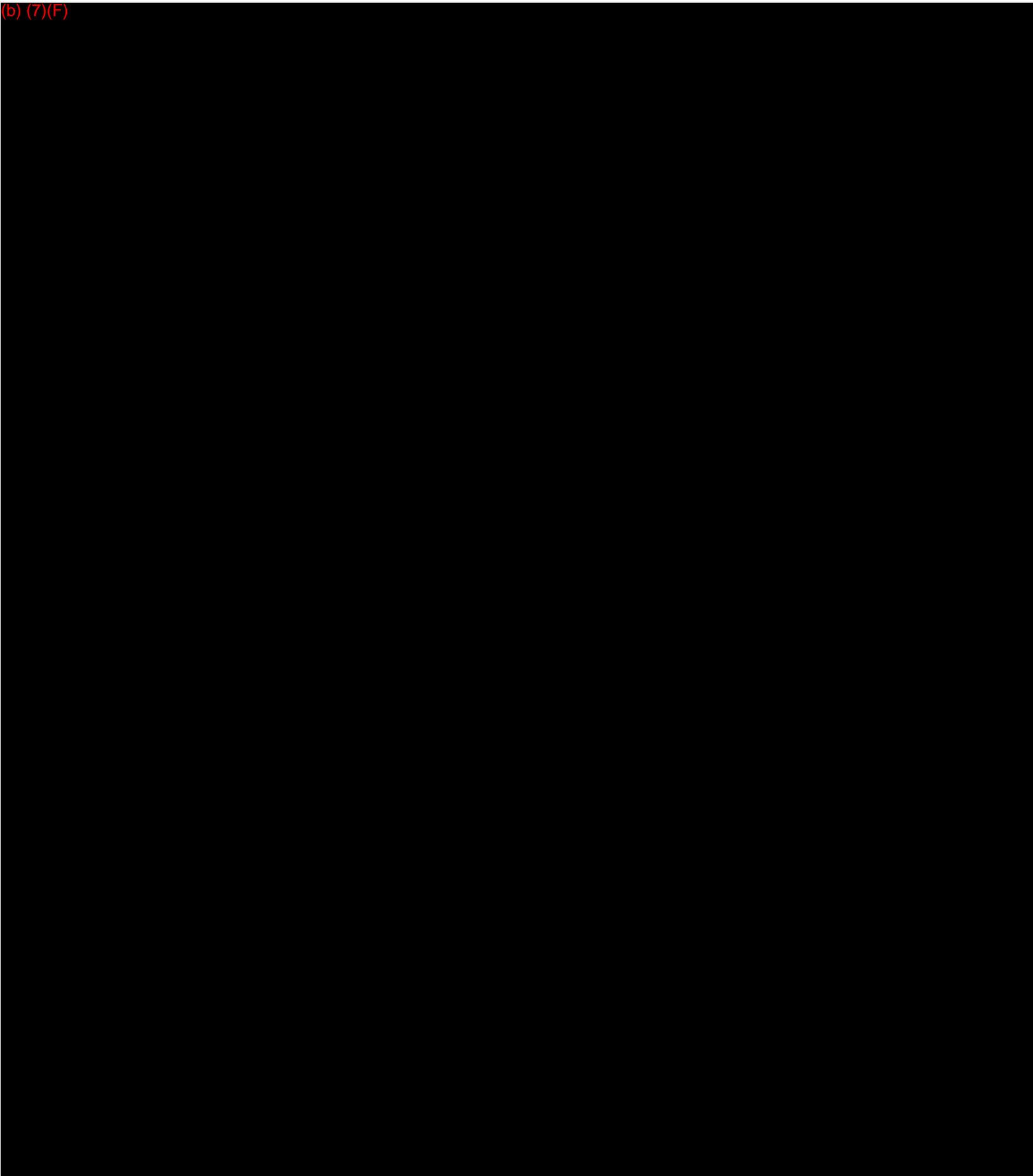
Inspection Item	Is condition present?			Remarks
	Yes	No	N/A	
<u>Check tanks for leaks, specifically looking for:</u>				
■ Drip marks				
■ Discoloration of tanks				
■ Puddles containing spilled or leaked material				
■ Corrosion				
■ Cracks				
■ Localized dead vegetation				
<u>Check foundation for:</u>				
■ Cracks				
■ Discoloration				
■ Puddles containing spilled or leaked material				
■ Settling				
■ Gaps between tank and foundations				
■ Damage caused by vegetation roots				
<u>Check piping for:</u>				
■ Droplets of stored material				
■ Discoloration				
■ Corrosion				
■ Bowing of pipe between supports				
■ Evidence of stored material seepage from valves or seals				
■ Localized dead vegetation				

Records of the annual inspection are maintained at the Facility. These records are available for review at any time at the Facility Office.

## Telephone Bomb Threat Checklist

[Click to view the file - Telephone Bomb Threat Checklist 27 1 2010 16 26 38.pdf](#)

(b) (7)(F)



TXRRC Form H-8

[Click to view the file - TXRRC Form H-8 27 1 2010 16 26 51.pdf](#)

**RAILROAD COMMISSION OF TEXAS  
OIL AND GAS DIVISION**

**CRUDE OIL, GAS WELL LIQUIDS, OR ASSOCIATED PRODUCTS LOSS REPORT**

1. Field Name (as per current proration schedule, including reservoir, if applicable)		2. RRC District	
3. Company		4. County	
		Check appropriate block(s): <input type="checkbox"/> Producer <input type="checkbox"/> Transporter <input type="checkbox"/> Other _____	
5. Lease Name(s) and RCC Lease Number(s) (if applicable)			
6. Location where Liquid Hydrocarbon (crude oil, gas well liquids, or associated products) Loss occurred (Section, Block, & Survey)			
7. Description of Facility from which Liquid Hydrocarbon Loss Occurred			
8. Name of Landowner where Liquid Hydrocarbon Loss Occurred		9. Type of Liquid Hydrocarbon Loss <input type="checkbox"/> Crude Oil <input type="checkbox"/> Gas Well Liquid <input type="checkbox"/> Other _____	
10. Date Liquid Hydrocarbon Loss Occurred		11. Date Liquid Hydrocarbon Loss Reported to RRC District Office by Telephone or Telegraph	
12. Total Barrels of Liquid Hydrocarbon Lost in Leak or Spill		13. Total Barrels of Liquid Hydrocarbon Recovered	14. Barrels of Liquid Hydrocarbon Unrecovered (Net Loss)
15. Did Liquid Hydrocarbon Loss Affect Inland or Coastal Water? (If yes, explain.)			
16. Cause of Liquid Hydrocarbon Loss (Explain.) (If additional space is required, attach page(s).)			
17. Remedial Measures Taken and How Successful (Explain.)			
18. Remarks			
I declare under penalties prescribed in Article 6036c, R. C. S., that I am authorized to make this report, that this report was prepared by me or under my supervision and direction, and that data and facts stated therein are true, correct, and complete, to the best of my knowledge.			
_____ Date		_____ Signature	
_____ Company		_____ Name of Person (type or Print)	
_____ Street Address or P.O. Box		_____ Title of Person	
_____ City, State		_____ Telephone	
_____ Zip Code		_____ Area Code	_____ Number

(COMPANY MUST COMPLY WITH THE INSTRUCTIONS ON THE REVERSE SIDE HEREOF.) (OVER)

Clear Form

## Annual In Service Tank Inspection Report

[Click to view the file - Annual In Service Tank Inspection Report 2 2 2010 17 36 14.pdf](#)

PREMCOR P. A. PIPELINE COMPANY ANNUAL IN-SERVICE TANK INSPECTION REPORT		PAGE 1 OF 3		
TANK NO.:	DATE INSPECTED:			
TANK LOCATION:	INSPECTED BY:			
TNRCC PERMIT NO.:	NOMINAL CAPACITY:			
CONSTRUCT. DATE:	PRODUCT STORED:			
DIAMETER:	MAXIMUM FILL HEIGHT:			
SHELL HEIGHT:	SEAL TYPE:			
SHELL COLOR:	PRIMARY:			
BERM CAPACITY:	SECONDARY:			
<b>IMPORTANT!</b> FOR ALL "NO RESPONSES" LIST APPROPRIATE COMMENTS, BY ITEM NUMBER, ON THE LAST PAGE				
<b>PART I: PERIMETER - WALK AROUND THE BASE OF THE TANK</b>		<b>YES</b>	<b>NO</b>	<b>N/A</b>
1. IS THE TANK BASIN SOUND AND CLEAR OF COMBUSTIBLES?				
2. IS PROPER DRAINAGE AND IMPOUNDING PROVIDED AROUND THE TANK SHELL?				
3. ARE THE DRAINAGE PATHS CLEAR OF DEBRIS AND OBSTRUCTIONS?				
4. IS THE REEL GAGE FREE AND OPERATIONAL?				
5. ARE LEAK DETECTION DRAIN PIPE OUTLETS (i.e., RAT-HOLES) CLEAR OF OBSTRUCTIONS?				
6. IS THE TANK AND SURROUNDING AREA FREE OF ANY VISUAL SIGNS OF OIL LEAKAGE?				
7. ARE ALL OPEN ENDED CONNECTIONS PLUGGED OR BLINDED? (REGULARLY USED WATERDRAWS AND SAMPLE LOCKS ARE EXEMPT)				
8. ARE WATERDRAW AREAS FREE OF HYDROCARBONS?				
9. IS THE TANK SHELL FREE FROM EXCESSIVE CORROSION?				
10. ARE FLANGES FREE OF LEAKS AND PROPERLY BOLTED?				
11. ARE TANK VALVES IN GOOD OPERATING CONDITION?				
12. IS THE ROOF DRAIN FREE FROM VISUAL SIGNS OF OIL LEAKAGE?				
13. IS BERM AND BERM DRAIN IN GOOD CONDITION?				
<b>PART II: ROOF INSPECTION - CLIMB AND INSPECT THE TOP OF THE TANK</b>				
14. ARE THE STAIRS AND HANDRAILS IN GOOD CONDITION?				
15. IS THERE A CLEAR AND LEVEL LANDING AT THE BASE OF THE STAIRS?				
16. IS THE GAUGERS PLATFORM IN GOOD HOUSEKEEPING?				
17. IS THE ROOF FREE FROM EXCESSIVE CORROSION?				
<b>FLOATING ROOF TANKS:</b>				
18. ARE THE CONNECTIONS WHERE THE ROLLING LADDER ATTACHES TO THE PLATFORM IN GOOD CONDITION? (INSPECT PIVOT BOX, COTTER PINS, ETC., FOR EXCESSIVE WEAR)				
19. ARE ROOF SEALS IN GOOD CONDITION AND TIGHT AGAINST THE SHELL?				
20. IF "SHOE" TYPE SEAL APPLIES, IS THE SEAL "FABRIC" IN GOOD CONDITION?				
21. IF "WIPER" TYPE SEAL APPLIES, IS THE SEAL "TIP" IN GOOD CONDITION?				
22. ARE PONTOONS LEAK TIGHT? (CHECK FOR VAPORS USING A GAS DETECTOR)				
23. ARE THE PONTOON ACCESSWAY COVERS IN PLACE AND SECURED?				

## Oiled Wildlife Response Information Guide

Wildlife response guidance and TGLO contact information for the Upper and Lower coast.

**[Click to view the file - wildlife-info-guide-2009 8 12 2011 11 0 31.pdf](#)**



# Texas General Land Office Oil Spill Prevention and Response

## Oiled Wildlife Response Information Guide

### General Response

- Federal regulations prohibit handling of migratory birds.
- Untrained personnel should not attempt to rescue oiled wildlife because of the potential of serious, sometimes fatal zoonotic diseases (transmission of disease from animal to human.)
- Oiled animals can inflict serious injury to untrained personnel.
- Only personnel from state fish & game agencies and U.S. Fish & Wildlife Service, or properly trained and permitted rehabilitators designated by these agencies are allowed to capture oiled wildlife.
- Make appropriate notifications and await instruction from licensed personnel on how to deal with affected wildlife.
- Only personnel licensed by the State of Texas are allowed to handle oil wildlife.

### Resources

TX General Land Office 24 Hour Oil Spill Notification  
800-832-8224

#### Wildlife Rehab & Education

Sharon Schmalz, Certified Oiled Wildlife and Response Team Member  
Federal License # PRT673173 • State License # SPH090-090 • LA License # R-09-30

Margaret Pickell, Certified Oiled Wildlife & Response Team Member

Upper and Lower Coast: Cell 281-731-8826 • Office 713-861-9453 • Pager 713-279-1417 • (b) (6)

#### Wildlife Response Services LLC

Rhonda Murgatroyd, Certified Oiled Wildlife & response Team Member  
Federal License # SPRH039465, TX License # REH-0401-713, LA License # R-07-13  
713-705-5897 • Pager 281-266-0054

### UPPER COAST

Region 1 (Beaumont/Port Arthur)  
Region 2 (LaPorte / Houston)

Texas Parks and Wildlife  
281-842-8100 (24 hrs)

Texas Parks and Wildlife – Spills and Kills-Winston Denton  
281-534-0138 • 281-842-8100 • 281-534-0130 (office)

U.S. Fish & Wildlife (pager for Ron Brinkley)  
281-286-8282 • Pager 281-505-4754 • Cell 713-542-1873

### LOWER COAST

Region 3 (Corpus Christi • Region 4 (Brownsville)  
Region 5 (Pt. Lavaca)

Texas Parks and Wildlife  
956-350-4490

Texas Parks and Wildlife - Spills and Kills  
361-825-3246

U.S. Fish & Wildlife (pager for Claire Lee)  
512-994-9005

Animal Rehabilitation Keep (ARK) – Port Aransas, TX  
361-749-6793

## **APPENDIX G**

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### **STATE REQUIREMENTS**

#### **G.1**

**G.1**

There are no more stringent requirements required in the State.

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## APPENDIX H

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### MATERIAL SAFETY DATA SHEET(S)

Material Safety Data Sheets will be attached separately and maintained for each area within the response zone.

#### Gasoline MSDS

PlanFiles/PlanContent/VALFALOSRP/Gasoline MSDS\_23\_2\_2010\_15\_7\_19.pdf

[Click to view the file - Gasoline MSDS 23 2 2010 15 7 19.pdf](#)

#### Diesel MSDS

PlanFiles/PlanContent/VALFALOSRP/Diesel MSDS\_23\_2\_2010\_15\_8\_29.pdf

[Click to view the file - Diesel MSDS 23 2 2010 15 8 29.pdf](#)

#### Crude MSDS

PlanFiles/PlanContent/VALFALOSRP/Crude MSDS\_23\_2\_2010\_15\_10\_12.pdf

[Click to view the file - Crude MSDS 23 2 2010 15 10 12.pdf](#)



# MATERIAL SAFETY DATA SHEET

## Unleaded Gasoline

VALERO MARKETING & SUPPLY COMPANY  
and Affiliates  
P.O. Box 696000  
San Antonio, TX 78269-6000

Emergency Phone Numbers  
24 Hour Emergency: 866-565-5220  
Chemtrec Emergency: 800-424-9300

General Assistance  
General Assistance: 210-345-4593

**BRAND NAMES:** Valero, Diamond Shamrock, Shamrock, Ultramar, Beacon, Total

### Section 1. Chemical Product and Company Identification

**Common / Trade name** : Unleaded Gasoline  
**Synonym** : Regular/Premium/Midgrade - Unleaded Gasoline, RFG - Reformulated Unleaded Gasoline, Conventional Unleaded Gasoline, Oxygenated Unleaded Gasoline, Non-Oxygenated Unleaded Gasoline, CARB (California Air Resource Board) Unleaded Gasoline, RBOB - Reformulated Blendstock for Oxygenate Blending, CBOB - Conventional Blendstock for Oxygenate Blending, Petrol, Motor Fuel,

**SYNONYMS/COMMON NAMES:** This Material Safety Data Sheet applies to the listed products and synonym descriptions for Hazard Communication purposes only. Technical specifications vary greatly depending on the product and are not reflected in this document. Consult specification sheets for technical information. This product contains ingredients that are considered to be hazardous as defined by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Material uses** : Motor Fuel  
**MSDS #** : 002  
**CAS #** : 86290-81-5

### Section 2. Hazards Identification

**Danger!** Contains Benzene. Cancer Hazard. Can cause kidney, liver and blood disorders. May cause irritation to eyes, skin and respiratory system. Avoid liquid, mist and vapor contact. Harmful or fatal if swallowed. Aspiration hazard; can enter lungs and cause damage. May cause irritation or be harmful if inhaled or absorbed through the skin. Extremely flammable liquid. Vapors may explode.

**Physical state** : Liquid.

**Emergency overview** : Danger!

EXTREMELY FLAMMABLE LIQUID AND VAPOR. FLAMMABLE. VAPOR MAY CAUSE FLASH FIRE. CAUSES SKIN IRRITATION. MAY BE HARMFUL IF ABSORBED THROUGH SKIN OR IF SWALLOWED. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. CANCER HAZARD - CONTAINS MATERIAL WHICH CAN CAUSE CANCER.

Do not ingest. Avoid prolonged contact with eyes, skin and clothing. Keep away from heat, sparks and flame. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Risk of cancer depends on duration and level of exposure.

**Routes of entry** : Dermal contact. Eye contact. Inhalation. Ingestion.

#### Potential acute health effects

**Eyes** : May cause severe irritation, redness, tearing, blurred vision and conjunctivitis.

*Continued on next page*

- Skin** : Prolonged or repeated contact may cause moderate irritation, defatting (cracking), redness, itching, inflammation, dermatitis and possible secondary infection. High pressure skin injections are SERIOUS MEDICAL EMERGENCIES. Injury may not appear serious at first. Within a few hours, tissues will become swollen, discolored and extremely painful.
- Inhalation** : Nasal and respiratory tract irritation, central nervous system effects including excitation, euphoria, contracted eye pupils, dizziness, drowsiness, blurred vision, fatigue, nausea, headache, loss of reflexes, tremors, convulsions, seizures, loss of consciousness, coma, respiratory arrest and sudden death could occur as a result of long term and/or high concentration exposure to vapors. May also cause anemia and irregular heart rhythm. Repeated or prolonged exposure may cause behavioral changes.
- Ingestion** : Toxic if swallowed. This product may be harmful or fatal if swallowed. This product may cause nausea, vomiting, diarrhea and restlessness. DO NOT INDUCE VOMITING. Aspiration into the lungs can cause severe chemical pneumonitis or pulmonary edema/hemorrhage, which can be fatal. May cause gastrointestinal disturbances. Symptoms may include irritation, depression, vomiting and diarrhea. May cause harmful central nervous system effects, similar to those listed under "inhalation".
- Medical conditions aggravated by over-exposure** : Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs. Preexisting eye, skin, heart, central nervous system and respiratory disorders may be aggravated by exposure to this product. Impaired kidney, liver and blood disorders may be aggravated by exposure to this product.
- Over-exposure signs/symptoms** : Nasal and respiratory tract irritation, central nervous system effects including excitation, euphoria, contracted eye pupils, dizziness, drowsiness, blurred vision, fatigue, nausea, headache, loss of reflexes, tremors, convulsions, seizures, loss of consciousness, coma, respiratory arrest or sudden death could occur as a result of long term and/or high concentration exposure to vapors. May also cause anemia and irregular heart rhythm.

See toxicological information (section 11)

### Section 3. Composition, information on ingredients

<u>Name</u>	<u>CAS number</u>	<u>Concentration ( % )</u>
Gasoline	86290-81-5	0 - 100
Toluene	108-88-3	0 - 30
Hexane (Other Isomers)	96-14-0	5 - 25
Xylene (o,m,p isomers)	1330-20-7	0 - 25
Octane (All Isomers)	111-65-9	0 - 18.5
Ethanol	64-17-5	0 - 10
1,2,4-Trimethylbenzene	95-63-6	0 - 6
n-Heptane	142-82-5	1 - 5
Pentane	109-66-0	1 - 5
Cumene	98-82-8	0 - 5
Ethylbenzene	100-41-4	0 - 5
Benzene	71-43-2	0 - 4.9
n-Hexane	110-54-3	0 - 3
Cyclohexane	110-82-7	0 - 3

### Section 4. First Aid Measures

- Eye contact** : Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Seek medical advice if pain or redness continues.
- Skin contact** : Remove contaminated clothing and shoes. Wash exposed area thoroughly with soap and water. Remove contaminated clothing promptly and launder before reuse. Contaminated leather goods should be discarded. If irritation persists or symptoms described in the MSDS develop, seek medical attention. High pressure skin injections are SERIOUS MEDICAL EMERGENCIES. Get immediate medical attention.
- Inhalation** : If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.

Continued on next page

- Ingestion** : This product may be harmful or fatal if swallowed. This product may cause nausea, vomiting, diarrhea and restlessness. DO NOT INDUCE VOMITING. Aspiration into the lungs can cause severe chemical pneumonitis or pulmonary edema/hemorrhage, which can be fatal. May cause gastrointestinal disturbances. Symptoms may include irritation, depression, vomiting and diarrhea. May cause harmful central nervous system effects, similar to those listed under "inhalation".
- Notes to physician** : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

## Section 5. Fire Fighting Measures

- Flammability of the product** : Flammable.
- Auto-ignition temperature** : >260°C (500°F)
- Flash point** : Closed cup: -40°C (-40°F).
- Flammable limits** : Lower: 1.3% Upper: 7.1%
- Products of combustion** : These products are carbon oxides (CO, CO<sub>2</sub>), nitrogen and sulfur oxides (NO<sub>x</sub>, SO<sub>x</sub>), particulate matter, VOC's.
- Fire hazards in the presence of various substances** : Extremely flammable in the presence of the following materials or conditions: open flames, sparks and static discharge.
- Explosion hazards in the presence of various substances** : Explosive in the presence of the following materials or conditions: open flames, sparks and static discharge.
- Fire-fighting media and instructions**
- Extinguishing media**
- Suitable** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.
- Not suitable** : Do not use water jet.
- Collect contaminated fire-fighting water separately. It must not enter the sewage system. Dike area of fire to prevent runoff. Decontaminate emergency personnel and equipment with soap and water.
- Highly flammable liquid and vapor. Vapor may cause flash fire. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Dangerous when exposed to heat or flame. Vapors form flammable or explosive mixtures with air at room temperature. Vapor or gas may spread to distant ignition sources (pilot lights, welding equipment, electrical equipment, etc.) and flash back. Vapors may accumulate in low areas. Vapors may concentrate in confined areas. Flowing product can be ignited by self generated static electricity. Use adequate bonding and grounding to prevent static buildup. Runoff to sewer may cause fire or explosion hazard. Containers may explode in heat of fire. Irritating or toxic substances may be emitted upon thermal decomposition. For fires involving this material, do not enter any enclosed or confined space without proper protective equipment, which may include NIOSH approved self-contained breathing apparatus with full face mask. Clothing, rags or similar organic material contaminated with this product and stored in a closed space may undergo spontaneous combustion. Transfer to and from commonly bonded and grounded containers.
- Special remarks on fire hazards** : Dangerous when exposed to heat or flame. Vapors form flammable or explosive mixtures with air at room temperature. Vapor or gas may spread to distant ignition sources (pilot lights, welding equipment, electrical equipment, etc.) and flash back. Vapors may accumulate in low areas. Vapors may concentrate in confined areas. Flowing product can be ignited by self generated static electricity. Use adequate bonding and grounding to prevent static buildup. Runoff to sewer may cause fire or explosion hazard. Containers may explode in heat of fire. Irritating or toxic substances may be

emitted upon thermal decomposition. For fires involving this material, do not enter any enclosed or confined space without proper protective equipment, which may include NIOSH approved self-contained breathing apparatus with full face mask. Clothing, rags or similar organic material contaminated with this product and stored in a closed space may undergo spontaneous combustion. Transfer to and from commonly bonded and grounded containers.

## Section 6. Accidental Release Measures

- Personal precautions** : Immediately contact emergency personnel. Eliminate all ignition sources. Keep unnecessary personnel away. Use suitable protective equipment (section 8). Do not touch or walk through spilled material. Tanks, vessels or other confined spaces which have contained product should be freed of vapors before entering. The container should be checked to ensure a safe atmosphere before entry. Empty containers may contain toxic, flammable/combustible or explosive residues or vapors. Do not cut, grind, drill, weld or reuse empty containers that contained this product. Do not transfer this product to another container unless the container receiving the product is labeled with proper DOT shipping name, hazard class and other information that describes the product and its hazards.
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Gasoline may contain oxygenated blend products (Ethanol, etc.) that are soluble in water and therefore precautions should be taken to protect surface and groundwater sources from contamination. If facility or operation has an "oil or hazardous substance contingency plan", activate its procedures. Stay upwind and away from spill. Wear appropriate protective equipment including respiratory protection as conditions warrant. Do not enter or stay in area unless monitoring indicates that it is safe to do so. Isolate hazard area and restrict entry to emergency crew. Extremely flammable. Review Fire Fighting Measures section before proceeding with clean up. Keep all sources of ignition (flames, smoking, flares, etc.) and hot surfaces away from release. Contain spill in smallest possible area. Recover as much product as possible (e.g., by vacuuming). Stop leak if it can be done without risk. Use water spray to disperse vapors. Spilled material may be absorbed by an appropriate absorbent, and then handled in accordance with environmental regulations. Prevent spilled material from entering sewers, storm drains, other unauthorized treatment or drainage systems and natural waterways. Contact fire authorities and appropriate federal, state and local agencies. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, contact the National Response Center at 800-424- 8802. For highway or railway spills, contact Chemtrec at 800-424-9300.
- Methods for cleaning up**
- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.
- Large spill** : If emergency personnel are unavailable, contain spilled material. For small spills, add absorbent (soil may be used in the absence of other suitable materials) and use a non-sparking or explosion-proof means to transfer material to a sealable, appropriate container for disposal. For large spills, dike spilled material or otherwise contain it to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal.

## Section 7. Handling and Storage

- Handling** : Do not ingest. Avoid prolonged contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Keep away from heat, sparks and flame. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Wash thoroughly after handling. Use only in well ventilated locations. Keep away from heat, spark and flames. In case of fire, use water spray, foam, dry chemical or carbon dioxide as described in the Fire Fighting Measures section of the MSDS. Do not pressurize, cut, weld, braze, solder, drill on or near this container. "Empty" container contains residue (liquid and/or vapor) and may explode in heat of a fire. Use good personal hygiene practices. After handling this product, wash hands before

eating, drinking, or using toilet facilities.

Keep out of reach of children. Failure to use caution may cause serious injury or illness. Never siphon by mouth. For use as a motor fuel only. Do not use as a cleaning solvent or for other non-motor fuel uses. To prevent ingestion and exposure - Do not siphon by mouth to transfer product between containers. Use good personal hygiene practices. After handling this product, wash hands before eating, drinking, or using toilet facilities.

- Storage** : Store in tightly closed containers in cool, dry, isolated and well ventilated area away from heat, sources of ignition and incompatible materials. Use non-sparking tools and explosion proof equipment. Ground lines, containers, and other equipment used during product transfer to reduce the possibility of a static induced spark. Do not "switch load" because of possible accumulation of a static charge resulting in a source of ignition. Use good personal hygiene practices.

## Section 8. Exposure controls, personal protection

- Engineering measures** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

### Personal protection

- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. Keep away from eyes. Eye contact can be avoided by wearing safety glasses or chemical splash goggles.

- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Keep away from skin. Skin contact can be minimized by wearing protective gloves such as neoprene, nitrile-butadiene rubber, etc. and, where necessary, impervious clothing and boots. Leather goods contaminated with this product should be discarded. A source of clean water should be available in the work area for flushing eyes and skin. Flame Retardant Clothing is recommended.

- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If workplace exposure limits for product or components are exceeded, NIOSH approved equipment should be worn. Proper respirator selection should be determined by adequately trained personnel, based on the contaminants, the degree of potential exposure and published respiratory protection factors. This equipment should be available for nonroutine and emergency use.

- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

- Personal protective equipment (Pictograms)** : Consult your Supervisor or S.O.P. for special handling directions.



- Personal protection in case of a large spill** : Splash goggles. Full suit. Vapor respirator. Boots. Gloves. Self-contained breathing apparatus (SCBA) should be used to avoid inhalation of the product. Suggested protective clothing might not be adequate. Consult a specialist before handling this product.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

**Component****Exposure limits**

Gasoline	<b>ACGIH TLV (United States, 5/2004).</b> STEL: 500 ppm 15 minute(s). Form: All forms TWA: 300 ppm 8 hour(s). Form: All forms
Toluene	<b>ACGIH TLV (United States, 5/2004). Skin Notes: 1996 Adoption Refers to Appendix A -- Carcinogens.</b> TWA: 50 ppm 8 hour(s). Form: All forms <b>NIOSH REL (United States, 6/2001).</b> STEL: 150 ppm 15 minute(s). Form: All forms TWA: 100 ppm 10 hour(s). Form: All forms <b>OSHA PEL Z2 (United States, 6/2002).</b> AMP: 500 ppm 10 minute(s). Form: All forms CEIL: 300 ppm Form: All forms TWA: 200 ppm 8 hour(s). Form: All forms
Hexane (Other Isomers)	<b>ACGIH TLV (United States, 9/2004).</b> STEL: 1000 ppm 15 minute(s). Form: All forms TWA: 500 ppm 8 hour(s). Form: All forms <b>NIOSH REL (United States, 6/2001).</b> CEIL: 510 ppm 15 minute(s). Form: All forms
Xylene (o,m,p isomers)	<b>ACGIH TLV (United States, 5/2004).</b> STEL: 150 ppm 15 minute(s). Form: All forms TWA: 100 ppm 8 hour(s). Form: All forms <b>OSHA PEL (United States, 6/1993).</b> TWA: 100 ppm 8 hour(s). Form: All forms
Octane (All Isomers)	<b>NIOSH REL (United States, 6/2001).</b> CEIL: 385 ppm 15 minute(s). Form: All forms TWA: 75 ppm 10 hour(s). Form: All forms <b>OSHA PEL (United States, 6/1993).</b> TWA: 500 ppm 8 hour(s). Form: All forms
Ethanol	<b>ACGIH TLV (United States, 3/2004). Notes: 1999 Adoption.</b> TWA: 300 ppm 8 hour(s). Form: All forms <b>ACGIH TLV (United States, 5/2004). Notes: 1996 Adoption Refers to Appendix A -- Carcinogens.</b> TWA: 1000 ppm 8 hour(s). Form: All forms <b>NIOSH REL (United States, 6/2001).</b> TWA: 1000 ppm 10 hour(s). Form: All forms <b>OSHA PEL (United States, 6/1993).</b> TWA: 1000 ppm 8 hour(s). Form: All forms
1,2,4-Trimethylbenzene	<b>NIOSH REL (United States, 12/2001).</b> TWA: 25 ppm 10 hour(s). Form: All forms <b>ACGIH TLV (United States, 1/2005).</b> TWA: 25 ppm 8 hour(s). Form: All forms
n-Heptane	<b>ACGIH TLV (United States, 9/2004).</b> STEL: 500 ppm 15 minute(s). Form: All forms TWA: 400 ppm 8 hour(s). Form: All forms <b>NIOSH REL (United States, 6/2001).</b> TWA: 350 mg/m <sup>3</sup> 10 hour(s). Form: All forms <b>OSHA PEL (United States, 6/1993).</b> TWA: 500 ppm 8 hour(s). Form: All forms
Pentane	<b>ACGIH TLV (United States, 9/2004). Notes: 1998 Adoption.</b> TWA: 600 ppm 8 hour(s). Form: All forms
Cumene	<b>NIOSH REL (United States, 6/2001).</b> CEIL: 610 ppm 15 minute(s). Form: All forms TWA: 120 ppm 10 hour(s). Form: All forms <b>OSHA PEL (United States, 6/1993).</b> TWA: 1000 ppm 8 hour(s). Form: All forms <b>ACGIH TLV (United States, 3/2004). Notes: 1999 Adoption.</b> TWA: 50 ppm 8 hour(s). Form: All forms
	<b>NIOSH REL (United States, 6/2001). Skin</b>

Ethylbenzene	<p>TWA: 50 ppm 10 hour(s). Form: All forms  <b>OSHA PEL (United States, 6/1993). Skin</b>  TWA: 50 ppm 8 hour(s). Form: All forms  <b>ACGIH TLV (United States, 1/2004).</b>  STEL: 125 ppm 15 minute(s). Form: All forms  TWA: 100 ppm 8 hour(s). Form: All forms  <b>NIOSH REL (United States, 6/2001).</b>  STEL: 125 ppm 15 minute(s). Form: All forms  TWA: 100 ppm 10 hour(s). Form: All forms  <b>OSHA PEL (United States, 6/1993).</b>  TWA: 100 ppm 8 hour(s). Form: All forms</p>
Benzene	<p><b>NIOSH REL (United States, 6/2001). Notes: See Appendix A - NIOSH Potential Occupational Carcinogen</b>  STEL: 1 ppm 15 minute(s). Form: All forms  TWA: 0.1 ppm 10 hour(s). Form: All forms  <b>ACGIH TLV (United States, 1/2006). Skin</b>  STEL: 2.5 ppm 15 minute(s). Form: All forms  TWA: 0.5 ppm 8 hour(s). Form: All forms  <b>OSHA PEL (United States, 6/1993).</b>  STEL: 5 ppm 15 minute(s). Form: All forms  TWA: 1 ppm 8 hour(s). Form: All forms</p>
n-Hexane	<p><b>OSHA PEL (United States, 6/1993).</b>  TWA: 500 ppm 8 hour(s). Form: All forms  <b>ACGIH TLV (United States, 9/2004). Skin</b>  TWA: 50 ppm 8 hour(s). Form: All forms  <b>NIOSH REL (United States, 6/2001).</b>  TWA: 50 ppm 10 hour(s). Form: All forms</p>
Cyclohexane	<p><b>ACGIH TLV (United States, 1/2004).</b>  TWA: 100 ppm 8 hour(s). Form: All forms  <b>NIOSH REL (United States, 6/2001).</b>  TWA: 300 ppm 10 hour(s). Form: All forms  <b>OSHA PEL (United States, 6/1993).</b>  TWA: 300 ppm 8 hour(s). Form: All forms</p>

Consult local authorities for acceptable exposure limits.

## Section 9. Physical and Chemical Properties

Physical state	: Liquid.
Color	: Light Straw to Red Clear Liquid
Odor	: Characteristic Gasoline Odor (Strong.)
Boiling point	: 26.7 to 226.7°C (80.1 to 440.1°F)
Melting/freezing point	: May start to solidify at the following temperature: 6.67°C (44°F) This is based on data for the following ingredient: Cyclohexane. Weighted average: -91.9°C (-133.4°F)
Specific gravity	: 0.66 to 0.75 (Water = 1) (@ 60 °F)
Vapor pressure	: 60.8 to 101.3 kPa (456 to 760 mm Hg) (at 20°C)
Vapor density	: 3 to 4 (Air = 1)
Volatility	: Essentially 100%
Evaporation rate	: 10 to 11 compared with Butyl acetate.
Solubility	: Very slightly soluble in the following materials: cold water and hot water.

Continued on next page

## Section 10. Stability and reactivity data

<b>Stability</b>	: The product is stable.
<b>Hazardous polymerization</b>	: Under normal conditions of storage and use, hazardous polymerization will not occur.
<b>Conditions to avoid</b>	: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas. Avoid exposure - obtain special instructions before use.
<b>Materials to avoid</b>	: Highly reactive or incompatible with the following materials: oxidizing materials
<b>Hazardous decomposition products</b>	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
<b>Conditions of reactivity</b>	: Extremely flammable in the presence of the following materials or conditions: open flames, sparks and static discharge.  Explosive in the presence of the following materials or conditions: open flames, sparks and static discharge.

## Section 11. Toxicological Information

### Toxicity data

**BENZENE** is considered to be a carcinogen to humans, and may cause adverse health effects following exposure via inhalation, ingestion or dermal or eye contact. Acute inhalation of benzene by rats, mice or rabbits caused narcosis, spontaneous heart contractions (ventricular fibrillation) and death due to respiratory paralysis. Subchronic inhalation of benzene by rats produced decreased white blood cell counts, decreased bone marrow cell activity, increased red blood cell activity and cataracts. In rats, chronic inhalation or oral administration of benzene produced cancers of the liver, mouth and Zymbal gland. Acute inhalation exposure of benzene in humans has caused nerve inflammation (polyneuritis), central nervous system depression and cardiac sensitization. Chronic exposure to benzene has produced anorexia and irreversible injury to the blood forming organs. Potential effects include aplastic anemia and leukemia. It has caused fetal defects in tests on laboratory animals.

**CUMENE** can affect the body if it is inhaled, swallowed or comes in contact with the eyes or skin. The main toxic effect is irritation of the eyes, skin and upper respiratory tract. Narcosis has been reported to occur in animals on high exposure. There are no reports of systemic effects in man as a result of industrial exposure. Chronic exposure of rats above 500 ppm causes congestion of lungs, liver and kidneys, but no bone marrow changes.

**CYCLOHEXANE** can affect the body if it is inhaled, swallowed, or comes in contact with the eyes or skin. It is primarily a local irritant and central nervous system depressant. The depressant effect is from exposure to concentrations above 12,000 ppm, while prolonged or repeated exposure to concentrations above 300 ppm produces a mild irritation of the eyes and upper respiratory tract.

**ETHANOL** is rapidly absorbed through the gastrointestinal tract and normally metabolized and excreted in a relatively few hours. Only in very unusual work situations could the inhalation of ethanol vapors result in symptoms of alcohol intoxication. Can be fatal or cause blindness if swallowed in extreme quantities. Inhalation or ingestion can cause headache, nausea, dizziness or narcosis. Chronic overexposure (inhalation or ingestion) can cause damage to the gastrointestinal tract, liver, kidneys and cardiovascular system. Prolonged contact causes irritation to skin and eyes. Medical conditions aggravated by exposure include kidney, liver, heart and GI conditions. This material is not listed as a cancer causing agent but is suspected of being a promoter.

**ETHYLBENZENE** can affect the body if it is inhaled, swallowed or comes in contact with the eyes or skin. It is primarily an irritant of skin, and to some degree, of eyes and upper respiratory tract. Systemic absorption causes depression of the central nervous system with narcosis at very high concentrations. On the eyes and nose, the vapor at 5000 ppm causes intolerable irritation, eye irritation and lacrimation are immediate and severe at 2000 ppm, irritation and tearing occur at 1000 ppm although tolerance develops rapidly, and the vapor is a transient irritant on human eyes at 200 ppm. Aspiration of small amounts causes extensive edema and hemorrhage of lung tissue. A draft report on a study conducted by the National Toxicology program states that lifetime inhalation exposure of rats and mice to concentrations of ethylbenzene (750 ppm) resulted in increases in certain types of cancer, including kidney tumors in rats and lung and liver tumors in mice. These effects were not observed in animals exposed to lower concentrations of ethylbenzene (75 ppm or 250 ppm). The draft report does not address the relevance of these results to humans.

**GASOLINE** contains benzene, as well as n-hexane, other aromatics and certain olefins. Gasoline generally acts as an anesthetic and mucous membrane irritant. Inhalation is the most important route of occupational entry. Eye and throat irritation occur in several hours at exposures of 160 to 270 ppm, eye, nose and throat irritation and dizziness occurs at exposures of 500 to 900 ppm in one hour, mild anesthesia occurs in 30 minutes at exposures of 2000 ppm. The threshold for immediate mild toxic effect is 900 to 1000 ppm. There are reports of toxic neuritis after exposure to gasoline. Repeated exposure of laboratory animals to high concentrations of gasoline vapors has caused kidney damage and cancer in rats and cancer in mice. Gasoline was evaluated for genetic activity in assays using microbial cells, cultured mammalian cells and rat bone marrow cells. The results were all negative so gasoline was considered nonmutagenic under these conditions. Overexposure to this product or its components has been suggested as a cause of liver abnormalities in laboratory animals and humans. Lifetime studies by the American Petroleum Institute have shown that kidney damage and kidney cancer can occur in male rats after prolonged inhalation exposures at elevated concentrations of total gasoline. Kidneys of mice and female rats were unaffected. The U.S. EPA Risk Assessment Forum has concluded that the male rat kidney tumor results are not relevant for humans. Total gasoline exposure also produced liver tumors in female mice only. The implication of these data for humans has not been determined.

**HEPTANE** can affect the body if it is inhaled, comes in contact with the eyes or skin, or is swallowed. Heptane vapor is a narcotic. Concentrations of 10,000 to 15,000 ppm produced narcosis in mice within 30 to 60 minutes, while 15,000 to 20,000 ppm caused convulsions and death. At 48,000 ppm, respiratory arrest was produced in mice in 3 to 4 minutes from the start of exposure. Human subjects exposed to 1,000 ppm for 6 minutes, or to 2,000 ppm for 4 minutes, reported slight vertigo. At 5,000 ppm for 4 minutes, there was marked vertigo, inability to walk a straight line, hilarity, and incoordination, but no complaints of eye and upper respiratory tract or mucous membrane irritation. A 15-minute exposure at 5,000 ppm produced in some subjects a state of stupor lasting for 30 minutes after exposure. These subjects also reported loss of appetite, slight nausea, and a taste resembling gasoline for several hours after exposure. Although chronic nervous system effects have not been attributed to heptane, polyneuritis has been reported following prolonged exposure to a petroleum fraction with boiling range between 70°C and 100°C, and this fraction would normally contain various

*Continued on next page*

isomers of heptane as major ingredients.

**n-HEXANE** can affect the body if it is inhaled, comes in contact with the eyes or skin, or is swallowed. Hexane vapor is a narcotic and a mild upper respiratory irritant. Polyneuropathy (peripheral nerve damage) has been reported to occur in workers exposed to hexane vapors, characterized by progressive weakness and numbness in the extremities, loss of deep tendon reflexes and reduction of motor nerve conduction velocity. Recovery ranges from no recovery to complete recovery depending upon the duration of exposure and severity of nerve damage. Concentrations of 30,000 ppm produced narcosis in mice within 30 to 60 minutes, convulsions and death occurred at 35,000 to 40,000 ppm, and at 64,000 ppm respiratory arrest was produced in 2.5 to 4.5 minutes from the start of exposure. Concentrations up to 8000 ppm produced no anesthesia. In human subjects, 2000 ppm for 10 minutes produced no effects, but 5000 ppm resulted in dizziness and a sensation of giddiness. Other investigators reported slight nausea, headache and irritation of the eyes and throat at 1400 to 1500 ppm. In industrial practice, mild narcotic symptoms such as dizziness have been observed when concentrations exceeded 1000 ppm, but not below 500 ppm.

**OCTANE** can affect the body if it is inhaled, comes in contact with the skin or eyes or is swallowed. Octane vapor is a mild narcotic and mucous membrane irritant. Concentrations of 6600 to 13,700 ppm produced narcosis in mice in 30 to 90 minutes, the fatal concentration for animals is near 13,500 ppm. No chronic systemic effects have been reported in humans.

**PENTANE** can affect the body if it is inhaled, comes in contact with the eyes or skin, or is swallowed. The chief effects of inhalation are narcosis and irritation of the respiratory passages. Exposures of 90,000 to 120,000 ppm resulted in narcosis in animals in 5 to 6 minutes, 130,000 ppm was fatal with respiratory arrest occurring within 5 minutes of exposure. Pentane injected subcutaneously in rats produced temporary impairment of liver function and moderate neutropenia. While other aliphatic hydrocarbons produce drowsiness and mild irritation of the eyes and nose in human subjects, no symptoms resulted from exposure to pentane vapor for 10 minutes at 5000 ppm. Chronic exposure to high concentrations may lead to polyneuropathy (peripheral nerve damage), characterized by progressive weakness and numbness in the extremities, loss of deep tendon reflexes and reduction of motor nerve conduction velocity.

**TOLUENE** can affect the body if it is inhaled, comes in contact with the eyes or skin or it is swallowed. It may also enter the body through the skin. Toluene vapors cause narcosis. Controlled exposures of human subjects to 200 ppm for 8 hours produced mild fatigue, weakness, confusion, lacrimation and paresthesia. At 600 ppm for 8 hours, there was euphoria, headache, dizziness, dilated pupils and nausea. At 800 ppm for 8 hours, symptoms were more pronounced, and after effects included nervousness, muscular fatigue and insomnia persisting for several days. In workers exposed for many years to concentrations in the range of 80 to 300 ppm, there was no clinical or laboratory evidence of altered liver function. Toluene exposure does not result in the same chronic injury to bone marrow caused by benzene. Liquid splashed in the eyes of workers has caused transient corneal damage and conjunctival irritation, complete recovery occurred within 48 hours. Animal studies have shown that inhalation of high levels of toluene produced cardiac sensitization. Such sensitization may cause fatal changes in heart rhythms. This later effect was shown to be enhanced by hypoxia or the injection of adrenalin-like agents. Workers exposed at less than 200 ppm have complained of headache, lassitude and nausea, but physical findings were essentially negative. At concentrations between 200 and 500 ppm, impairment of coordination, momentary loss of memory and anorexia were present. Between 500 and 1500 ppm, palpitation, extreme weakness, pronounced loss of coordination and impairment of reaction time were noted. The red cell count fell in many instances and there were cases of aplastic anemia in which recovery followed intensive hospital treatment (although some of the effects may have been due to benzene impurity). Toluene has been reported to decrease immunological responses and cause recordable hearing loss in test animals. Damages genetic material in mammalian test systems. May cause adverse reproductive effects based on animal testing.

**TRIMETHYL BENZENE (PSEUDOCUMENE)** can affect the body if it is inhaled, comes in contact with the eyes or skin or it is swallowed. It may also enter the body through the skin. The liquid is a primary skin irritant, but system intoxication due to absorption through the skin is not probable. High concentrations of vapors (5000 to 9000 ppm) caused central nervous system depression. Pseudocumene may cause nervousness, tension, anxiety, and asthmatic bronchitis. In addition, the peripheral blood showed a tendency to hypochromic anemia and a deviation from the normal in the coagulability of the blood.

**XYLENE** can affect the body if it is inhaled, comes in contact with the eyes or skin or it is swallowed. It may also enter the body through the skin. Xylene vapor irritates the eyes, mucous membranes and skin. At high concentrations it causes narcosis. In animals, xylene causes blood changes reflecting mild toxicity to the hematopoietic system. Laboratory animals exposed by various routes to high doses of xylene showed evidence of effects in the liver, kidneys, lungs, spleen, heart and adrenals. Rats exposed to xylene vapor during pregnancy showed embryo/fetotoxic effects. Mice exposed orally to doses producing maternal toxicity also showed embryo or fetotoxic effects. Laboratory rats exposed to high concentrations of toluene experienced recordable hearing loss. In humans, exposure to high concentrations can cause dizziness, excitement, drowsiness, incoordination and a staggering gait. Workers exposed to concentrations above 200 ppm complain of anorexia, nausea, vomiting and abdominal pain. Brief exposures of humans to 200 ppm caused irritation of the eyes, nose and throat. There are reports of reversible corneal vacuolation in workers exposed to xylene, or to xylene plus other volatile solvents.

**HEXANE ISOMERS** are three times as toxic to mice as is pentane. Narcosis was produced in mice within 30-60 minutes at concentrations of 30,000 ppm. In man, concentrations for 10 minutes at 2000 ppm produced no effects, but 5000 ppm caused dizziness and a sense of giddiness. Concentrations of 1400-1500 ppm produced slight nausea, headache, eye, and throat irritation.

### Acute toxicity

Product/ingredient name	Result	Species	Dose
Gasoline	LD50 Oral	Rat	92 g/kg
	LD50 Oral	Rat	13.6 g/kg
Toluene	LD50 Dermal	Rabbit	14100 uL/kg
	LD50 Intraperitoneal	Rat	1332 mg/kg
	LD50 Intravenous	Rat	1960 mg/kg
	LD50 Oral	Rat	636 mg/kg
	LD50 Unreported	Rat	6900 mg/kg
	LDLo Intraperitoneal	Rat	2.5 mL/kg
	TDLo Intraperitoneal	Rat	900 mg/kg
	TDLo Intraperitoneal	Rat	1 g/kg
	TDLo Intraperitoneal	Rat	750 mg/kg
	TDLo Intraperitoneal	Rat	600 mg/kg
	TDLo Oral	Rat	400 mg/kg
TDLo Oral	Rat	800 mg/kg	

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**Unleaded Gasoline**

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Xylene (o,m,p isomers)	LD50 Dermal	Rabbit	>1700 mg/kg
	LD50 Intraperitoneal	Rat	2459 mg/kg
Ethanol	LD50 Oral	Rat	4300 mg/kg
	LD50 Subcutaneous	Rat	1700 mg/kg
	LD50 Intra-arterial	Rat	11 mg/kg
	LD50 Intraperitoneal	Rat	3600 ug/kg
	LD50 Intravenous	Rat	1440 mg/kg
	LD50 Oral	Rat	7060 mg/kg
	LD50 Oral	Rat	7 g/kg
	LDLo Dermal	Rabbit	20 g/kg
	TDLo Intraperitoneal	Rat	2700 mg/kg
	TDLo Intraperitoneal	Rat	1.25 mg/kg
	TDLo Intraperitoneal	Rat	1000 mg/kg
	TDLo Intracerebral	Rat	363.6 ug/kg
	TDLo Intraperitoneal	Rat	500 mg/kg
	TDLo Intravenous	Rat	0.5 g/kg
	TDLo Intraperitoneal	Rat	0.5 g/kg
	TDLo Oral	Rat	6 g/kg
	TDLo Oral	Rat	10 mL/kg
	TDLo Oral	Rat	6.67 mL/kg
	TDLo Oral	Rat	5 mL/kg
	TDLo Intraperitoneal	Rat	2.45 g/kg
	TDLo Oral	Rat	6000 mg/kg
	TDLo Oral	Rat	5250 mg/kg
	TDLo Oral	Rat	5000 mg/kg
	TDLo Oral	Rat	4800 mg/kg
	TDLo Oral	Rat	5.25 g/kg
	TDLo Oral	Rat	0.5 g/kg
	TDLo Oral	Rat	3 g/kg
	TDLo Oral	Rat	2.5 g/kg
TDLo Intraperitoneal	Rat	0.25 g/kg	
TDLo Oral	Rat	0.72 g/kg	
TDLo Oral	Rat	1600 mg/kg	
TDLo Oral	Rat	1500 mg/kg	
TDLo Oral	Rat	5 g/kg	
TDLo Intraperitoneal	Rat	1.5 g/kg	
TDLo Oral	Rat	8000 mg/kg	
TDLo Intraperitoneal	Rat	2 g/kg	
TDLo Oral	Rat	6.4 g/kg	
TDLo Intraperitoneal	Rat	1 g/kg	
TDLo Intraperitoneal	Rat	3500 mg/kg	
TDLo Intracerebral	Rat	106 ug/kg	
TDLo Intraperitoneal	Rat	2.4 mg/kg	
TDLo Intraperitoneal	Rat	3000 mg/kg	
TDLo Unreported	Rat	3 g/kg	
1,2,4-Trimethylbenzene	LD50 Oral	Rat	5 g/kg
	LDLo Intraperitoneal	Rat	1752 mg/kg
Pentane	LD50 Oral	Rat	>2000 mg/kg
Cumene	LD50 Dermal	Rabbit	12300 uL/kg
	LD50 Oral	Rat	1400 mg/kg
	LD50 Oral	Rat	2.9 g/kg
Ethylbenzene	LD50 Dermal	Rabbit	17800 uL/kg
	LD50 Oral	Rat	3500 mg/kg
	TDLo Intraperitoneal	Rat	1062 mg/kg
Benzene	LD50 Dermal	Rabbit	>9400 uL/kg
	LD50 Intraperitoneal	Rat	1100 ug/kg
	LD50 Oral	Rat	1800 mg/kg
	LD50 Oral	Rat	930 mg/kg
	LD50 Oral	Rat	1 mL/kg
	LD50 Oral	Rat	6400 mg/kg
	LDLo Subcutaneous	Rat	5 mg/kg
	TDLo Dermal	Rat	0.92 mL/kg
	TDLo Oral	Rat	320 mg/kg
	TDLo Oral	Rat	1280 mg/kg
n-Hexane	LD50 Oral	Rat	25 g/kg
	LDLo Intraperitoneal	Rat	9100 mg/kg
	TDLo Oral	Rat	20000 mg/kg
Cyclohexane	LD Dermal	Rabbit	>180 g/kg
	LD50 Oral	Rat	12705 mg/kg

**Carcinogenicity****Classification**

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
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**Unleaded Gasoline**

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Gasoline	A3	-	-	-	-	-
Toluene	A4	3	-	-	-	-
Xylene (o,m,p isomers)	A4	3	-	-	-	-
Ethanol	A4	-	-	-	-	-
Ethylbenzene	A3	2B	-	-	-	-
Benzene	A1	1	-	+	Proven.	+

**Chronic effects on humans** : **CARCINOGENIC EFFECTS:** Classified A3 (Proven for animals.) by ACGIH [Gasoline]. Classified 2 (Suspected for humans.) by European Union [Gasoline]. Classified A4 (Not classifiable for humans or animals.) by ACGIH, 3 (Not classifiable for humans.) by IARC [Toluene]. Classified A4 (Not classifiable for humans or animals.) by ACGIH, 3 (Not classifiable for humans.) by IARC [Xylene (o,m,p isomers)]. Classified A4 (Not classifiable for humans or animals.) by ACGIH [Ethanol]. Classified A3 (Proven for animals.) by ACGIH, 2B (Possible for humans.) by IARC [Ethylbenzene]. Classified A1 (Confirmed for humans.) by ACGIH, 1 (Proven for humans.) by IARC, 1 (Known to be human carcinogens.) by NTP, + (Proven.) by OSHA, + (Proven.) by NIOSH, 1 (Proven for humans.) by European Union [Benzene].

**MUTAGENIC EFFECTS:** Classified 2 by European Union [Benzene].

Contains material which may cause damage to the following organs: blood, kidneys, lungs, the reproductive system, liver, peripheral nervous system, gastrointestinal tract, upper respiratory tract, skin, bone marrow, central nervous system (CNS), eye, lens or cornea.

**Other toxic effects on humans** : Extremely hazardous by the following route of exposure: of ingestion.  
Very hazardous by the following route of exposure: of eye contact (irritant), .  
Hazardous by the following route of exposure: of skin contact (irritant).  
Slightly hazardous by the following route of exposure: of inhalation (lung irritant).

**Specific effects**

**Carcinogenic effects** : Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure.

**Target organs** : Contains material which causes damage to the following organs: skin.  
Contains material which may cause damage to the following organs: blood, kidneys, lungs, the reproductive system, liver, peripheral nervous system, gastrointestinal tract, upper respiratory tract, bone marrow, central nervous system (CNS), eye, lens or cornea.

**Section 12. Ecological Information****Ecotoxicity data**

Product/ingredient name	Result	Species	Exposure
Toluene	Acute EC50 6880 to 9830 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute EC50 6780 to 7810 ug/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
	Acute EC50 6000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute EC50 19600 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute LC50 15.5 ppm Marine water	Crustaceans - Daggerblade grass shrimp - Palaemonetes pugio	48 hours
	Acute LC50 15500 ug/L Marine water	Crustaceans - Daggerblade grass shrimp - Palaemonetes pugio	48 hours
	Acute LC50 36.2 to 44.6 mg/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
	Acute LC50 17.03 to 19.05 mg/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
	Acute LC50 6780 to 7810 ug/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
	Acute LC50 6410 to 7180 ug/L Marine water	Fish - Pink salmon - Oncorhynchus gorbuscha	96 hours
	Acute LC50 15.53 to 17.16 mg/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
	Acute LC50 5800 ug/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
	Acute LC50 5500 ug/L Fresh water	Fish - Coho salmon,silver salmon - Oncorhynchus kisutch	96 hours
	Acute LC50 310000 to 420000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute LC50 170000 ug/L Marine water	Crustaceans - Dungeness or edible crab - Cancer magister	48 hours
	Acute LC50 97700 to 174700 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute LC50 13 to 15 mg/L Fresh water	Fish - Bluegill - Lepomis macrochirus	96 hours
	Acute LC50 86300 to 174700 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute LC50 7.3 u/L Marine water	Fish - Striped bass - Morone saxatilis	96 hours
Xylene (o,m,p isomers)	Acute LC50 8.5 ppm Marine water	Crustaceans - Daggerblade grass shrimp -	48 hours

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	Acute LC50 13500 to 15034 ug/L Fresh water	Palaemonetes pugio	
	Acute LC50 13500 to 19200 ug/L Fresh water	Fish - Bluegill - Lepomis macrochirus	96 hours
		Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
	Acute LC50 13400 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
	Acute LC50 13300 to 16114 ug/L Fresh water	Fish - Bluegill - Lepomis macrochirus	96 hours
	Acute LC50 12000 to 16114 ug/L Fresh water	Fish - Bluegill - Lepomis macrochirus	96 hours
	Acute LC50 12000 to 13762 ug/L Fresh water	Fish - Bluegill - Lepomis macrochirus	96 hours
	Acute LC50 8600 to 9591 ug/L Fresh water	Fish - Bluegill - Lepomis macrochirus	96 hours
	Acute LC50 8500 ug/L Marine water	Crustaceans - Daggerblade grass shrimp - Palaemonetes pugio	48 hours
	Acute LC50 8200 to 10032 ug/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
	Acute LC50 3300 to 4093 ug/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
Ethanol	Acute LC50 13500 to 16100 ug/L Fresh water	Fish - Bluegill - Lepomis macrochirus	96 hours
	Acute EC50 9.3 to 11.2 g/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute EC50 10600 to 11200 mg/L Fresh water	Daphnia - Water flea - Daphnia obtusa	48 hours
	Acute EC50 >100 ppm Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute EC50 2000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute LC50 13 to 16 ml/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
	Acute LC50 5577000 to 6557000 ug/L Fresh water	Daphnia - Water flea - Ceriodaphnia dubia	48 hours
	Acute LC50 3715000 to 4432000 ug/L Fresh water	Daphnia - Water flea - Ceriodaphnia dubia	48 hours
	Acute LC50 >100000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
	Acute LC50 42000 ug/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	4 days
	Acute LC50 25500 ug/L Marine water	Crustaceans - Brine shrimp - Artemia franchiscana	48 hours
	Acute LC50 11000000 ug/L Marine water	Fish - Bleak - Alburnus alburnus	96 hours
	Acute LC50 10000000 to 11500000 ug/L Marine water	Fish - Bleak - Alburnus alburnus	96 hours
	Acute LC50 5680 to 7392 mg/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute LC50 6076000 to 7115000 ug/L Fresh water	Daphnia - Water flea - Ceriodaphnia dubia	48 hours
	Acute LC50 6325000 to 7413000 ug/L Fresh water	Daphnia - Water flea - Ceriodaphnia dubia	48 hours
	Acute LC50 14200000 to 15100000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
	Acute LC50 13480000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
	Chronic NOEC <6.3 g/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
1,2,4-Trimethylbenzene	Acute LC50 17000 ug/L Marine water	Crustaceans - Dungeness or edible crab - Cancer magister	48 hours
	Acute LC50 7720 to 8280 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
n-Heptane	Acute LC50 4924000 ug/L Fresh water	Fish - Western mosquitofish - Gambusia affinis	96 hours
	Acute LC50 375000 ug/L Fresh water	Fish - Mozambique tilapia - Tilapia mossambica	96 hours
Cumene	Acute EC50 11200 to 14100 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute EC50 10600 to 14100 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute EC50 7500 to 11200 ug/L Fresh water	Crustaceans - Brine shrimp - Artemia sp.	48 hours
	Acute EC50 7400 to 11290 ug/L Fresh water	Crustaceans - Brine shrimp - Artemia sp.	48 hours
	Acute LC50 30500 to 39900 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute LC50 8000 to 12590 ug/L Fresh water	Crustaceans - Brine shrimp - Artemia sp.	48 hours
	Acute LC50 20300 to 45100 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute LC50 34300 to 46300 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute LC50 7400 to 11290 ug/L Fresh water	Crustaceans - Brine shrimp - Artemia sp.	48 hours
	Acute LC50 6320 to 6610 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
	Acute LC50 5100 ug/L Fresh water	Fish - Guppy - Poecilia reticulata	96 hours
	Acute LC50 2700 ug/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
Ethylbenzene	Acute EC50 13300 to 18100 ug/L Fresh water	Crustaceans - Brine shrimp - Artemia sp.	48 hours
	Acute EC50 6530 to 9460 ug/L Fresh water	Crustaceans - Brine shrimp - Artemia sp.	48 hours
	Acute EC50 2970 to 4400 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute EC50 2930 to 4400 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute LC50 13300 to 18100 ug/L Fresh water	Crustaceans - Brine shrimp - Artemia sp.	48 hours
	Acute LC50 150 to 200 mg/L Fresh water	Fish - Bluegill - Lepomis macrochirus	96 hours
	Acute LC50 12100 to 12700 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
	Acute LC50 11900 to 15600 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
	Acute LC50 9600 ug/L Fresh water	Fish - Guppy - Poecilia reticulata	96 hours
	Acute LC50 9100 to 11000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
	Acute LC50 9090 to 11000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
	Acute LC50 8780 to 13700 ug/L Fresh water	Crustaceans - Brine shrimp - Artemia sp.	48 hours
	Acute LC50 40000 ug/L Marine water	Crustaceans - Dungeness or edible crab - Cancer magister	48 hours
	Acute LC50 >5200 ug/L Marine water	Crustaceans - Opossum shrimp - Americamysis bahia	48 hours
	Acute LC50 5100 to 5700 ug/L Marine water	Fish - Atlantic silverside - Menidia menidia	96 hours
	Acute LC50 4200 ug/L Fresh water	Fish - Rainbow trout,donaldson trout - Oncorhynchus mykiss	96 hours
	Acute LC50 18400 to 25400 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute LC50 13900 to 17200 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute LC50 75000 to 120000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute LC50 4.3 to 4.7 ul/L Marine water	Fish - Striped bass - Morone saxatilis	96 hours
	Chronic NOEC 3300 ug/L Marine water	Fish - Atlantic silverside - Menidia menidia	96 hours

**Unleaded Gasoline**

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Benzene	Acute EC50 22000 to 29500 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours	
	Acute EC50 11730 to 15600 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours	
	Acute EC50 10000 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours	
	Acute EC50 9230 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours	
	Acute EC50 58400 to 82300 ug/L Fresh water	Crustaceans - Brine shrimp - Artemia sp.	48 hours	
	Acute LC50 35 to 43.8 ppm Marine water	Crustaceans - Daggerblade grass shrimp - Palaemonetes pugio	48 hours	
	Acute LC50 33000 ug/L Marine water	Crustaceans - Daggerblade grass shrimp - Palaemonetes pugio	48 hours	
	Acute LC50 9.2 to 11.7 mg/L Fresh water	Fish - Rainbow trout, donaldson trout - Oncorhynchus mykiss	96 hours	
	Acute LC50 21000 ug/L Marine water	Crustaceans - Brine shrimp - Artemia salina	48 hours	
	Acute LC50 11.38 ml/L Marine water	Crustaceans - Crab - Scylla serrata	48 hours	
	Acute LC50 9.15 ml/L Marine water	Crustaceans - Crab - Scylla serrata	48 hours	
	Acute LC50 6.59 ml/L Marine water	Crustaceans - Crab - Scylla serrata	48 hours	
	Acute LC50 35000 ug/L Marine water	Crustaceans - Daggerblade grass shrimp - Palaemonetes pugio	48 hours	
	Acute LC50 99200 to 122600 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours	
	Acute LC50 135700 to 168800 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours	
	Acute LC50 96200 to 134100 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours	
	Acute LC50 76900 to 114100 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours	
	Acute LC50 59600 to 80700 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours	
	Acute LC50 5.02 ml/L Marine water	Crustaceans - Crab - Scylla serrata	48 hours	
	Acute LC50 11.73 to 13.63 u/L Fresh water	Fish - Chinook salmon - Oncorhynchus tshawytscha	96 hours	
	Acute LC50 14.09 to 18.3 u/L Fresh water	Fish - Coho salmon, silver salmon - Oncorhynchus kisutch	96 hours	
	Acute LC50 8.47 to 9.09 u/L Marine water	Fish - Pink salmon - Oncorhynchus gorbuscha	96 hours	
	Acute LC50 10.9 u/L Marine water	Fish - Striped bass - Morone saxatilis	96 hours	
	Acute LC50 10.76 to 12.04 u/L Fresh water	Fish - Sockeye salmon - Oncorhynchus nerka	96 hours	
	Acute LC50 5.8 u/L Marine water	Fish - Striped bass - Morone saxatilis	96 hours	
	Acute LC50 5.55 to 8.21 u/L Marine water	Fish - Sockeye salmon - Oncorhynchus nerka	96 hours	
	Acute LC50 5.28 u/L Fresh water	Fish - Pink salmon - Oncorhynchus gorbuscha	96 hours	
	Acute LC50 9.8 u/L Fresh water	Fish - Coho salmon, silver salmon - Oncorhynchus kisutch	96 hours	
	n-Hexane	Acute LC50 113000 ug/L Fresh water	Fish - Mozambique tilapia - Tilapia mossambica	96 hours
		Acute LC50 2500 to 2980 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
	Cyclohexane	Acute LC50 610000 ug/L Marine water	Fish - Tigerfish, crescent perch - Terapon jarbua	96 hours
		Acute LC50 117000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
		Acute LC50 93000 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
		Acute LC50 57680 to 68760 ug/L Fresh water	Fish - Guppy - Poecilia reticulata	96 hours
		Acute LC50 42330 to 53470 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
		Acute LC50 34720 to 44690 ug/L Fresh water	Fish - Bluegill - Lepomis macrochirus	96 hours
		Acute LC50 32710 to 42070 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
		Acute LC50 8300 ug/L Marine water	Fish - Striped bass - Morone saxatilis	96 hours
		Acute LC50 4530 to 5180 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours

**Biodegradability****Biodegradability**

Products of degradation : Products of degradation: carbon oxides (CO, CO<sub>2</sub>) and water.

**Section 13. Disposal Considerations**

**Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

**Consult your local or regional authorities.**

Continued on next page

## Section 14. Transport Information

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
DOT Classification	1203	Gasoline	3	II		Not available.
TDG Classification	1203	Gasoline	3	II		Not available.

## Section 15. Regulatory Information

### United States

#### HCS Classification

: Flammable liquid  
Irritating material  
Carcinogen  
Target organ effects

#### U.S. Federal regulations

: TSCA 4(a) final test rules: Hexane (Other Isomers); n-Heptane; Pentane; n-Hexane  
TSCA 8(a) PAIR: n-Heptane; Pentane  
**United States inventory (TSCA 8b):** All materials are listed on the inventory  
TSCA 12(b) one-time export: n-Heptane; Pentane  
TSCA 12(b) annual export notification: Hexane (Other Isomers); n-Hexane

**SARA 302/304/311/312 extremely hazardous substances:** No products were found.

**SARA 302/304 emergency planning and notification:** No products were found.

**SARA 302/304/311/312 hazardous chemicals:** Toluene; Hexane (Other Isomers); Xylene (o,m,p isomers); Octane (All Isomers); Ethanol; 1,2,4-Trimethylbenzene; n-Heptane; Pentane; Cumene; Ethylbenzene; Benzene; n-Hexane; Cyclohexane

**SARA 311/312 MSDS distribution - chemical inventory - hazard identification:**

Toluene: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard;  
Hexane (Other Isomers): Fire hazard, Immediate (acute) health hazard; Xylene (o,m,p isomers): Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard;  
Octane (All Isomers): Fire hazard; Ethanol: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard;  
1,2,4-Trimethylbenzene: Fire hazard, Delayed (chronic) health hazard;  
n-Heptane: Fire hazard; Pentane: Fire hazard, Immediate (acute) health hazard;  
Cumene: Fire hazard, Immediate (acute) health hazard;  
Ethylbenzene: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard;  
Benzene: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard;  
n-Hexane: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard;  
Cyclohexane: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard;  
Gasoline: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard

**Clean Water Act (CWA) 307:** Toluene; Ethylbenzene; Benzene

**Clean Water Act (CWA) 311:** Toluene; Xylene (o,m,p isomers); Ethylbenzene; Benzene; Cyclohexane

**Clean Air Act (CAA) 112 accidental release prevention:** Pentane

**Clean Air Act (CAA) 112 regulated flammable substances:** Pentane

**Clean Air Act (CAA) 112 regulated toxic substances:** No products were found.

### SARA 313

Product name

CAS number

Concentration

**Unleaded Gasoline**

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<b>Form R - Reporting requirements</b>	:	Toluene	108-88-3	0 - 30
		Xylene (o,m,p isomers)	1330-20-7	0 - 25
		1,2,4-Trimethylbenzene	95-63-6	0 - 6
		Cumene	98-82-8	0 - 5
		Ethylbenzene	100-41-4	0 - 5
		Benzene	71-43-2	0 - 4.9
		n-Hexane	110-54-3	0 - 3
		Cyclohexane	110-82-7	0 - 3
<b>Supplier notification</b>	:	Toluene	108-88-3	0 - 30
		Xylene (o,m,p isomers)	1330-20-7	0 - 25
		1,2,4-Trimethylbenzene	95-63-6	0 - 6
		Cumene	98-82-8	0 - 5
		Ethylbenzene	100-41-4	0 - 5
		Benzene	71-43-2	0 - 4.9
		n-Hexane	110-54-3	0 - 3
		Cyclohexane	110-82-7	0 - 3

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

- State regulations** :
- Connecticut Carcinogen Reporting:** None of the components are listed.
  - Connecticut Hazardous Material Survey:** None of the components are listed.
  - Florida substances:** None of the components are listed.
  - Illinois Chemical Safety Act:** None of the components are listed.
  - Illinois Toxic Substances Disclosure to Employee Act:** None of the components are listed.
  - Louisiana Reporting:** None of the components are listed.
  - Louisiana Spill:** None of the components are listed.
  - Massachusetts Spill:** None of the components are listed.
  - Massachusetts Substances:** The following components are listed: TOLUENE; 3-METHYLPENTANE; XYLENE; OCTANE; ETHYL ALCOHOL; PSEUDOCUMENE; HEPTANE (N-HEPTANE); PENTANE; CUMENE; ETHYL BENZENE; BENZENE; HEXANE;CYCLOHEXANE
  - Michigan Critical Material:** None of the components are listed.
  - Minnesota Hazardous Substances:** None of the components are listed.
  - New Jersey Hazardous Substances:** The following components are listed: MOTOR FUEL, n.o.s.; TOLUENE; XYLENES; OCTANE; ETHYL ALCOHOL; PSEUDOCUMENE; n-HEPTANE; PENTANE; CUMENE; ETHYL BENZENE; BENZENE; n-HEXANE;CYCLOHEXANE
  - New Jersey Spill:** None of the components are listed.
  - New Jersey Toxic Catastrophe Prevention Act:** None of the components are listed.
  - New York Acutely Hazardous Substances:** The following components are listed: Toluene; Xylene (mixed); Benzene,1-methylethyl-; Ethylbenzene; Benzene; Hexane;Benzene, hexahydro-
  - New York Toxic Chemical Release Reporting:** None of the components are listed.
  - Pennsylvania RTK Hazardous Substances:** The following components are listed: GASOLINE; BENZENE, METHYL-; PENTANE, 3-METHYL-; BENZENE, DIMETHYL-; OCTANE; DENATURED ALCOHOL; PSEUDOCUMENE; HEPTANE; PENTANE; BENZENE, (1-METHYLETHYL)-; BENZENE, ETHYL-; BENZENE; HEXANE;CYCLOHEXANE
  - Rhode Island Hazardous Substances:** None of the components are listed.

**California Prop. 65**

**WARNING:** This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

<u>Ingredient name</u>	<u>Cancer</u>	<u>Reproductive</u>	<u>No significant risk level</u>	<u>Maximum acceptable dosage level</u>
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**Unleaded Gasoline**

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Toluene	No.	Yes.	No.	7000 µg/day (ingestion) 13000 µg/day (inhalation)
Ethylbenzene	Yes.	No.	No.	No.
Benzene	Yes.	Yes.	6.4 µg/day (ingestion) 13 µg/day (inhalation)	24 µg/day (ingestion) 49 µg/day (inhalation)

**Canada**

**WHMIS (Canada)** : Class B-2: Flammable liquid  
 Class D-2A: Material causing other toxic effects (Very toxic).  
 Class D-2B: Material causing other toxic effects (Toxic).  
 CEPA DSL & NDSL: All materials are either listed or exempt

**EU regulations**

Hazard symbol or symbols



Risk phrases

: R12- Extremely flammable.  
 R45- May cause cancer.  
 R46- May cause heritable genetic damage.  
 R63- Possible risk of harm to the unborn child.  
 R20/21- Also harmful by inhalation and in contact with skin.  
 R48/20/21/22- Also harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.  
 R38- Irritating to skin.  
 R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases

: S53- Avoid exposure - obtain special instructions before use.  
 S2- Keep out of the reach of children.  
 S29- Do not empty into drains.  
 S36/37- Wear suitable protective clothing and gloves.  
 S46- If swallowed, seek medical advice immediately and show this container or label.  
 S61- Avoid release to the environment. Refer to special instructions/safety data sheet.

**Section 16. Other Information**

Label requirements

: EXTREMELY FLAMMABLE LIQUID AND VAPOR. FLAMMABLE. VAPOR MAY CAUSE FLASH FIRE. CAUSES SKIN IRRITATION. MAY BE HARMFUL IF ABSORBED THROUGH SKIN OR IF SWALLOWED. CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. CANCER HAZARD - CONTAINS MATERIAL WHICH CAN CAUSE CANCER.

Hazardous Material Information System (U.S.A.)

Health	1
Fire hazard	3
Physical Hazard	0
Personal protection	

National Fire Protection Association (U.S.A.)

Health	1	3	Flammability
		0	Instability
			Specific hazard

Date of printing

: 11/23/2009.

Date of issue

: 11/23/2009.

Version

: 1.03

Disclaimer

Continued on next page

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## Definitions of Material Safety Data Sheet Terminology

### GOVERNMENT AGENCIES AND PRIVATE ASSOCIATIONS

**ACGIH** - American Conference of Governmental Industrial Hygienists, (private association)  
**DOT** - United States Department of Transportation  
**EPA** - United States Environmental Protection Agency  
**IARC** - International Agency for Research on Cancer, (private association)  
**NFPA** - National Fire Protection Association, (private association)  
**MSHA** - Mine Safety and Health Administration, U.S. Department of Labor  
**NIOSH** - National Institute of Occupational Safety and Health, U.S. Department of Health and Human Services  
**NTP** - National Toxicology Program, (private association)  
**OSHA** - Occupational Safety and Health Administration, U.S. Department of Labor  
**WHMIS** - Workplace Hazardous Material Information System  
**CSA** - Canadian Standards Association

### HAZARD AND EXPOSURE INFORMATION

**Acute Hazard** - An adverse health effect which occurs rapidly as a result of short term exposure.  
**CAS #** - American Chemical Society's Chemical Abstract service registry number which identifies the product and/or ingredients.  
**Ceiling** - The concentration that should not be exceeded during any part of the working exposure  
**Chronic Hazard** - An adverse health effect which generally occurs as a result of long term exposure or short term exposure with delayed health effects and is of long duration  
**Fire Hazard** - A material that poses a physical hazard by being flammable, combustible, pyrophoric or an oxidizer as defined by 29 CFR 1910.1200  
**Hazard Class** - DOT hazard classification  
**Hazardous Ingredients** - Names of ingredients which have been identified as health hazards  
**IDLH** - Immediately Dangerous to Life and Health, the airborne concentration below which a person can escape without respiratory protection and exposure up to 30 minutes, and not suffer debilitating or irreversible health effects. Established by NIOSH.  
**mg/m<sup>3</sup>** - Milligrams of contaminant per cubic meter of air, a mass to volume ratio  
**N/A** - Not available or no relevant information found  
**NA** - Not applicable  
**PEL** - OSHA permissible exposure limit; an action level of one half this value may be applicable  
**ppm** - Part per million (one volume of vapor or gas in one million volumes of air)  
**Pressure Hazard** - A material that poses a physical hazard due to the potential of a sudden release of pressure such as explosive or a compressed gas as defined by 29 CFR 1910.1200  
**Reactive Hazard** - A material that poses a physical hazard due to the potential to become unstable reactive, water reactive or that is an organic peroxide as defined by 29 CFR 1910.1200.  
**STEL** - The ACGIH Short-Term Exposure Limit, a 15-minute Time-Weighted Average exposure which should not be exceeded at any time during a workday, even if the 8-hour TWA is less than the TLV.  
**TLV** - ACGIH Threshold Limit Value, represented herein as an 8-hour TWA concentration.  
**8-hour TWA** - The time weighted average concentration for a normal 8-hour workday and a 40-hour workweek, to which nearly all workers may be repeatedly exposed, day after day, without adverse effect.  
**LD<sub>50</sub>** - Single dose of a substance that, when administered by a defined route in an animal assay, is expected to cause the death of 50% of the defined animal population.  
**LC<sub>50</sub>** - The concentration of a substance in air that, when administered by means of inhalation over a specified length of time in an animal assay, is expected to cause the death of 50% of a defined animal population.



## MATERIAL SAFETY DATA SHEET

# Diesel Fuels

VALERO MARKETING & SUPPLY COMPANY  
and Affiliates  
P.O. Box 696000  
San Antonio, TX 78269-6000

Emergency Phone Numbers  
24 Hour Emergency: 866-565-5220  
Chemtrec Emergency: 800-424-9300

General Assistance  
General Assistance: 210-345-4593

**BRAND NAMES:** Valero, Diamond Shamrock, Shamrock, Ultramar, Beacon, Total

### Section 1. Chemical Product and Company Identification

**Common / Trade name** : Diesel Fuels  
**Synonym** : Diesel Fuels All Grades, Diesel Fuel No.2, Fuel Oil No.2, High Sulfur Diesel Fuel, Low Sulfur Diesel Fuel, Ultra Low Sulfur Diesel Fuel, CARB (California Air Resource Board) Diesel Fuel, Off-Road Diesel Fuel, Dyed Diesel Fuel, X Grade Diesel Fuel, X-1 Diesel Fuel

SYNONYMS/COMMON NAMES: This Material Safety Data Sheet applies to the listed products and synonym descriptions for Hazard Communication purposes only. Technical specifications vary greatly depending on the product and are not reflected in this document. Consult specification sheets for technical information. This product contains ingredients that are considered to be hazardous as defined by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Material uses** : This product is intended for use as a refinery feedstock, fuel, or for use in engineered processes. Use in other applications may result in higher exposures and require additional controls, such as local exhaust ventilation and personal protective equipment.

**MSDS #** : 102

**CAS #** : 68476-34-6

### Section 2. Hazards Identification

**Danger!** Diesel Exhaust has been Reported to be an Occupational hazard due to NIOSH-reported potential carcinogenic properties.

**Danger!** Product May Contain or Release Hydrogen Sulfide. H<sub>2</sub>S is a highly toxic, highly flammable gas which can be fatal if inhaled at certain concentrations.

May cause irritation to eyes, skin and respiratory system. Avoid liquid, mist and vapor contact. Harmful or fatal if swallowed. Aspiration hazard, can enter lungs and cause damage. May cause irritation or be harmful if inhaled or absorbed through the skin. Avoid prolonged or repeated skin contact. Combustible Liquid. Vapors may explode.

**Physical state** : Liquid. (May be dyed red.)

**Emergency overview** : **Danger!**

CAUSES EYE BURNS.

HARMFUL IF SWALLOWED.

CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS:  
BLOOD, KIDNEYS, LIVER, PERIPHERAL NERVOUS SYSTEM, RESPIRATORY TRACT, SKIN, CENTRAL NERVOUS SYSTEM, EYE, LENS OR CORNEA.

SUSPECT CANCER HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE CANCER.

COMBUSTIBLE LIQUID AND VAPOR.

VAPOR MAY CAUSE FIRE.

*Continued on next page*

Do not ingest. Do not get in eyes or on skin or clothing. Avoid breathing vapor or mist. Keep away from heat, sparks and flame. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Risk of cancer depends on duration and level of exposure.

**Routes of entry** : Dermal contact. Eye contact. Inhalation. Ingestion.

**Potential acute health effects**

**Eyes** : Corrosive to eyes. May cause severe irritation, redness, tearing, blurred vision and conjunctivitis.

**Skin** : Prolonged or repeated contact may cause moderate irritation, defatting (cracking), redness, itching, inflammation, dermatitis and possible secondary infection. High pressure skin injections are SERIOUS MEDICAL EMERGENCIES. Injury may not appear serious at first. Within a few hours, tissues will become swollen, discolored and extremely painful.

**Inhalation** : Nasal and respiratory tract irritation, central nervous system effects including excitation, euphoria, contracted eye pupils, dizziness, drowsiness, blurred vision, fatigue, nausea, headache, loss of reflexes, tremors, convulsions, seizures, loss of consciousness, coma, respiratory arrest and sudden death could occur as a result of long term and/or high concentration exposure to vapors. May also cause anemia and irregular heart rhythm. Repeated or prolonged exposure may cause behavioral changes. NIOSH Current Intelligence Bulletin 50 reports a potential occupational carcinogenic hazard exists due to human exposure to diesel exhaust.

**Ingestion** : Toxic if swallowed. May cause burns to mouth, throat and stomach. This product may be harmful or fatal if swallowed. This product may cause nausea, vomiting, diarrhea and restlessness. DO NOT INDUCE VOMITING. Aspiration into the lungs can cause severe chemical pneumonitis or pulmonary edema/hemorrhage, which can be fatal. May cause gastrointestinal disturbances. Symptoms may include irritation, depression, vomiting and diarrhea. May cause harmful central nervous system effects, similar to those listed under "inhalation".

**Medical conditions aggravated by over-exposure** : Repeated or prolonged contact with spray or mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray or mist may produce respiratory tract irritation, leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

**Over-exposure signs/symptoms** : Nasal and respiratory tract irritation, central nervous system effects including excitation, euphoria, contracted eye pupils, dizziness, drowsiness, blurred vision, fatigue, nausea, headache, loss of reflexes, tremors, convulsions, seizures, loss of consciousness, coma, respiratory arrest or sudden death could occur as a result of long term and/or high concentration exposure to vapors. May also cause anemia and irregular heart rhythm.

See toxicological information (section 11)

### Section 3. Composition, information on ingredients

<u>Name</u>	<u>CAS number</u>	<u>Concentration ( % )</u>
Diesel fuel	68476-34-6	85 - 95
Naphthalene	91-20-3	1 - 3
n-Nonane	111-84-2	1 - 3
Hexane (Other Isomers)	mixture	1 - 3
n-Heptane	142-82-5	1 - 2
n-Hexane	110-54-3	1 - 2
Octane (All Isomers)	111-65-9	1 - 2

### Section 4. First Aid Measures

**Eye contact** : Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Seek medical advice if pain or redness continues.

<b>Skin contact</b>	: In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention. Wash exposed area thoroughly with soap and water. Remove contaminated clothing promptly and launder before reuse. Contaminated leather goods should be discarded. If irritation persists or symptoms described in the MSDS develop, seek medical attention. High pressure skin injections are <b>SERIOUS MEDICAL EMERGENCIES</b> . Get immediate medical attention.
<b>Inhalation</b>	: If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
<b>Ingestion</b>	: This product may be harmful or fatal if swallowed. This product may cause nausea, vomiting, diarrhea and restlessness. <b>DO NOT INDUCE VOMITING</b> . Aspiration into the lungs can cause severe chemical pneumonitis or pulmonary edema/hemorrhage, which can be fatal. May cause gastrointestinal disturbances. Symptoms may include irritation, depression, vomiting and diarrhea. May cause harmful central nervous system effects, similar to those listed under "inhalation".
<b>Notes to physician</b>	: No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
<b>Protection of first-aiders</b>	: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

## Section 5. Fire Fighting Measures

<b>Flammability of the product</b>	: Combustible.
<b>Auto-ignition temperature</b>	: 257.2°C (495°F)
<b>Flash point</b>	: Closed cup: 51.67 to 87.78°C (125 to 190°F).
<b>Flammable limits</b>	: Lower: 0.4% Upper: 8%
<b>Products of combustion</b>	: These products are carbon oxides (CO, CO <sub>2</sub> ), nitrogen and sulfur oxides (NO <sub>x</sub> , SO <sub>x</sub> ), particulate matter, VOC's.
<b>Fire hazards in the presence of various substances</b>	: Flammable in the presence of open flames, sparks and static discharge.
<b>Explosion hazards in the presence of various substances</b>	: Explosive in the presence of open flames, sparks and static discharge.
<b>Fire-fighting media and instructions</b>	
<b><u>Extinguishing media</u></b>	
<b>Suitable</b>	: Use dry chemical, CO <sub>2</sub> , water spray (fog) or foam.
<b>Not suitable</b>	: Do not use water jet.
	Collect contaminated fire-fighting water separately. It must not enter the sewage system. Dike area of fire to prevent runoff. Decontaminate emergency personnel and equipment with soap and water.
	Combustible liquid and vapor. Vapor may cause flash fire. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.
<b>Special protective equipment for fire-fighters</b>	: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. No additional remark.
<b>Special remarks on fire hazards</b>	: No additional remark.

## Section 6. Accidental Release Measures

- Personal precautions** : Immediately contact emergency personnel. Eliminate all ignition sources. Keep unnecessary personnel away. Use suitable protective equipment (section 8). Do not touch or walk through spilled material. Tanks, vessels or other confined spaces which have contained product should be freed of vapors before entering. The container should be checked to ensure a safe atmosphere before entry. Empty containers may contain toxic, flammable/combustible or explosive residues or vapors. Do not cut, grind, drill, weld or reuse empty containers that contained this product. Do not transfer this product to another container unless the container receiving the product is labeled with proper DOT shipping name, hazard class and other information that describes the product and its hazards.
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. If facility or operation has an "oil or hazardous substance contingency plan", activate its procedures. Stay upwind and away from spill. Wear appropriate protective equipment including respiratory protection as conditions warrant. Do not enter or stay in area unless monitoring indicates that it is safe to do so. Isolate hazard area and restrict entry to emergency crew. Extremely flammable. Review Fire Fighting Measures section before proceeding with clean up. Keep all sources of ignition (flames, smoking, flares, etc.) and hot surfaces away from release. Contain spill in smallest possible area. Recover as much product as possible (e.g., by vacuuming). Stop leak if it can be done without risk. Use water spray to disperse vapors. Spilled material may be absorbed by an appropriate absorbent, and then handled in accordance with environmental regulations. Prevent spilled material from entering sewers, storm drains, other unauthorized treatment or drainage systems and natural waterways. Contact fire authorities and appropriate federal, state and local agencies. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, contact the National Response Center at 800-424- 8802. For highway or railway spills, contact Chemtrec at 800-424-9300.
- Methods for cleaning up**
- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.
- Large spill** : If emergency personnel are unavailable, contain spilled material. For small spills, add absorbent (soil may be used in the absence of other suitable materials) and use a non-sparking or explosion-proof means to transfer material to a sealable, appropriate container for disposal. For large spills, dike spilled material or otherwise contain it to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal.

## Section 7. Handling and Storage

- Handling** : Do not ingest. Do not get in eyes, on skin or on clothing. Keep container closed. Use only with adequate ventilation. Avoid breathing vapor or mist. Keep away from heat, sparks and flame. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Wash thoroughly after handling. Use only in well ventilated locations. Keep away from heat, spark and flames. In case of fire, use water spray, foam, dry chemical or carbon dioxide as described in the Fire Fighting Measures section of the MSDS. Do not pressurize, cut, weld, braze, solder, drill on or near this container. "Empty" container contains residue (liquid and/or vapor) and may explode in heat of a fire. Use good personal hygiene practices. After handling this product, wash hands before eating, drinking, or using toilet facilities. Keep out of reach of children. Failure to use caution may cause serious injury or illness. Never siphon by mouth. For use as a motor fuel only. Do not use as a cleaning solvent or for other non-motor fuel uses. Wash thoroughly after handling. To prevent ingestion and exposure - Do not siphon by mouth to transfer product between containers. Use good personal hygiene practices. After handling this product, wash hands before eating, drinking, or using toilet facilities.

Continued on next page

**Storage** : Store in tightly closed containers in cool, dry, isolated and well ventilated area away from heat, sources of ignition and incompatible materials. Use non-sparking tools and explosion proof equipment. Ground lines, containers, and other equipment used during product transfer to reduce the possibility of a static induced spark. Do not "switch load" because of possible accumulation of a static charge resulting in a source of ignition. Use good personal hygiene practices.

## Section 8. Exposure controls, personal protection

**Engineering measures** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

### Personal protection

**Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

**Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Flame Retardant Clothing is recommended.

**Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

**Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

**Personal protective equipment (Pictograms)** : Consult your supervisor or S.O.P. for special handling direction.



**Personal protection in case of a large spill** : Splash goggles. Full suit. Vapor respirator. Boots. Gloves. Self-contained breathing apparatus (SCBA) should be used to avoid inhalation of the product. Suggested protective clothing might not be adequate. Consult a specialist before handling this product.

**Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

**Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

**Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Component

Diesel fuel

Naphthalene

### Exposure limits

**ACGIH TLV (United States, 1/2004). Skin Notes: 2002 Adoption.**

TWA: 100 mg/m<sup>3</sup> 8 hour(s). Form: Total hydrocarbons

**NIOSH REL (United States, 6/2001).**

STEL: 15 ppm 15 minute(s). Form: All forms

TWA: 10 ppm 10 hour(s). Form: All forms

**OSHA PEL (United States, 6/1993).**

TWA: 10 ppm 8 hour(s). Form: All forms

**ACGIH TLV (United States, 5/2004). Notes: 1996 Adoption Refers to Appendix A -- Carcinogens.**

STEL: 15 ppm 15 minute(s). Form: All forms

TWA: 10 ppm 8 hour(s). Form: All forms

n-Nonane	<p><b>NIOSH REL (United States, 6/2001).</b> TWA: 200 ppm 10 hour(s). Form: All forms</p> <p><b>ACGIH TLV (United States, 9/2004).</b> TWA: 200 ppm 8 hour(s). Form: All forms</p>
Hexane (Other Isomers)	<p><b>ACGIH TLV (United States, 9/2004).</b> STEL: 1000 ppm 15 minute(s). Form: All forms TWA: 500 ppm 8 hour(s). Form: All forms</p> <p><b>NIOSH REL (United States, 6/2001).</b> CEIL: 510 ppm 15 minute(s). Form: All forms</p>
n-Heptane	<p><b>ACGIH TLV (United States, 9/2004).</b> STEL: 500 ppm 15 minute(s). Form: All forms TWA: 400 ppm 8 hour(s). Form: All forms</p> <p><b>NIOSH REL (United States, 6/2001).</b> TWA: 350 mg/m<sup>3</sup> 10 hour(s). Form: All forms</p> <p><b>OSHA PEL (United States, 6/1993).</b> TWA: 500 ppm 8 hour(s). Form: All forms</p>
n-Hexane	<p><b>OSHA PEL (United States, 6/1993).</b> TWA: 500 ppm 8 hour(s). Form: All forms</p> <p><b>ACGIH TLV (United States, 9/2004). Skin</b> TWA: 50 ppm 8 hour(s). Form: All forms</p> <p><b>NIOSH REL (United States, 6/2001).</b> TWA: 50 ppm 10 hour(s). Form: All forms</p>
Octane (All Isomers)	<p><b>NIOSH REL (United States, 6/2001).</b> CEIL: 385 ppm 15 minute(s). Form: All forms TWA: 75 ppm 10 hour(s). Form: All forms</p> <p><b>OSHA PEL (United States, 6/1993).</b> TWA: 500 ppm 8 hour(s). Form: All forms</p> <p><b>ACGIH TLV (United States, 3/2004). Notes: 1999 Adoption.</b> TWA: 300 ppm 8 hour(s). Form: All forms</p>

Consult local authorities for acceptable exposure limits.

## Section 9. Physical and Chemical Properties

Physical state	: Liquid. (May be dyed red.)
Color	: Clear. Straw.
Odor	: Kerosene (Strong.)
Boiling point	: 162.78 to 371.11°C (325 to 700°F)
Melting/freezing point	: May start to solidify at the following temperature: -51.15°C (-60.1°F) This is based on data for the following ingredient: n-Nonane. Weighted average: -92.6°C (-134.7°F)
Specific gravity	: 0.84 to 0.93 (Water = 1) (@ 60 °F)
Vapor pressure	: <0.7 kPa (<5.2 mm Hg) (at 20°C)
Vapor density	: 3 (Air = 1)
Evaporation rate	: 0.02

## Section 10. Stability and reactivity data

Stability	: The product is stable.
Hazardous polymerization	: Will not occur.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
Materials to avoid	: Reactive or incompatible with the following materials: oxidizing materials
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Conditions of reactivity	: Flammable in the presence of open flames, sparks and static discharge. Explosive in the presence of open flames, sparks and static discharge.

Continued on next page

## Section 11. Toxicological Information

### Toxicity data

**DIESEL EXHAUST FUMES** have been reported to be a potential occupational carcinogen in humans by NIOSH Current Intelligence Bulletin 50.

**HEPTANE** can affect the body if it is inhaled, comes in contact with the eyes or skin, or is swallowed. Heptane vapor is a narcotic. Concentrations of 10,000 to 15,000 ppm produced narcosis in mice within 30 to 60 minutes, while 15,000 to 20,000 ppm caused convulsions and death. At 48,000 ppm, respiratory arrest was produced in mice in 3 to 4 minutes from the start of exposure. Human subjects exposed to 1,000 ppm for 6 minutes, or to 2,000 ppm for 4 minutes, reported slight vertigo. At 5,000 ppm for 4 minutes, there was marked vertigo, inability to walk a straight line, hilarity, and incoordination, but no complaints of eye and upper respiratory tract or mucous membrane irritation. A 15-minute exposure at 5,000 ppm produced in some subjects a state of stupor lasting for 30 minutes after exposure. These subjects also reported loss of appetite, slight nausea, and a taste resembling gasoline for several hours after exposure. Although chronic nervous system effects have not been attributed to heptane, polyneuritis has been reported following prolonged exposure to a petroleum fraction with boiling range between 70C and 100C, and this fraction would normally contain various isomers of heptane as major ingredients.

**n-HEXANE** can affect the body if it is inhaled, comes in contact with the eyes or skin, or is swallowed. Hexane vapor is a narcotic and a mild upper respiratory irritant. Polyneuropathy (peripheral nerve damage) has been reported to occur in workers exposed to hexane vapors, characterized by progressive weakness and numbness in the extremities, loss of deep tendon reflexes and reduction of motor nerve conduction velocity. Recovery ranges from no recovery to complete recovery depending upon the duration of exposure and severity of nerve damage. Concentrations of 30,000 ppm produced narcosis in mice within 30 to 60 minutes, convulsions and death occurred at 35,000 to 40,000 ppm, and at 64,000 ppm respiratory arrest was produced in 2.5 to 4.5 minutes from the start of exposure. Concentrations up to 8000 ppm produced no anesthesia. In human subjects, 2000 ppm for 10 minutes produced no effects, but 5000 ppm resulted in dizziness and a sensation of giddiness. Other investigators reported slight nausea, headache and irritation of the eyes and throat at 1400 to 1500 ppm. In industrial practice, mild narcotic symptoms such as dizziness have been observed when concentrations exceeded 1000 ppm, but not below 500 ppm.

**NONANE** causes a four hour LC50 in rats at concentrations of 3200 ppm, or at about the same level as VM&P Naphtha. This level is markedly lower than the lethal concentrations reported in earlier mice studies involving octane (13,500 ppm) and heptane (16,000 ppm), supporting the lower limit for nonane.

**OCTANE** can affect the body if it is inhaled, comes in contact with the skin or eyes or is swallowed. Octane vapor is a mild narcotic and mucous membrane irritant. Concentrations of 6600 to 13,700 ppm produced narcosis in mice in 30 to 90 minutes, the fatal concentration for animals is near 13,500 ppm. No chronic systemic effects have been reported in humans.

**NAPHTHALENE** can affect the body if it is inhaled, comes into contact with the eyes or the skin or if it is swallowed. Naphthalene vapor causes hemolysis and eye irritation, and may cause cataracts. Severe intoxication from ingestion of the solid results in characteristic manifestations of marked intravascular hemolysis and its consequences, including potentially fatal hyperkalemia. Initial symptoms include eye irritation, headache, confusion, excitement, malaise, profuse sweating, nausea, vomiting, abdominal pain, and irritation of the bladder. There may be progression to jaundice, hematuria, hemoglobinuria, renal tubular blockage, and acute renal shutdown. Hematologic features include red cell fragmentation, icterus, severe anemia with nucleated red cells, leukocytosis, and dramatic decreases in hemoglobin, hematocrit and red cell count; sometimes there is formation of Heinz bodies and methemoglobin. Individuals with a deficiency of glucose-6-phosphate dehydrogenase in erythrocytes may be more susceptible to hemolysis by naphthalene. Cataracts and ocular irritation have been produced experimentally in animals and have been described in humans. Of 21 workers exposed to high concentrations of fume or vapor for 5 years, 8 had peripheral lens opacities; in other studies, no abnormalities of the eyes have been detected in workers exposed to naphthalene for several years. The vapor causes eye irritation at 15 ppm. Eye contact with the solid may result in conjunctivitis, superficial injury to the cornea, chorioretinitis, scotoma, and diminished visual acuity. Naphthalene on the skin may cause hypersensitivity dermatitis, chronic dermatitis is rare.

**HEXANE ISOMERS** are three times as toxic to mice as is pentane. Narcosis was produced in mice within 30-60 minutes at concentrations of 30,000 ppm. In man, concentrations for 10 minutes at 2000 ppm produced no effects, but 5000 ppm caused dizziness and a sense of giddiness. Concentrations of 1400-1500 ppm produced slight nausea, headache, eye, and throat irritation.

### Acute toxicity

Product/ingredient name	Result	Species	Dose
Diesel fuel	TDL <sub>o</sub> Oral	Rat	1.25 mL/kg
Naphthalene	LD50 Dermal	Rabbit	>20 g/kg
	LD50 Dermal	Rat	>2500 mg/kg
	LD50 Oral	Rat	>490 mg/kg
	LD50 Unreported	Rat	1250 mg/kg
	TDL <sub>o</sub> Intraperitoneal	Rat	100 mg/kg
	LD50 Oral	Rat	25 g/kg
n-Hexane	LDLo Intraperitoneal	Rat	9100 mg/kg
	TDL <sub>o</sub> Oral	Rat	20000 mg/kg

### Carcinogenicity

#### Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Diesel fuel	A3	3	-	-	-	-
Naphthalene	A4	2B	-	-	Possible	-

Continued on next page

**Chronic effects on humans** : **CARCINOGENIC EFFECTS:** Classified A3 (Proven for animals.) by ACGIH [Diesel fuel]. Classified 3 (Not classifiable for humans.) by IARC [Diesel fuel].  
Contains material which may cause damage to the following organs: blood, kidneys, liver, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.

**Other toxic effects on humans** : Very hazardous by the following route of exposure: of eye contact (corrosive).  
Hazardous by the following route of exposure: of skin contact (irritant), of ingestion, of inhalation (lung irritant).

#### Specific effects

**Carcinogenic effects** : Contains material which may cause cancer.. Risk of cancer depends on duration and level of exposure.

**Target organs** : Contains material which causes damage to the following organs: blood, kidneys, liver, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea.

## Section 12. Ecological Information

### Ecotoxicity data

Product/ingredient name	Result	Species	Exposure
Naphthalene	Acute EC50 1.96 mg/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute EC50 1600 to 3400 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute EC50 2550 to 3400 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute EC50 2194 to 2459 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute EC50 6470 to 9140 ug/L Fresh water	Crustaceans - Brine shrimp - Artemia sp.	48 hours
	Acute EC50 5960 to 9190 ug/L Fresh water	Crustaceans - Brine shrimp - Artemia sp.	48 hours
	Acute LC50 32.9802 ppm Fresh water	Fish - Bluegill - Lepomis macrochirus	96 hours
	Acute LC50 31.0265 ppm Fresh water	Fish - Bluegill - Lepomis macrochirus	96 hours
	Acute LC50 19.7675 ppm Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute LC50 17.6998 ppm Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute LC50 2.6 to 2.89 ppm Marine water	Crustaceans - Daggerblade grass shrimp - Palaemonetes pugio	48 hours
	Acute LC50 2.1 ppm Fresh water	Fish - Coho salmon, silver salmon - Oncorhynchus kisutch	96 hours
	Acute LC50 1600 ug/L Fresh water	Fish - Rainbow trout, donaldson trout - Oncorhynchus mykiss	96 hours
	Acute LC50 17.4 mg/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute LC50 1370 to 1680 ug/L Marine water	Fish - Pink salmon - Oncorhynchus gorbuscha	96 hours
	Acute LC50 1240 to 1620 ug/L Marine water	Fish - Pink salmon - Oncorhynchus gorbuscha	96 hours
	Acute LC50 1200 ug/L Marine water	Fish - Pink salmon - Oncorhynchus gorbuscha	96 hours
	Acute LC50 2920 to 3890 ug/L Fresh water	Daphnia - Water flea - Daphnia pulex	48 hours
	Acute LC50 9.93 mg/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
	Acute LC50 12500 to 20500 ug/L Fresh water	Crustaceans - Brine shrimp - Artemia sp.	48 hours
	Acute LC50 2350 ug/L Marine water	Crustaceans - Daggerblade grass shrimp - Palaemonetes pugio	48 hours
	Acute LC50 4.9 mg/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours
	Acute LC50 9820 to 13100 ug/L Fresh water	Crustaceans - Brine shrimp - Artemia sp.	48 hours
	Acute LC50 2.25 mg/L Fresh water	Fish - Rainbow trout, donaldson trout - Oncorhynchus mykiss	96 hours
	Acute LC50 25.4 mg/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute LC50 2160 to 2560 ug/L Fresh water	Daphnia - Water flea - Daphnia magna	48 hours
	Acute LC50 4000 ug/L Fresh water	Crustaceans - Shrimp - Macrobrachium kistnensis	48 hours
Acute LC50 2000 to 4000 ug/L Fresh water	Crustaceans - Shrimp - Macrobrachium kistnensis	48 hours	
Acute LC50 4000 to 6000 ug/L Fresh water	Crustaceans - Shrimp - Macrobrachium kistnensis	48 hours	
Acute LC50 4924000 ug/L Fresh water	Fish - Western mosquitofish - Gambusia affinis	96 hours	
Acute LC50 375000 ug/L Fresh water	Fish - Mozambique tilapia - Tilapia mossambica	96 hours	
n-Heptane	Acute LC50 113000 ug/L Fresh water	Fish - Mozambique tilapia - Tilapia mossambica	96 hours
n-Hexane	Acute LC50 2500 to 2980 ug/L Fresh water	Fish - Fathead minnow - Pimephales promelas	96 hours

### Biodegradability

#### Biodegradability

**Products of degradation** : Decomposition products may include the following materials: carbon oxides (CO, CO<sub>2</sub>) and water.

**Toxicity of the products of biodegradation** : The products of degradation are less toxic than the product itself.

## Section 13. Disposal Considerations

**Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Consult your local or regional authorities.

## Section 14. Transport Information

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
DOT Classification	UN1202	Diesel fuel	3 Combustible liquid.	III		Not available.
TDG Classification	UN1202	Diesel fuel Mixture	3	III		Not available.

## Section 15. Regulatory Information

### United States

**HCS Classification** : Combustible liquid  
Toxic material  
Corrosive material  
Carcinogen  
Target organ effects

**U.S. Federal regulations** : TSCA 4(a) final test rules: Hexane (Other Isomers); n-Hexane  
TSCA 8(a) PAIR: Naphthalene; n-Heptane; n-Nonane  
TSCA 8(b) inventory: Hexane (Other Isomers); Naphthalene; n-Heptane; n-Hexane; n-Nonane; Diesel fuel; Octane (All Isomers); Toluene; Benzene  
SARA 302/304/311/312 extremely hazardous substances: No products were found.  
SARA 302/304 emergency planning and notification: No products were found.  
SARA 302/304/311/312 hazardous chemicals: Hexane (Other Isomers); Naphthalene; n-Heptane; n-Hexane; n-Nonane; Octane (All Isomers)  
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Hexane (Other Isomers): Fire hazard, Immediate (acute) health hazard; Naphthalene: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard; n-Heptane: Fire hazard; n-Hexane: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard; n-Nonane: Fire hazard, Immediate (acute) health hazard; Octane (All Isomers): Fire hazard  
Clean Water Act (CWA) 307: Naphthalene; Toluene; Benzene  
Clean Water Act (CWA) 311: Naphthalene; Toluene; Benzene  
Clean Air Act (CAA) 112 accidental release prevention: No products were found.  
Clean Air Act (CAA) 112 regulated flammable substances: No products were found.  
Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

### SARA 313

	<u>Product name</u>	<u>CAS number</u>	<u>Concentration</u>
<b>Form R - Reporting requirements</b>	: Naphthalene	91-20-3	1 - 3
	: n-Hexane	110-54-3	1 - 2
<b>Supplier notification</b>	: Naphthalene	91-20-3	1 - 3
	: n-Hexane	110-54-3	1 - 2

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

Continued on next page

**State regulations** : Connecticut Carcinogen Reporting: Benzene  
 Connecticut Hazardous Material Survey: Naphthalene; n-Hexane; Toluene; Benzene  
 Illinois Toxic Substances Disclosure to Employee Act: Naphthalene; n-Hexane; Toluene; Benzene  
 Rhode Island Hazardous Substances: Naphthalene; n-Hexane; Toluene; Benzene  
 Pennsylvania RTK Hazardous Substances: Hexane (Other Isomers): (generic environmental hazard); Naphthalene: (environmental hazard, generic environmental hazard); n-Heptane: (generic environmental hazard); n-Hexane: (generic environmental hazard); n-Nonane: (generic environmental hazard); Octane (All Isomers): (generic environmental hazard); Toluene: (environmental hazard, generic environmental hazard); Benzene: (special hazard, environmental hazard, generic environmental hazard)  
 Florida: Naphthalene; n-Hexane; Toluene; Benzene  
 Michigan Critical Material: Toluene; Benzene  
 Massachusetts Substances: Hexane (Other Isomers); Naphthalene; n-Heptane; n-Hexane; n-Nonane; Octane (All Isomers); Toluene; Benzene  
 New Jersey: Naphthalene; n-Heptane; n-Hexane; n-Nonane; Diesel fuel; Octane (All Isomers); Toluene; Benzene

**California Prop. 65**

**WARNING:** This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

<u>Ingredient name</u>	<u>Cancer</u>	<u>Reproductive</u>	<u>No significant risk level</u>	<u>Maximum acceptable dosage level</u>
Naphthalene	Yes.	No.	Yes.	No.
Toluene	No.	Yes.	No.	7000 µg/day (ingestion) 13000 µg/day (inhalation)
Benzene	Yes.	Yes.	6.4 µg/day (ingestion) 13 µg/day (inhalation)	24 µg/day (ingestion) 49 µg/day (inhalation)

**Canada**

**WHMIS (Canada)** : Class B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).  
 Class D-1B: Material causing immediate and serious toxic effects (Toxic).  
 Class D-2A: Material causing other toxic effects (Very toxic).  
 Class D-2B: Material causing other toxic effects (Toxic).  
 Class E: Corrosive liquid.  
 CEPA DSL: Hexane (Other Isomers); Naphthalene; n-Heptane; n-Hexane; n-Nonane; Diesel fuel; Octane (All Isomers); Toluene; Benzene

**EU regulations**

**Hazard symbol or symbols**



**Risk phrases** : R40- Limited evidence of a carcinogenic effect.  
 R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Safety phrases** : S2- Keep out of the reach of children.  
 S29- Do not empty into drains.  
 S36/37- Wear suitable protective clothing and gloves.  
 S46- If swallowed, seek medical advice immediately and show this container or label.  
 S61- Avoid release to the environment. Refer to special instructions/safety data sheet.

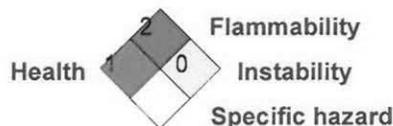
## Section 16. Other Information

**Label requirements** : CAUSES EYE BURNS.  
HARMFUL IF SWALLOWED.  
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS:  
BLOOD, KIDNEYS, LIVER, PERIPHERAL NERVOUS SYSTEM, RESPIRATORY  
TRACT, SKIN, CENTRAL NERVOUS SYSTEM, EYE, LENS OR CORNEA.  
SUSPECT CANCER HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE  
CANCER.  
COMBUSTIBLE LIQUID AND VAPOR.  
VAPOR MAY CAUSE FIRE.

**Hazardous Material  
Information System (U.S.A.)** :

Health	1
Fire hazard	2
Physical Hazard	0
Personal protection	

**National Fire Protection  
Association (U.S.A.)** :



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## Definitions of Material Safety Data Sheet Terminology

### GOVERNMENT AGENCIES AND PRIVATE ASSOCIATIONS

**ACGIH** - American Conference of Governmental Industrial Hygienists, (private association)  
**DOT** - United States Department of Transportation  
**EPA** - United States Environmental Protection Agency  
**IARC** - International Agency for Research on Cancer, (private association)  
**NFPA** - National Fire Protection Association, (private association)  
**MSHA** - Mine Safety and Health Administration, U.S. Department of Labor  
**NIOSH** - National Institute of Occupational Safety and Health, U.S. Department of Health and Human Services  
**NTP** - National Toxicology Program, (private association)  
**OSHA** - Occupational Safety and Health Administration, U.S. Department of Labor  
**WHMIS** - Workplace Hazardous Material Information System  
**CSA** - Canadian Standards Association

### HAZARD AND EXPOSURE INFORMATION

Continued on next page

**Acute Hazard** - An adverse health effect which occurs rapidly as a result of short term exposure.

**CAS #** - American Chemical Society's Chemical Abstract service registry number which identifies the product and/or ingredients.

**Ceiling** - The concentration that should not be exceeded during any part of the working exposure

**Chronic Hazard** - An adverse health effect which generally occurs as a result of long term exposure or short term exposure with delayed health effects and is of long duration

**Fire Hazard** - A material that poses a physical hazard by being flammable, combustible, pyrophoric or an oxidizer as defined by 29 CFR 1910.1200

**Hazard Class** - DOT hazard classification

**Hazardous Ingredients** - Names of ingredients which have been identified as health hazards

**IDLH**- Immediately Dangerous to Life and Health, the airborne concentration below which a person can escape without respiratory protection and exposure up to 30 minutes, and not suffer debilitating or irreversible health effects. Established by NIOSH.

**mg/m<sup>3</sup>** - Milligrams of contaminant per cubic meter of air, a mass to volume ratio

**N/A** - Not available or no relevant information found

**NA** - Not applicable

**PEL** - OSHA permissible exposure limit; an action level of one half this value may be applicable

**ppm** - Part per million (one volume of vapor or gas in one million volumes of air)

**Pressure Hazard** - A material that poses a physical hazard due to the potential of a sudden release of pressure such as explosive or a compressed gas as defined by 29 CFR 1910.1200

**Reactive Hazard** - A material that poses a physical hazard due to the potential to become unstable reactive, water reactive or that is an organic peroxide as defined by 29 CFR 1910.1200.

**STEL** - The ACGIH Short-Term Exposure Limit, a 15-minute Time-Weighted Average exposure which should not be exceeded at any time during a workday, even if the 8-hour TWA is less than the TLV.

**TLV** - ACGIH Threshold Limit Value, represented herein as an 8-hour TWA concentration.

**8-hour TWA** - The time weighted average concentration for a normal 8-hour workday and a 40-hour workweek, to which nearly all workers may be repeatedly exposed, day after day, without adverse effect.

**LD<sub>50</sub>** - Single dose of a substance that, when administered by a defined route in an animal assay, is expected to cause the death of 50% of the defined animal population.

**LC<sub>50</sub>** - The concentration of a substance in air that, when administered by means of inhalation over a specified length of time in an animal assay, is expected to cause the death of 50% of a defined animal population.



# MATERIAL SAFETY DATA SHEET

## Crude Oil

VALERO MARKETING & SUPPLY COMPANY  
and Affiliates  
P.O. Box 696000  
San Antonio, TX 78269-6000

Emergency Phone Numbers  
24 Hour Emergency: 866-565-5220  
Chemtrec Emergency: 800-424-9300

General Assistance  
General Assistance: 210-345-4593

**BRAND NAMES:** Valero, Diamond Shamrock, Shamrock, Ultramar, Beacon, Total

### Section 1. Chemical Product and Company Identification

**Common / Trade name** : Crude Oil  
**Synonym** : Petroleum - Crude Oil, Petroleum Crude Oil Condensate.  
Crude oil is a complex combination of hydrocarbons. It consists predominantly of paraffins, cyclic paraffins, and cyclic aromatic hydrocarbons having carbon numbers predominantly greater than C1. May also contain small amounts of benzene hydrocarbons, sulfur, and oxygenated compounds.

**SYNONYMS/Common Names:** This Material Safety Data Sheet applies to the listed products and synonym descriptions for Hazard Communication purposes only. Technical specifications vary greatly depending on the product and are not reflected in this document. Consult specification sheets for technical information. This product contains ingredients that are considered to be hazardous as defined by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**Material uses** : This product is intended for use as a refinery feedstock, fuel, or for use in engineered processes. Use in other applications may result in higher exposures and require additional controls, such as local exhaust ventilation and personal protective equipment.

**MSDS #** : 501

**CAS #** : 8002-05-9

### Section 2. Composition, information on ingredients

<u>Name</u>	<u>CAS number</u>	<u>Concentration ( % )</u>
Petroleum Crude Oil	8002-05-9	95 - 100
n-Hexane	110-54-3	2 - 8
n-Butane	106-97-8	1 - 7
Pentane	109-66-0	1 - 6
n-Heptane	142-82-5	1 - 5
Hexane (Other Isomers)	Mixture	1 - 5
Octane (All Isomers)	111-65-9	1 - 5
Benzene	71-43-2	0.2 - 5
Cyclohexane	110-82-7	1 - 4
Methylcyclohexane	108-87-2	1 - 4
n-Nonane	111-84-2	1 - 4
Propane	74-98-6	1 - 4
Cyclopentane	287-92-3	1 - 3
Ethylbenzene	100-41-4	1 - 3

*Continued on next page*

**Crude Oil**

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Xylene (o,m,p isomers)	1330-20-7	1 - 3
Hydrogen Sulfide	7783-06-4	0.1 - 3
Sulfur	7704-34-9	0.1 - 3
Toluene	108-88-3	1 - 2

**Section 3. Hazards Identification**

Danger! Contains Benzene. Cancer Hazard. Can cause kidney, liver and blood disorders. May cause irritation to eyes, skin and respiratory system. Avoid liquid, mist and vapor contact. Harmful or fatal if swallowed. Aspiration hazard; can enter lungs and cause damage. Product May Contain or Release Hydrogen Sulfide. May cause irritation or be harmful if inhaled or absorbed through the skin. Contains polycyclic aromatic compounds which have been shown to cause anemia, disorders of the liver, bone marrow and lymphoid tissues in rats following dermal application. Flammable/Combustible liquid. Vapors may explode.

- Physical state** : Liquid. (A THICK, FLAMMABLE, DARK YELLOW TO BROWN OR GREEN-BLACK LIQUID)
- Emergency overview** : Danger!  
MAY BE FATAL IF INHALED.  
CANCER HAZARD.  
CONTAINS MATERIAL WHICH CAN CAUSE CANCER.  
HARMFUL IF SWALLOWED.  
CAUSES RESPIRATORY TRACT IRRITATION.  
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS:  
BLOOD, KIDNEYS, LUNGS, NERVOUS SYSTEM, LIVER, PERIPHERAL NERVOUS SYSTEM, GASTROINTESTINAL TRACT, RESPIRATORY TRACT, SKIN, BONE MARROW, CENTRAL NERVOUS SYSTEM, EYE, LENS OR CORNEA.  
FLAMMABLE LIQUID AND VAPOR.  
VAPOR MAY CAUSE FLASH FIRE.  
MAY BE HARMFUL IF ABSORBED THROUGH SKIN.  
Do not ingest. Avoid prolonged contact with eyes, skin and clothing. Keep away from heat, sparks and flame. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Risk of cancer depends on duration and level of exposure.
- Routes of entry** : Dermal contact. Eye contact. Inhalation. Ingestion.
- Potential acute health effects**
- Eyes** : May cause severe irritation, redness, tearing, blurred vision and conjunctivitis.
- Skin** : Prolonged or repeated contact may cause moderate irritation, defatting (cracking), redness, itching, inflammation, dermatitis and possible secondary infection. High pressure skin injections are SERIOUS MEDICAL EMERGENCIES. Injury may not appear serious at first. Within a few hours, tissues will become swollen, discolored and extremely painful.
- Inhalation** : Nasal and respiratory tract irritation, central nervous system effects including excitation, euphoria, contracted eye pupils, dizziness, drowsiness, blurred vision, fatigue, nausea, headache, loss of reflexes, tremors, convulsions, seizures, loss of consciousness, coma, respiratory arrest and sudden death could occur as a result of long term and/or high concentration exposure to vapors. May also cause anemia and irregular heart rhythm. Repeated or prolonged exposure may cause behavioral changes.
- Ingestion** : Toxic if swallowed. This product may be harmful or fatal if swallowed. This product may cause nausea, vomiting, diarrhea and restlessness. DO NOT INDUCE VOMITING. Aspiration into the lungs can cause severe chemical pneumonitis or pulmonary edema/hemorrhage, which can be fatal. May cause gastrointestinal disturbances. Symptoms may include irritation, depression, vomiting and diarrhea. May cause harmful central nervous system effects, similar to those listed under "inhalation".
- Medical conditions aggravated by over-exposure** : Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs. Preexisting eye, skin, heart, central nervous system and respiratory disorders may be aggravated by exposure to this product. Impaired kidney, liver and blood disorders may be aggravated by exposure to this product.

Continued on next page

**Over-exposure signs/symptoms** : Nasal and respiratory tract irritation, central nervous system effects including excitation, euphoria, contracted eye pupils, dizziness, drowsiness, blurred vision, fatigue, nausea, headache, loss of reflexes, tremors, convulsions, seizures, loss of consciousness, coma, respiratory arrest or sudden death could occur as a result of long term and/or high concentration exposure to vapors. May also cause anemia and irregular heart rhythm.

See toxicological information (section 11)

## Section 4. First Aid Measures

**Eye contact** : Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Seek medical advice if pain or redness continues.

**Skin contact** : Remove contaminated clothing and shoes. Wash exposed area thoroughly with soap and water. Remove contaminated clothing promptly and launder before reuse. Contaminated leather goods should be discarded. If irritation persists or symptoms described in the MSDS develop, seek medical attention. High pressure skin injections are SERIOUS MEDICAL EMERGENCIES. Get immediate medical attention.

**Inhalation** : If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.

**Ingestion** : This product may be harmful or fatal if swallowed. This product may cause nausea, vomiting, diarrhea and restlessness. DO NOT INDUCE VOMITING. Aspiration into the lungs can cause severe chemical pneumonitis or pulmonary edema/hemorrhage, which can be fatal. May cause gastrointestinal disturbances. Symptoms may include irritation, depression, vomiting and diarrhea. May cause harmful central nervous system effects, similar to those listed under "inhalation".

**Notes to physician** : In case of ingestion, gastric lavage with activated charcoal can be used promptly to prevent absorption. Consideration should be given to the use of an intratracheal tube, to prevent aspiration. Irregular heart beat may occur, use of adrenalin is not advisable. Individuals intoxicated by the product should be hospitalized immediately, with acute and continuing attention to neurological and cardiopulmonary function. Positive pressure ventilation may be necessary. After the initial episode, individuals should be monitored for changes in blood variables and the delayed appearance of pulmonary edema and chemical pneumonitis. Such patients should be monitored for several days or weeks for delayed effects, including bone marrow toxicity, hepatic and renal impairment. Individuals with chronic pulmonary disease will be more seriously impaired, and recovery from inhalation exposure may be complicated. In case of skin injection, prompt debridement of the wound is necessary to minimize necrosis and tissue loss.

## Section 5. Fire Fighting Measures

**Flammability of the product** : Flammable.

**Auto-ignition temperature** : 260°C (500°F)

**Flash point** : Closed cup: -40.15 to 65.15°C (-40.3 to 149.3°F).

**Flammable limits** : Lower: 0.4% Upper: 15%

**Products of combustion** : These products are carbon oxides (CO, CO<sub>2</sub>), nitrogen and sulfur oxides (NO<sub>x</sub>, SO<sub>x</sub>), particulate matter, VOC's.

**Fire hazards in the presence of various substances** : Extremely flammable in the presence of open flames, sparks and static discharge.

**Explosion hazards in the presence of various substances** : Explosive in the presence of open flames, sparks and static discharge.

**Fire-fighting media and instructions** : Flammable Liquid. Use dry chemical, foam or carbon dioxide to extinguish the fire. Consult foam manufacturer for appropriate media, application rates and water/foam ratio. Water can be used to cool fire-exposed containers, structures and to protect personnel. If a leak or spill has not ignited, ventilate area and use water spray to disperse gas or vapor and to protect personnel attempting to stop a leak. Use water to flush spills away from sources of ignition. Do not flush down public sewers.

Continued on next page

Collect contaminated fire-fighting water separately. It must not enter the sewage system. Dike area of fire to prevent runoff. Decontaminate emergency personnel and equipment with soap and water.

Highly flammable liquid and vapor. Vapor may cause flash fire. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

**Special protective equipment for fire-fighters**

: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

**Special remarks on fire hazards**

: Dangerous when exposed to heat or flame. Vapors form flammable or explosive mixtures with air at room temperature. Vapor or gas may spread to distant ignition sources (pilot lights, welding equipment, electrical equipment, etc.) and flash back. Vapors may accumulate in low areas. Vapors may concentrate in confined areas. Flowing product can be ignited by self generated static electricity. Use adequate bonding and grounding to prevent static buildup. Runoff to sewer may cause fire or explosion hazard. Containers may explode in heat of fire. Irritating or toxic substances may be emitted upon thermal decomposition. For fires involving this material, do not enter any enclosed or confined space without proper protective equipment, which should include NIOSH approved self-contained breathing apparatus with full face mask. Clothing, rags or similar organic material contaminated with this product and stored in a closed space may undergo spontaneous combustion. Transfer to and from commonly bonded and grounded containers.

**Special remarks on explosion hazards**

: No additional remark.

## Section 6. Accidental Release Measures

**Personal precautions**

: Immediately contact emergency personnel. Eliminate all ignition sources. Keep unnecessary personnel away. Use suitable protective equipment (section 8). Do not touch or walk through spilled material. Tanks, vessels or other confined spaces which have contained product should be freed of vapors before entering. The container should be checked to ensure a safe atmosphere before entry. Empty containers may contain toxic, flammable/combustible or explosive residues or vapors. Do not cut, grind, drill, weld or reuse empty containers that contained this product. Do not transfer this product to another container unless the container receiving the product is labeled with proper DOT shipping name, hazard class and other information that describes the product and its hazards.

**Environmental precautions**

: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Gasoline may contain oxygenated blend products (Ethanol, MTBE, etc.) that are soluble in water and therefore precautions should be taken to protect surface and groundwater sources from contamination. If facility or operation has an "oil or hazardous substance contingency plan", activate its procedures. Stay upwind and away from spill. Wear appropriate protective equipment including respiratory protection as conditions warrant. Do not enter or stay in area unless monitoring indicates that it is safe to do so. Isolate hazard area and restrict entry to emergency crew. Extremely flammable. Review Fire Fighting Measures section before proceeding with clean up. Keep all sources of ignition (flames, smoking, flares, etc.) and hot surfaces away from release. Contain spill in smallest possible area. Recover as much product as possible (e.g., by vacuuming). Stop leak if it can be done without risk. Use water spray to disperse vapors. Spilled material may be absorbed by an appropriate absorbent, and then handled in accordance with environmental regulations. Prevent spilled material from entering sewers, storm drains, other unauthorized treatment or drainage systems and natural waterways. Contact fire authorities and appropriate federal, state and local agencies. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, contact the National Response Center at 800-424- 8802. For highway or railway spills, contact Chemtrec at 800-424-9300.

**Methods for cleaning up** : If emergency personnel are unavailable, contain spilled material. For small spills, add absorbent (soil may be used in the absence of other suitable materials) and use a non-sparking or explosion-proof means to transfer material to a sealable, appropriate container for disposal. For large spills, dike spilled material or otherwise contain it to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal.

## Section 7. Handling and Storage

**Handling** : Do not ingest. Avoid prolonged contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Keep away from heat, sparks and flame. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Wash thoroughly after handling. Use only in well ventilated locations. Keep away from heat, spark and flames. In case of fire, use water spray, foam, dry chemical or carbon dioxide as described in the Fire Fighting Measures section of the MSDS. Do not pressurize, cut, weld, braze, solder, drill on or near this container. "Empty" container contains residue (liquid and/or vapor) and may explode in heat of a fire.  
Use good personal hygiene practices. After handling this product, wash hands before eating, drinking, or using toilet facilities.  
Keep out of reach of children. Failure to use caution may cause serious injury or illness. Never siphon by mouth. For use as a motor fuel only. Do not use as a cleaning solvent or for other non-motor fuel uses. To prevent ingestion and exposure - Do not siphon by mouth to transfer product between containers.

**Storage** : Store in tightly closed containers in cool, dry, isolated and well ventilated area away from heat, sources of ignition and incompatible materials. Use non-sparking tools and explosion proof equipment. Ground lines, containers, and other equipment used during product transfer to reduce the possibility of a static induced spark. Do not "switch load" because of possible accumulation of a static charge resulting in a source of ignition. Use good personal hygiene practices.

## Section 8. Exposure controls, personal protection

**Engineering controls** : Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are close to the workstation location.

**Personal protection**

**Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. Keep away from eyes. Eye contact can be avoided by wearing safety glasses or chemical splash goggles.

**Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Keep away from skin. Skin contact can be minimized by wearing protective gloves such as neoprene, nitrile-butadiene rubber, etc. and, where necessary, impervious clothing and boots. Leather goods contaminated with this product should be discarded. A source of clean water should be available in the work area for flushing eyes and skin. Flame Retardant Clothing is recommended.

**Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If workplace exposure limits for product or components are exceeded, NIOSH approved equipment should be worn. Proper respirator selection should be determined by adequately trained personnel, based on the contaminants, the degree of potential exposure and published respiratory protection factors. This equipment should be available for nonroutine and emergency use.

**Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

**Personal protective equipment (Pictograms)** : Consult your Supervisor or S.O.P. for special handling directions.



**Personal protection in case of a large spill** : Splash goggles. Full suit. Vapor respirator. Boots. Gloves. Self-contained breathing apparatus (SCBA) should be used to avoid inhalation of the product. Suggested protective clothing might not be adequate. Consult a specialist before handling this product.

### Component

Petroleum Crude Oil

### Exposure limits

**NIOSH REL (United States, 12/2001).**

CEIL: 1800 mg/m<sup>3</sup> 15 minute/minutes. Form: All forms

TWA: 350 mg/m<sup>3</sup> 10 hour/hours. Form: All forms

n-Hexane

**OSHA PEL (United States, 6/1993).**

TWA: 500 ppm 8 hour/hours. Form: All forms

**ACGIH TLV (United States, 9/2004). Skin**

TWA: 50 ppm 8 hour/hours. Form: All forms

**NIOSH REL (United States, 6/2001).**

TWA: 50 ppm 10 hour/hours. Form: All forms

n-Butane

**ACGIH TLV (United States, 1/2004). Notes: ACGIH 2004 Adoption**

TWA: 1000 ppm 8 hour/hours. Form: All forms

**NIOSH REL (United States, 6/2001).**

TWA: 800 ppm 10 hour/hours. Form: All forms

Pentane

**ACGIH TLV (United States, 9/2004). Notes: 1998 Adoption.**

TWA: 600 ppm 8 hour/hours. Form: All forms

**NIOSH REL (United States, 6/2001).**

CEIL: 610 ppm 15 minute/minutes. Form: All forms

TWA: 120 ppm 10 hour/hours. Form: All forms

**OSHA PEL (United States, 6/1993).**

TWA: 1000 ppm 8 hour/hours. Form: All forms

n-Heptane

**ACGIH TLV (United States, 9/2004).**

STEL: 500 ppm 15 minute/minutes. Form: All forms

TWA: 400 ppm 8 hour/hours. Form: All forms

**NIOSH REL (United States, 6/2001).**

TWA: 350 mg/m<sup>3</sup> 10 hour/hours. Form: All forms

**OSHA PEL (United States, 6/1993).**

TWA: 500 ppm 8 hour/hours. Form: All forms

Hexane (Other Isomers)

**ACGIH TLV (United States, 9/2004).**

STEL: 1000 ppm 15 minute/minutes. Form: All forms

TWA: 500 ppm 8 hour/hours. Form: All forms

**NIOSH REL (United States, 6/2001).**

CEIL: 510 ppm 15 minute/minutes. Form: All forms

Octane (All Isomers)

**NIOSH REL (United States, 6/2001).**

CEIL: 385 ppm 15 minute/minutes. Form: All forms

TWA: 75 ppm 10 hour/hours. Form: All forms

**OSHA PEL (United States, 6/1993).**

TWA: 500 ppm 8 hour/hours. Form: All forms

**ACGIH TLV (United States, 3/2004). Notes: 1999 Adoption.**

TWA: 300 ppm 8 hour/hours. Form: All forms

Benzene

**NIOSH REL (United States, 6/2001). Notes: See Appendix A - NIOSH Potential Occupational Carcinogen**

STEL: 1 ppm 15 minute/minutes. Form: All forms

TWA: 0.1 ppm 10 hour/hours. Form: All forms

	<p><b>ACGIH TLV (United States, 1/2005). Skin</b>            STEL: 2.5 ppm 15 minute/minutes. Form: All forms            TWA: 0.5 ppm 8 hour/hours. Form: All forms  <b>OSHA PEL (United States, 6/1993).</b>            STEL: 5 ppm 15 minute/minutes. Form: All forms            TWA: 1 ppm 8 hour/hours. Form: All forms</p>
Cyclohexane	<p><b>ACGIH TLV (United States, 1/2004).</b>            TWA: 100 ppm 8 hour/hours. Form: All forms  <b>NIOSH REL (United States, 6/2001).</b>            TWA: 300 ppm 10 hour/hours. Form: All forms  <b>OSHA PEL (United States, 6/1993).</b>            TWA: 300 ppm 8 hour/hours. Form: All forms</p>
Methylcyclohexane	<p><b>ACGIH TLV (United States, 1/2005).</b>            TWA: 400 ppm 8 hour/hours. Form: All forms  <b>NIOSH REL (United States, 12/2001).</b>            TWA: 400 ppm 10 hour/hours. Form: All forms  <b>OSHA PEL (United States, 8/1997).</b>            TWA: 500 ppm 8 hour/hours. Form: All forms</p>
n-Nonane	<p><b>NIOSH REL (United States, 6/2001).</b>            TWA: 200 ppm 10 hour/hours. Form: All forms  <b>ACGIH TLV (United States, 9/2004).</b>            TWA: 200 ppm 8 hour/hours. Form: All forms</p>
Propane	<p><b>ACGIH TLV (United States, 1/2004). Notes: ACGIH 2004 Adoption</b>            TWA: 1000 ppm 8 hour/hours. Form: All forms  <b>NIOSH REL (United States, 6/2001).</b>            TWA: 1000 ppm 10 hour/hours. Form: All forms</p>
Cyclopentane	<p><b>ACGIH TLV (United States, 1/2005).</b>            TWA: 600 ppm 8 hour/hours. Form: All forms  <b>NIOSH REL (United States, 12/2001).</b>            TWA: 600 ppm 10 hour/hours. Form: All forms</p>
Ethylbenzene	<p><b>ACGIH TLV (United States, 1/2004).</b>            STEL: 125 ppm 15 minute/minutes. Form: All forms            TWA: 100 ppm 8 hour/hours. Form: All forms  <b>NIOSH REL (United States, 6/2001).</b>            STEL: 125 ppm 15 minute/minutes. Form: All forms            TWA: 100 ppm 10 hour/hours. Form: All forms  <b>OSHA PEL (United States, 6/1993).</b>            TWA: 100 ppm 8 hour/hours. Form: All forms</p>
Xylene (o,m,p isomers)	<p><b>ACGIH TLV (United States, 5/2004).</b>            STEL: 150 ppm 15 minute/minutes. Form: All forms            TWA: 100 ppm 8 hour/hours. Form: All forms  <b>OSHA PEL (United States, 6/1993).</b>            TWA: 100 ppm 8 hour/hours. Form: All forms</p>
Hydrogen Sulfide	<p><b>ACGIH TLV (United States, 9/2004).</b>            TWA: 10 ppm 8 hour/hours. Form: All forms            STEL: 15 ppm 15 minute/minutes. Form: All forms  <b>NIOSH REL (United States, 12/2001).</b>            CEIL: 10 ppm 10 minute/minutes. Form: All forms  <b>OSHA PEL Z2 (United States, 8/1997).</b>            CEIL: 20 ppm Form: All forms            AMP: 50 ppm 10 minute/minutes. Form: All forms</p>
Toluene	<p><b>ACGIH TLV (United States, 5/2004). Skin Notes: 1996 Adoption Refers to Appendix A -- Carcinogens.</b>            TWA: 50 ppm 8 hour/hours. Form: All forms  <b>NIOSH REL (United States, 6/2001).</b>            STEL: 150 ppm 15 minute/minutes. Form: All forms            TWA: 100 ppm 10 hour/hours. Form: All forms  <b>OSHA PEL Z2 (United States, 6/2002).</b>            AMP: 500 ppm 10 minute/minutes. Form: All forms</p>

CEIL: 300 ppm Form: All forms

Consult local authorities for acceptable exposure limits. TWA: 200 ppm 8 hour/hours. Form: All forms

## Section 9. Physical and Chemical Properties

Physical state	: Liquid. (A THICK, FLAMMABLE, DARK YELLOW TO BROWN OR GREEN-BLACK LIQUID)
Color	: BLACK, BROWN, GREEN, YELLOW (Dark.)
Odor	: Petroleum odor.
Boiling point	: 30 to 537.8°C (86 to 1000°F)
Melting/freezing point	: -72.78°C (-99°F)
Specific gravity	: 0.63 to 1.1 (Water = 1) (@ 60 °F)
Vapor pressure	: 0 to 96.5 kPa (0 to 724 mm Hg) (at 20°C)
Vapor density	: The highest known value is 4.4 (Air = 1) (n-Nonane). Weighted average: 3.23 (Air = 1)
Volatility	: Essentially 100%
Evaporation rate	: 10 to 11 compared with Butyl acetate.
Solubility	: Very slightly soluble in cold water, hot water.

## Section 10. Stability and reactivity data

Stability and reactivity	: The product is stable.
Incompatibility with various substances	: Reactive with oxidizing agents, reducing agents, acids, alkalis.
Hazardous decomposition products	: These products are carbon oxides (CO, CO <sub>2</sub> ), nitrogen and sulfur oxides (NO <sub>x</sub> , SO <sub>x</sub> ), particulate matter, VOC's.
Hazardous polymerization	: Will not occur.

## Section 11. Toxicological Information

### Toxicity data

**CRUDE OIL** - Lifetime skin painting studies in animals with crude oil fractions have produced weak to moderate carcinogenic activity following prolonged and repeated exposure. Washing the animals' skin with soap and water between applications greatly reduces tumor formation. Repeated dermal application of two different crude oils in rats produced systemic toxicity in blood, liver, thymus and bone marrow. Repeated dermal application to pregnant rats produced maternal toxicity and fetal developmental toxicity.

**BENZENE** is considered to be a carcinogen to humans, and may cause adverse health effects following exposure via inhalation, ingestion or dermal or eye contact. Acute inhalation of benzene by rats, mice or rabbits caused narcosis, spontaneous heart contractions (ventricular fibrillation) and death due to respiratory paralysis. Subchronic inhalation of benzene by rats produced decreased white blood cell counts, decreased bone marrow cell activity, increased red blood cell activity and cataracts. In rats, chronic inhalation or oral administration of benzene produced cancers of the liver, mouth and Zymbal gland. Acute inhalation exposure of benzene in humans has caused nerve inflammation (polyneuritis), central nervous system depression and cardiac sensitization. Chronic exposure to benzene has produced anorexia and irreversible injury to the blood forming organs. Effects include aplastic anemia and leukemia. Animal studies have demonstrated testicular effects, alterations in reproductive cycles, chromosomal aberrations, and embryo/fetotoxicity. No birth defects have been shown to occur in pregnant laboratory animals exposed to doses not toxic to the mother.

**n-HEXANE** can affect the body if it is inhaled, comes in contact with the eyes or skin, or is swallowed. Hexane vapor is a narcotic and a mild upper respiratory irritant. Polyneuropathy (peripheral nerve damage) has been reported to occur in workers exposed to hexane vapors, characterized by progressive weakness and numbness in the extremities, loss of deep tendon reflexes and reduction of motor nerve conduction velocity. Recovery ranges from no recovery to complete recovery depending upon the duration of exposure and severity of nerve damage. Concentrations of 30,000 ppm produced narcosis in mice within 30 to 60 minutes, convulsions and death occurred at 35,000 to 40,000 ppm, and at 64,000 ppm respiratory arrest was produced in 2.5 to 4.5 minutes from the start of exposure. Concentrations up to 8000 ppm produced no anesthesia. In human subjects, 2000 ppm for 10 minutes produced no effects, but 5000 ppm resulted in dizziness and a sensation of giddiness. Other investigators reported slight nausea, headache and irritation of the eyes and throat at 1400 to 1500 ppm. In industrial practice, mild narcotic symptoms such as dizziness have been observed when concentrations exceeded 1000 ppm, but not below 500 ppm.

**HEXANE ISOMERS** are three times as toxic to mice as is pentane. Narcosis was produced in mice within 30-60 minutes at concentrations of 30,000 ppm. In man, concentrations for 10 minutes at 2000 ppm produced no effects, but 5000 ppm caused dizziness and a sense of giddiness. Concentrations of 1400-1500 ppm produced slight nausea, headache, eye, and throat irritation.

**HEPTANE** can affect the body if it is inhaled, comes in contact with the eyes or skin, or is swallowed. Heptane vapor is a narcotic. Concentrations of 10,000 to 15,000 ppm produced narcosis in mice within 30 to 60 minutes, while 15,000 to 20,000 ppm caused convulsions and death. At 48,000 ppm, respiratory arrest was produced in mice in 3 to 4 minutes from the start of exposure. Human subjects exposed to 1,000 ppm for 6 minutes, or to 2,000

Continued on next page

ppm for 4 minutes, reported slight vertigo. At 5,000 ppm for 4 minutes, there was marked vertigo, inability to walk a straight line, hilarity, and incoordination, but no complaints of eye and upper respiratory tract or mucous membrane irritation. A 15-minute exposure at 5,000 ppm produced in some subjects a state of stupor lasting for 30 minutes after exposure. These subjects also reported loss of appetite, slight nausea, and a taste resembling gasoline for several hours after exposure. Although chronic nervous system effects have not been attributed to heptane, polyneuritis has been reported following prolonged exposure to a petroleum fraction with boiling range between 70C and 100C, and this fraction would normally contain various isomers of heptane as major ingredients.

**PENTANE** can affect the body if it is inhaled, comes in contact with the eyes or skin, or is swallowed. The chief effects of inhalation are narcosis and irritation of the respiratory passages. Exposures of 90,000 to 120,000 ppm resulted in narcosis in animals in 5 to 6 minutes, 130,000 ppm was fatal with respiratory arrest occurring within 5 minutes of exposure. Pentane injected subcutaneously in rats produced temporary impairment of liver function and moderate neutropenia. While other aliphatic hydrocarbons produce drowsiness and mild irritation of the eyes and nose in human subjects, no symptoms resulted from exposure to pentane vapor for 10 minutes at 5000 ppm. Chronic exposure to high concentrations may lead to polyneuropathy (peripheral nerve damage), characterized by progressive weakness and numbness in the extremities, loss of deep tendon reflexes and reduction of motor nerve conduction velocity.

**METHYLCYCLOHEXANE** may cause light-headedness and drowsiness. It may also cause a slight irritation of the eyes, nose, and throat. At high concentrations, it may cause unconsciousness and death. Prolonged exposure to the liquid may cause skin irritation. Vapors produce a mild narcotic effect. Concentrations of 10,000 to 12,500 ppm were fatal to mice. Rabbits exposed to 3300 ppm for 300 hours showed mild evidence of liver and kidney injury, while 1200 ppm was innocuous for rabbits, and prolonged exposure at 370 ppm was harmless to monkeys. No toxic effects from industrial exposure have been reported. Prolonged or repeated skin contact may produce drying and irritation due to defatting action.

**CYCLOHEXANE** can affect the body if it is inhaled, swallowed, or comes in contact with the eyes or skin. It is primarily a local irritant and central nervous system depressant. The depressant effect is from exposure to concentrations above 12,000 ppm, while prolonged or repeated exposure to concentrations above 300 ppm produces a mild irritation of the eyes and upper respiratory tract.

**CYCLOPENTANE** is a central nervous system depressant. Symptoms involving a high level acute exposure are excitement, loss of equilibrium, stupor, coma, and rarely, respiratory failure. Toxicological data is limited, and available documentation is based on the effects of n-pentane demonstrated in animal studies.

**ETHYLBENZENE** can affect the body if it is inhaled, swallowed or comes in contact with the eyes or skin. It is primarily an irritant of skin, and to some degree, of eyes and upper respiratory tract. Systemic absorption causes depression of the central nervous system with narcosis at very high concentrations. On the eyes and nose, the vapor at 5000 ppm causes intolerable irritation, eye irritation and lacrimation are immediate and severe at 2000 ppm, irritation and tearing occur at 1000 ppm although tolerance develops rapidly, and the vapor is a transient irritant on human eyes at 200 ppm. Aspiration of small amounts causes extensive edema and hemorrhage of lung tissue.

A draft report on a study conducted by the National Toxicology program states that lifetime inhalation exposure of rats and mice to concentrations of ethylbenzene (750 ppm) resulted in increases in certain types of cancer, including kidney tumors in rats and lung and liver tumors in mice. These effects were not observed in animals exposed to lower concentrations of ethylbenzene (75 ppm or 250 ppm). The draft report does not address the relevance of these results to humans.

**NONANE** causes a four hour LC50 in rats at concentrations of 3200 ppm, or at about the same level as VM&P Naphtha. This level is markedly lower than the lethal concentrations reported in earlier mice studies involving octane (13,500 ppm) and heptane (16,000 ppm), supporting the lower limit for nonane.

**OCTANE** can affect the body if it is inhaled, comes in contact with the skin or eyes or is swallowed. Octane vapor is a mild narcotic and mucous membrane irritant. Concentrations of 6600 to 13,700 ppm produced narcosis in mice in 30 to 90 minutes, the fatal concentration for animals is near 13,500 ppm. No chronic systemic effects have been reported in humans.

**TOLUENE** can affect the body if it is inhaled, comes in contact with the eyes or skin or it is swallowed. It may also enter the body through the skin. Toluene vapors cause narcosis. Controlled exposures of human subjects to 200 ppm for 8 hours produced mild fatigue, weakness, confusion, lacrimation and paresthesia. At 600 ppm for 8 hours, there was euphoria, headache, dizziness, dilated pupils and nausea. At 800 ppm for 8 hours, symptoms were more pronounced, and after effects included nervousness, muscular fatigue and insomnia persisting for several days. In workers exposed for many years to concentrations in the range of 80 to 300 ppm, there was no clinical or laboratory evidence of altered liver function. Toluene exposure does not result in the same chronic injury to bone marrow caused by benzene. Liquid splashed in the eyes of workers has caused transient corneal damage and conjunctival irritation, complete recovery occurred within 48 hours. Animal studies have shown that inhalation of high levels of toluene produced cardiac sensitization. Such sensitization may cause fatal changes in heart rhythms. This later effect was shown to be enhanced by hypoxia or the injection of adrenalin-like agents. Workers exposed at less than 200 ppm have complained of headache, lassitude and nausea, but physical findings were essentially negative. At concentrations between 200 and 500 ppm, impairment of coordination, momentary loss of memory and anorexia were present. Between 500 and 1500 ppm, palpitation, extreme weakness, pronounced loss of coordination and impairment of reaction time were noted. The red cell count fell in many instances and there were cases of aplastic anemia in which recovery followed intensive hospital treatment (although some of the effects may have been due to benzene impurity). Toluene has been reported to decrease immunological responses and cause recordable hearing loss in test animals. Damages genetic material in mammalian test systems. May cause adverse reproductive effects based on animal testing.

**XYLENE** can affect the body if it is inhaled, comes in contact with the eyes or skin or it is swallowed. It may also enter the body through the skin. Xylene vapor irritates the eyes, mucous membranes and skin. At high concentrations it causes narcosis. In animals, xylene causes blood changes reflecting mild toxicity to the hematopoietic system. Laboratory animals exposed by various routes to high doses of xylene showed evidence of effects in the liver, kidneys, lungs, spleen, heart and adrenals. Rats exposed to xylene vapor during pregnancy showed embryo/fetotoxic effects. Mice exposed orally to doses producing maternal toxicity also showed embryo or fetotoxic effects. Laboratory rats exposed to high concentrations of toluene experienced recordable hearing loss. In humans, exposure to high concentrations can cause dizziness, excitement, drowsiness, incoordination and a staggering gait. Workers exposed to concentrations above 200 ppm complain of anorexia, nausea, vomiting and abdominal pain. Brief exposures of humans to 200 ppm caused irritation of the eyes, nose and throat. There are reports of reversible corneal vacuolation in workers exposed to xylene, or to xylene plus other volatile solvents.

**HYDROGEN SULFIDE** can affect the body if it is inhaled or if it comes into contact with the eyes, skin, nose or throat. It can also affect the body if it is swallowed. It is colorless and has the odor of rotten eggs. However, its odor cannot be used as an indication of its presence since one of the first effects of H<sub>2</sub>S exposure is the loss of the sense of smell. Inhalation of high concentrations of hydrogen sulfide, 1000 to 2000 ppm, may cause coma after a single

breath and may be rapidly fatal, convulsions can also occur. Hydrogen sulfide gas is a rapidly acting systemic poison which causes respiratory paralysis with consequent asphyxia at high concentrations (500 to 1000 ppm). A case of polyneuritis and encephalopathy from one day's exposure to a concentration insufficient to cause loss of consciousness has been reported. It irritates the eyes and respiratory tract at lower concentrations (50 to 500 ppm). Pulmonary edema and bronchial pneumonia may follow prolonged exposure at concentrations exceeding 250 ppm. Exposure to concentrations of hydrogen sulfide around 50 ppm for one hour may produce rhinitis, pharyngitis, bronchitis, pneumonitis, acute conjunctivitis with pain, lacrimation and photophobia, in severe form this may progress to keratoconjunctivitis and vesiculation of the corneal epithelium. In lower concentrations, hydrogen sulfide may cause headache, fatigue, irritability, insomnia, and gastrointestinal disturbances, as well as central nervous system disturbances, causing excitation and dizziness. Repeated exposure to hydrogen sulfide results in increased susceptibility, so that eye irritation, cough and systemic effects may result from concentrations previously tolerated without any effect.

Skin painting studies in laboratory animals with products containing **POLYCYCLIC AROMATIC COMPOUNDS** have resulted in severe irritation and systemic toxicity, including cancers. Polycyclic aromatic compounds have been shown to cause anemia, disorders of the liver, bone marrow and lymphoid tissues in rats following dermal application.

<u>Ingredient name</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
Petroleum Crude Oil	LD50	>4300 mg/kg	Oral	Rat
	LD50	>4300 mg/kg	Oral	Mouse
Pentane	LD50	400 mg/kg	Oral	Rat
Benzene	LD50	930 mg/kg	Oral	Rat
	LD50	4700 mg/kg	Oral	Mouse
	LD50	5700 mg/kg	Oral	Mammal
	LD50	48 mg/kg	Dermal	Mouse
	LDLo	50 mg/kg	Oral	man
Cyclohexane	LD50	12705 mg/kg	Oral	Rat
	LD50	813 mg/kg	Oral	Mouse
	LDLo	5500 mg/kg	Oral	Rabbit
Methylcyclohexane	LD50	>3200 mg/kg	Oral	Rat
	LD50	2250 mg/kg	Oral	Mouse
Cyclopentane	LD50	11400 mg/kg	Oral	Rat
	LD50	12800 mg/kg	Oral	Mouse
Ethylbenzene	LD50	3500 mg/kg	Oral	Rat
Xylene (o,m,p isomers)	LD50	4300 mg/kg	Oral	Rat
	LD50	2119 mg/kg	Oral	Mouse
	LD50	4300 mg/kg	Oral	Mammal
	LD50	>1700 mg/kg	Dermal	Rabbit
	LDLo	50 mg/kg	Oral	human
Hydrogen Sulfide	LC50	444 ppm (1 hour/hours)	Inhalation	Rat
	LC50	673 ppm (1 hour/hours)	Inhalation	Mouse
Sulfur	LDLo	175 mg/kg	Oral	Rabbit
Toluene	LD50	636 mg/kg	Oral	Rat
	LDLo	50 mg/kg	Oral	human

**Chronic effects on humans** : **CARCINOGENIC EFFECTS:** Classified 2 (Suspected for humans.) by European Union [Petroleum Crude Oil]. Classified A1 (Confirmed for humans.) by ACGIH, 1 (Proven for humans.) by IARC, 1 (Known to be human carcinogens.) by NTP, + (Proven.) by OSHA, + (Proven.) by NIOSH, 1 (Proven for humans.) by European Union [Benzene]. Classified A3 (Proven for animals.) by ACGIH, 2B (Possible for humans.) by IARC [Ethylbenzene]. Classified A4 (Not classifiable for humans or animals.) by ACGIH, 3 (Not classifiable for humans or animals.) by IARC [Xylene (o,m,p isomers)]. Classified A4 (Not classifiable for humans or animals.) by ACGIH, 3 (Not classifiable for humans.) by IARC [Toluene].  
Contains material which causes damage to the following organs: blood, kidneys, lungs, the nervous system, liver, peripheral nervous system, gastrointestinal tract, upper respiratory tract, skin, bone marrow, central nervous system (CNS), eye, lens or cornea.

**Other toxic effects on humans** : Extremely hazardous in case of ingestion.  
Very hazardous in case of eye contact (irritant), .  
Hazardous in case of skin contact (irritant).  
Slightly hazardous in case of inhalation (lung irritant).

**Special remarks on toxicity to animals** : No additional remark.

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Special remarks on chronic effects on humans : No additional remark.

Special remarks on other toxic effects on humans : No additional remark.

#### Specific effects

Carcinogenic effects : Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure.

Target organs : Contains material which causes damage to the following organs: blood, kidneys, lungs, the nervous system, liver, peripheral nervous system, gastrointestinal tract, upper respiratory tract, skin, bone marrow, central nervous system (CNS), eye, lens or cornea.

## Section 12. Ecological Information

### Ecotoxicity data

<u>Ingredient name</u>	<u>Species</u>	<u>Period</u>	<u>Result</u>
n-Hexane	Pimephales promelas (LC50)	96 hour/hours	2.5 mg/l
	Daphnia magna (EC50)	48 hour/hours	9.23 mg/l
Benzene	Daphnia magna (EC50)	48 hour/hours	10 mg/l
	Daphnia magna (EC50)	48 hour/hours	11.73 mg/l
Cyclohexane	Oncorhynchus mykiss (LC50)	96 hour/hours	5.3 mg/l
	Oncorhynchus mykiss (LC50)	96 hour/hours	5.9 mg/l
	Oncorhynchus mykiss (LC50)	96 hour/hours	9.2 mg/l
	Pimephales promelas (LC50)	96 hour/hours	4.53 mg/l
	Pimephales promelas (LC50)	96 hour/hours	32.71 mg/l
	Lepomis macrochirus (LC50)	96 hour/hours	34.72 mg/l
	Pimephales promelas (LC50)	96 hour/hours	42.33 mg/l
	Poecilia reticulata (LC50)	96 hour/hours	57.68 mg/l
	Pimephales promelas (LC50)	96 hour/hours	93 mg/l
	Ethylbenzene	Daphnia magna (EC50)	48 hour/hours
Daphnia magna (EC50)		48 hour/hours	2.97 mg/l
Selenastrum capricornutum (EC50)		48 hour/hours	7.2 mg/l
Xylene (o,m,p isomers)	Oncorhynchus mykiss (LC50)	96 hour/hours	4.2 mg/l
	Pimephales promelas (LC50)	96 hour/hours	9.09 mg/l
	Poecilia reticulata (LC50)	96 hour/hours	9.6 mg/l
	Oncorhynchus mykiss (LC50)	96 hour/hours	3.3 mg/l
	Oncorhynchus mykiss (LC50)	96 hour/hours	8.2 mg/l
	Lepomis macrochirus (LC50)	96 hour/hours	8.6 mg/l
	Lepomis macrochirus (LC50)	96 hour/hours	12 mg/l
	Lepomis macrochirus (LC50)	96 hour/hours	13.3 mg/l
	Pimephales promelas (LC50)	96 hour/hours	13.4 mg/l
	Hydrogen Sulfide	Pimephales promelas (LC50)	96 hour/hours
Oncorhynchus mykiss (LC50)		96 hour/hours	0.007 mg/l
Pimephales promelas (LC50)		96 hour/hours	0.0071 mg/l
Lepomis macrochirus (LC50)		96 hour/hours	0.009 mg/l
Pimephales promelas (LC50)		96 hour/hours	0.0107 mg/l
Oncorhynchus mykiss (LC50)		96 hour/hours	0.012 mg/l
Daphnia magna (EC50)		48 hour/hours	>5000 mg/l
Lepomis macrochirus (LC50)		96 hour/hours	<14 mg/l
Lepomis macrochirus (LC50)		96 hour/hours	>180 mg/l
Oncorhynchus mykiss (LC50)		96 hour/hours	>180 mg/l
Toluene	Daphnia magna (EC50)	48 hour/hours	6 mg/l
	Daphnia magna (EC50)	48 hour/hours	6.56 mg/l
	Oncorhynchus mykiss (EC50)	48 hour/hours	6.78 mg/l
	Oncorhynchus mykiss (LC50)	96 hour/hours	5.8 mg/l
	Oncorhynchus mykiss (LC50)	96 hour/hours	6.78 mg/l

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**Crude Oil**

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Pimephales promelas (LC50) 96 hour/hours 12.6 mg/l

- Products of degradation** : These products are carbon oxides (CO, CO<sub>2</sub>) and water.
- Toxicity of the products of biodegradation** : The products of biodegradation are as toxic as the original product.
- Special remarks on the products of biodegradation** : No additional remark.

### Section 13. Disposal Considerations

- Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Consult your local or regional authorities.

### Section 14. Transport Information

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
DOT Classification	UN1267	PETROLEUM CRUDE OIL	3	I (IBP equal to or less than 95 degrees F) II (IBP greater than 95 degrees F; Flash Point less than 73 degrees F) III (IBP greater than 95 degrees F; Flash Point greater than or equal to 73 degrees F & less than or equal to 141 degrees		<b>Limited quantity</b> Yes.  <b>Packaging instruction</b> <b>Passenger aircraft</b> Quantity limitation: 1 L  <b>Cargo aircraft</b> Quantity limitation: 30 L  <b>Special provisions</b> T11, TP1, TP8
TDG Classification	UN1267	PETROLEUM CRUDE OIL	3	I (IBP equal to or less than 95 degrees F) II (IBP greater than 95 degrees F; Flash Point less than 73 degrees F) III (IBP greater than 95 degrees F; Flash Point greater than or equal to 73 degrees F & less than or equal to 141 degrees		-

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## Section 15. Regulatory Information

### United States

- U.S. Federal regulations** : TSCA 4(a) final test rules: n-Hexane; Hexane (Other Isomers)  
 TSCA 8(a) PAIR: Cyclopentane; n-Heptane; Methylcyclohexane; n-Nonane; Pentane  
 TSCA 8(b) inventory: Petroleum Crude Oil; Benzene; n-Butane; Cyclohexane;  
 Cyclopentane; Ethylbenzene; n-Heptane; n-Hexane; Hexane (Other Isomers); Hydrogen  
 Sulfide; Methylcyclohexane; n-Nonane; Octane (All Isomers); Pentane; Propane; Sulfur ;  
 Toluene; Xylene (o,m,p isomers)  
 SARA 302/304/311/312 extremely hazardous substances: Hydrogen Sulfide  
 SARA 302/304 emergency planning and notification: Hydrogen Sulfide  
 SARA 302/304/311/312 hazardous chemicals: Petroleum Crude Oil; Benzene; n-Butane;  
 Cyclohexane; Cyclopentane; Ethylbenzene; n-Heptane; n-Hexane; Hexane (Other  
 Isomers); Hydrogen Sulfide; Methylcyclohexane; n-Nonane; Octane (All Isomers);  
 Pentane; Propane; Sulfur ; Toluene; Xylene (o,m,p isomers)  
 SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Petroleum  
 Crude Oil: Fire hazard, Immediate (acute) health hazard; Benzene: Fire hazard,  
 Immediate (acute) health hazard, Delayed (chronic) health hazard; n-Butane: Fire  
 hazard, Immediate (acute) health hazard; Cyclohexane: Fire hazard, Immediate (acute)  
 health hazard, Delayed (chronic) health hazard; Cyclopentane: Fire hazard;  
 Ethylbenzene: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health  
 hazard; n-Heptane: Fire hazard; n-Hexane: Fire hazard, Immediate (acute) health  
 hazard, Delayed (chronic) health hazard; Hexane (Other Isomers): Fire hazard,  
 Immediate (acute) health hazard; Hydrogen Sulfide: Fire hazard, Sudden release of  
 pressure, Immediate (acute) health hazard, Delayed (chronic) health hazard;  
 Methylcyclohexane: Fire hazard, Immediate (acute) health hazard; n-Nonane: Fire  
 hazard, Immediate (acute) health hazard; Octane (All Isomers): Fire hazard; Pentane:  
 Fire hazard, Immediate (acute) health hazard; Propane: Fire hazard, Sudden release of  
 pressure; Sulfur : Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health  
 hazard; Toluene: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health  
 hazard; Xylene (o,m,p isomers): Fire hazard, Immediate (acute) health hazard, Delayed  
 (chronic) health hazard  
 Clean Water Act (CWA) 307: Benzene; Ethylbenzene; Toluene  
 Clean Water Act (CWA) 311: Benzene; Cyclohexane; Ethylbenzene; Toluene; Xylene  
 (o,m,p isomers)  
 Clean Air Act (CAA) 112 accidental release prevention: Hydrogen Sulfide; Pentane;  
 Propane  
 Clean Air Act (CAA) 112 regulated flammable substances: Pentane; Propane  
 Clean Air Act (CAA) 112 regulated toxic substances: Hydrogen Sulfide

### SARA 313

	<u>Product name</u>	<u>CAS number</u>	<u>Concentration</u>
<b>Form R - Reporting requirements</b>	: n-Hexane	110-54-3	2 - 8
	Benzene	71-43-2	0.2 - 5
	Cyclohexane	110-82-7	1 - 4
	Ethylbenzene	100-41-4	1 - 3
	Xylene (o,m,p isomers)	1330-20-7	1 - 3
	Hydrogen Sulfide	7783-06-4	0.1 - 3
	Toluene	108-88-3	1 - 2
<b>Supplier notification</b>	: n-Hexane	110-54-3	2 - 8
	Benzene	71-43-2	0.2 - 5
	Cyclohexane	110-82-7	1 - 4
	Ethylbenzene	100-41-4	1 - 3
	Xylene (o,m,p isomers)	1330-20-7	1 - 3
	Hydrogen Sulfide	7783-06-4	0.1 - 3
	Toluene	108-88-3	1 - 2

Continued on next page

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

**State regulations**

- : Connecticut carcinogen reporting list.: Benzene
- Connecticut hazardous material survey.: Benzene; n-Hexane; Toluene; Xylene (o,m,p isomers)
- Illinois toxic substances disclosure to employee act: Benzene; n-Hexane; Toluene; Xylene (o,m,p isomers)
- Rhode Island RTK hazardous substances: Benzene; n-Hexane; Toluene; Xylene (o,m,p isomers)
- Pennsylvania RTK: Petroleum Crude Oil: (generic environmental hazard); Benzene: (special hazard, environmental hazard, generic environmental hazard); n-Butane: (generic environmental hazard); Cyclohexane: (environmental hazard, generic environmental hazard); Cyclopentane: (generic environmental hazard); Ethylbenzene: (environmental hazard, generic environmental hazard); n-Heptane: (generic environmental hazard); n-Hexane: (generic environmental hazard); Hexane (Other Isomers): (generic environmental hazard); Hydrogen Sulfide: (environmental hazard, generic environmental hazard); Methylcyclohexane: (generic environmental hazard); n-Nonane: (generic environmental hazard); Octane (All Isomers): (generic environmental hazard); Pentane: (generic environmental hazard); Propane: (generic environmental hazard); Sulfur : (generic environmental hazard); Toluene: (environmental hazard, generic environmental hazard); Xylene (o,m,p isomers): (environmental hazard, generic environmental hazard)
- Florida: Benzene; n-Hexane; Toluene; Xylene (o,m,p isomers)
- Michigan critical material: Benzene; Toluene; Xylene (o,m,p isomers)
- Massachusetts RTK: Petroleum Crude Oil; Benzene; n-Butane; Cyclohexane; Cyclopentane; Ethylbenzene; n-Heptane; n-Hexane; Hexane (Other Isomers); Hydrogen Sulfide; Methylcyclohexane; n-Nonane; Octane (All Isomers); Pentane; Propane; Sulfur ; Toluene; Xylene (o,m,p isomers)
- New Jersey: Petroleum Crude Oil; Benzene; n-Butane; Cyclohexane; Cyclopentane; Ethylbenzene; n-Heptane; n-Hexane; Hydrogen Sulfide; Methylcyclohexane; n-Nonane; Octane (All Isomers); Pentane; Propane; Sulfur ; Toluene; Xylene (o,m,p isomers)
- WARNING:** This product contains chemical/chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.: Benzene; Ethylbenzene; Toluene
- WARNING:** This product contains chemical/chemicals known to the state of California to cause reproductive harm (female).: No products were found.
- WARNING:** This product contains chemical/chemicals known to the state of California to cause reproductive harm (male).: Benzene
- California prop. 65 (no significant risk level): Benzene: 6.4 µg/day (ingestion), 13 µg/day (inhalation)
- California prop. 65 (Maximum Acceptable Dosage Level): Benzene: 24 µg/day (ingestion), 49 µg/day (inhalation); Toluene: 7000 µg/day (ingestion), 13000 µg/day (inhalation)
- WARNING:** This product contains chemical/chemicals known to the state of California to cause birth defects or other reproductive harm.: Benzene; Toluene
- WARNING:** This product contains chemical/chemicals known to the state of California to cause cancer.: Benzene; Ethylbenzene

## Canada

### WHMIS (Canada)

- : Class B-2: Flammable liquid
- Class D-1A: Material causing immediate and serious toxic effects (Very toxic).
- Class D-2A: Material causing other toxic effects (Very toxic).
- Class D-2B: Material causing other toxic effects (Toxic).
- CEPA DSL: Petroleum Crude Oil; Benzene; n-Butane; Cyclohexane; Cyclopentane; Ethylbenzene; n-Heptane; n-Hexane; Hexane (Other Isomers); Hydrogen Sulfide; Methylcyclohexane; n-Nonane; Octane (All Isomers); Pentane; Propane; Sulfur ; Toluene; Xylene (o,m,p isomers)

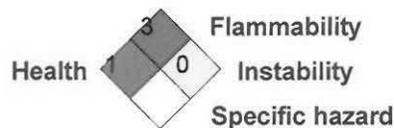
## Section 16. Other Information

**Label requirements** : MAY BE FATAL IF INHALED.  
 CANCER HAZARD.  
 CONTAINS MATERIAL WHICH CAN CAUSE CANCER.  
 HARMFUL IF SWALLOWED.  
 CAUSES RESPIRATORY TRACT IRRITATION.  
 CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS:  
 BLOOD, KIDNEYS, LUNGS, NERVOUS SYSTEM, LIVER, PERIPHERAL NERVOUS  
 SYSTEM, GASTROINTESTINAL TRACT, RESPIRATORY TRACT, SKIN, BONE  
 MARROW, CENTRAL NERVOUS SYSTEM, EYE, LENS OR CORNEA.  
 FLAMMABLE LIQUID AND VAPOR.  
 VAPOR MAY CAUSE FLASH FIRE.  
 MAY BE HARMFUL IF ABSORBED THROUGH SKIN.

**Hazardous Material  
 Information System (U.S.A.)** :

Health	1
Fire hazard	3
Physical Hazard	0
Personal protection	

**National Fire Protection  
 Association (U.S.A.)** :



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## Definitions of Material Safety Data Sheet Terminology

### GOVERNMENT AGENCIES AND PRIVATE ASSOCIATIONS

**ACGIH** - American Conference of Governmental Industrial Hygienists, (private association)  
**DOT** - United States Department of Transportation  
**EPA** - United States Environmental Protection Agency  
**IARC** - International Agency for Research on Cancer, (private association)  
**NFPA** - National Fire Protection Association, (private association)  
**MSHA** - Mine Safety and Health Administration, U.S. Department of Labor  
**NIOSH** - National Institute of Occupational Safety and Health, U.S. Department of Health and Human Services  
**NTP** - National Toxicology Program, (private association)  
**OSHA** - Occupational Safety and Health Administration, U.S. Department of Labor  
**WHMIS** - Workplace Hazardous Material Information System

*Continued on next page*

CSA- Canadian Standards Association

## HAZARD AND EXPOSURE INFORMATION

**Acute Hazard** - An adverse health effect which occurs rapidly as a result of short term exposure.

**CAS #** - American Chemical Society's Chemical Abstract service registry number which identifies the product and/or ingredients.

**Ceiling** - The concentration that should not be exceeded during any part of the working exposure

**Chronic Hazard** - An adverse health effect which generally occurs as a result of long term exposure or short term exposure with delayed health effects and is of long duration

**Fire Hazard** - A material that poses a physical hazard by being flammable, combustible, pyrophoric or an oxidizer as defined by 29 CFR 1910.1200

**Hazard Class** - DOT hazard classification

**Hazardous Ingredients** - Names of ingredients which have been identified as health hazards

**IDLH**- Immediately Dangerous to Life and Health, the airborne concentration below which a person can escape without respiratory protection and exposure up to 30 minutes, and not suffer debilitating or irreversible health effects. Established by NIOSH.

**mg/m<sup>3</sup>** - Milligrams of contaminant per cubic meter of air, a mass to volume ratio

**N/A** - Not available or no relevant information found

**NA** - Not applicable

**PEL** - OSHA permissible exposure limit; an action level of one half this value may be applicable

**ppm** - Part per million (one volume of vapor or gas in one million volumes of air)

**Pressure Hazard** - A material that poses a physical hazard due to the potential of a sudden release of pressure such as explosive or a compressed gas as defined by 29 CFR 1910.1200

**Reactive Hazard** - A material that poses a physical hazard due to the potential to become unstable reactive, water reactive or that is an organic peroxide as defined by 29 CFR 1910.1200.

**STEL** - The ACGIH Short-Term Exposure Limit, a 15-minute Time-Weighted Average exposure which should not be exceeded at any time during a workday, even if the 8-hour TWA is less than the TLV.

**TLV** - ACGIH Threshold Limit Value, represented herein as an 8-hour TWA concentration.

**8-hour TWA** - The time weighted average concentration for a normal 8-hour workday and a 40-hour workweek, to which nearly all workers may be repeatedly exposed, day after day, without adverse effect.

**LD<sub>50</sub>** - Single dose of a substance that, when administered by a defined route in an animal assay, is expected to cause the death of 50% of the defined animal population.

**LC<sub>50</sub>** - The concentration of a substance in air that, when administered by means of inhalation over a specified length of time in an animal assay, is expected to cause the death of 50% of a defined animal population.

## **REGULATORY CROSS REFERENCE**

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### DOT/PHMSA 49 CFR Part 194 Cross Reference

<b>DOT/PHMSA 49 CFR PART 194</b>		
<b>§ 194.105</b>	<b>BRIEF DESCRIPTION</b>	<b>LOCATION IN PLAN</b>
(a)	... determine the worst case discharge ... provide methodology, including calculations, used to arrive at the volume.	App B
(b)	The worst case discharge is the largest volume, in barrels, of the following:	-----
(b)(1)	... maximum release time in hours, plus the maximum shutdown response time in hours, multiplied by the maximum flow rate expressed in barrels per hour, plus the largest line drainage volume after shutdown of the line section(s) ...; or	App B
(b)(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 preventative action taken; or	App B
(b)(3)	If the response zone contains one or more breakout tanks, the capacity of the single largest tank or battery of tanks within a single secondary containment system, adjusted for the capacity or size of the secondary containment system, expressed in barrels.	App B
(b)(4)	Operators may claim prevention credits for breakout tank secondary containment and other specific spill prevention measures as follows:...	App B
<b>§ 194.107</b>	<b>BRIEF DESCRIPTION</b>	<b>LOCATION IN PLAN</b>
(a)	Each response plan must plan for resources for responding, to the maximum extent practicable, to a worst case discharge, and to a substantial threat of such a discharge.	App A
(b)	An operator must certify in the plan ... reviewed NCP and each applicable ACP...	Foreword
(b)(1)	As a minimum to be consistent with the NCP as a facility response plan must:	-----
(b)(1)(i)	Demonstrate an operator's clear understanding of the function of the Federal response structure...	§ 4.0
(b)(1)(ii)	Establish provisions to ensure the protection of safety at the response site; and	§ 4.0 (Command), § 5.0
(b)(1)(iii)	Identify the procedures to obtain any required Federal and State permissions for using alternative response strategies such as in-situ burning and dispersants...	§ 6.7, App. E
(b)(2)	As a minimum, to be consistent with the applicable ACP the plan must:	-----
(b)(2)(i)	Address the removal of a worst case discharge and the mitigation or prevention of a substantial threat of a worst case discharge;	§ 3, App B
(b)(2)(ii)	Identify environmentally and economically sensitive areas;	§ 6.0
(b)(2)(iii)	Describe the responsibilities of the operator and of Federal, State and local agencies in removing a discharge and in mitigating or preventing a substantial threat of a discharge; and	§4.0
(b)(2)(iv)	Establish the procedures for obtaining an expedited decision on use of dispersants or other chemicals.	§ 6.7
(c)	Each response plan must include:	-----
(c)(1)	A core plan consisting of ...	-----
(c)(1)(i)	An information summary as required in § 194.113,	Fig 1.1
(c)(1)(ii)	Immediate notification procedures,	§ 2.0
(c)(1)(iii)	Spill detection and mitigation procedures,	§ 3.0
(c)(1)(iv)	The name, address, and telephone number of the oil spill response organization, if appropriate,	Fig 2.5, App A
(c)(1)(v)	Response activities and response resources,	§ 3.0, App A

<b>DOT/PHMSA 49 CFR PART 194</b>		
<b>§ 194.107</b>	<b>BRIEF DESCRIPTION</b>	<b>LOCATION IN PLAN</b>
(c)(1)(vi)	Names and telephone numbers of Federal, State, and local agencies which the operator expects to have pollution control responsibilities or support,	Fig 2.5
(c)(1)(viii)	Equipment testing,	App D.2
(c)(1)(ix)	Drill program - an operator will satisfy the requirement for a drill program by following the National Preparedness for Response Exercise Program (PREP) guidelines. An operator choosing not to follow PREP guidelines must have a drill program that is equivalent to PREP. The operator must describe the drill program in the response plan and PHMSA will determine if the program is equivalent to PREP.	App D.2
(c)(1)(x)	Plan review and update procedures;	§ 1.4
(c)(2)	An appendix for each response zone that includes the information required in paragraph (c)(1)(i)-(ix) of this section and the worst case discharge calculations that are specific to that response zone. An operator submitting a response plan for a single response zone does not need to have a core plan and a response zone appendix. The operator of a single response zone onshore pipeline shall have a single summary in the plan that contains the required information in § 194.113.7; and.	Annexes
(c)(3)	A description of the operator's response management system including the functional areas of finance, logistics, operations, planning, and command. The plan must demonstrate that the operator's response management system uses common terminology and has a manageable span of control, a clearly defined chain of command, and sufficient trained personnel to fill each position.	§ 4.0
<b>§ 194.111</b>	<b>BRIEF DESCRIPTION</b>	<b>LOCATION IN PLAN</b>
(a)	Each operator shall maintain relevant portions of its response plan at the operator's headquarters and at other locations from which response activities may be conducted, for example, in field offices, supervisor's vehicles, or spill response trailers.	Foreword Distribution List
(b)	Each operator shall provide a copy of its response plan to each qualified individual	Foreword Distribution List
<b>§ 194.113</b>	<b>BRIEF DESCRIPTION</b>	<b>LOCATION IN PLAN</b>
(a)	The information summary for the core plan, required by § 194.107, must include:	----
(a)(1)	The name and address of the operator.	Fig 1.1
(a)(2)	For each response zone which contains one or more line sections that meet the criteria for determining significant and substantial harm as described in § 194.103, a listing and description of the response zones, including county(s) and state(s).	Fig 1.1, Response Zone Annexes
(b)	The information summary for the response zone appendix, required in § 194.107, must include:	----
(b)(1)	The information summary for the core plan.	Fig 1.1
(b)(2)	The names or titles and 24-hour telephone numbers of the qualified individual(s) and at least one alternate qualified individual(s);	Fig 1.1, Fig 2.2
(b)(3)	The description of the response zone, including county(s) and state(s), for those zones in which a worst case discharge could cause substantial harm to the environment.	Fig 1.1, Response Zone Annexes
(b)(4)	A list of line sections for each pipeline contained in the response zone, identified by milepost or survey station number, or other operator designation.	Fig 1.1
(b)(5)	The basis for the operator's determination of significant and substantial harm.	Foreword
(b)(6)	The type of oil and volume of the worst case discharge.	App B

<b>DOT/PHMSA 49 CFR PART 194</b>		
<b>§ 194.115</b>	<b>BRIEF DESCRIPTION</b>	<b>LOCATION IN PLAN</b>
(a)	Each operator shall identify and ensure, by contract or other approved means, the resources necessary to remove, to the maximum extent practicable, a worst case discharge and to mitigate or prevent a substantial threat of a worst case discharge.	App A
(b)	An operator shall identify in the response plan the response resources which are available to respond within the time specified, after discovery of a worst case discharge, or to mitigate the substantial threat of such a discharge.	App A
<b>§ 194.117</b>	<b>BRIEF DESCRIPTION</b>	<b>LOCATION IN PLAN</b>
(a)	Each operator shall conduct training to ensure that:	-----
(a)(1)	All personnel know --	-----
(a)(1)(i)	Their responsibilities under the response plan	
(a)(1)(ii)	The name and address of, and the procedure for contacting, the operator on a 24-hour basis	§ 4.0
(a)(1)(iii)	The name of, and procedures for contacting, the qualified individual on a 24-hour basis	§ 2.0, Fig 2.2
(a)(2)	Reporting personnel know --	-----
(a)(2)(i)	The content of the information summary of the response plan.	Fig 1.1
(a)(2)(ii)	The toll-free telephone number of the National Response Center	Fig 2.5
(a)(2)(iii)	The notification process	§ 2.0, Fig 2.5
(a)(3)	Personnel engaged in response activities know --	-----
(a)(3)(i)	The characteristics and hazards of the oil discharged	Fig 3.2
(a)(3)(ii)	The conditions that are likely to worsen emergencies, including the consequences of facility malfunctions or failures, and the appropriate corrective actions.	§ 3.0
(a)(3)(iii)	The steps necessary to control any accidental discharge of oil and to minimize the potential for fire, explosion, toxicity, or environmental damage	§ 3.0
(a)(3)(iv)	The proper firefighting procedures and use of equipment, fire suits, and breathing apparatus	§ 3.0
(b)	Each operator shall maintain a training record for each individual that has been trained as required by this section. These records must be maintained in the following manner as long as the individual is assigned duties under the response plan	App D.1
(b)(1)	Records for operator personnel must be maintained at the operator's headquarters	App D.1
(b)(2)	Records for personnel engaged in response, other than operator personnel, shall be maintained as determined by the operator.	App D.1
(b)(3)	Nothing in this section relieves an operator from the responsibility to ensure that all response personnel are trained to meet the OSHA standards for emergency response operations in 29 CFR 1910.120 ...	App D.1
<b>§ 194.119</b>	<b>BRIEF DESCRIPTION</b>	<b>LOCATION IN PLAN</b>
(a)	Each owner shall submit two copies...	Distribution
(b)	...PHMSA will notify the operator of any alleged deficiencies...	-----
(c)	The operator...may petition PHMSA for reconsideration within 30 days...	-----
(d)	...PHMSA will approve the Response Plan...	-----
(e)	...The operator may submit a certification to PHMSA...that the operator has obtained, through contract or other approved means, the necessary private personnel and equipment to record, to the maximum extent practicable, to a worst case discharge...	Foreword (Operator's Statement)
(f)	...PHMSA may require an operator to provide a copy of the response plan to the OSC...	-----

<b>DOT/PHMSA 49 CFR PART 194</b>		
<b>§ 194.121</b>	<b>BRIEF DESCRIPTION</b>	<b>LOCATION IN PLAN</b>
(a)	Each operator shall update its response plan to address new or different operating conditions or information. In addition, each operator shall review its response plan in full at least every 5 years from the date of the last submission or the last approval as follows:	§ 1.5
(a)(1)	For substantial harm plans, an operator shall resubmit every 5 years from the last approval date.	§ 1.5
(a)(2)	For significant and substantial harm plans, an operator shall resubmit every 5 years from the last approval date.	§ 1.5
(b)	If a new or different operating condition or information would substantially affect the implementation of a response plan, the operator must immediately modify its response plan to address such a change...	§ 1.4
(b)(1)	An extension of the existing pipeline or construction of a new pipeline in a response zone not covered by the previously approved plan;	§ 1.4
(b)(2)	Relocation or replacement of the pipeline in a way that substantially affects the information included in the response plan, such as a change to the worst case discharge volume;	§ 1.4
(b)(3)	The type of oil transported, if the type affects the required response resources, such as a change from crude oil to gasoline;	§ 1.4
(b)(4)	The name of the spill removal organization;	§ 1.4
(b)(5)	Emergency response procedures;	§ 1.4
(b)(6)	The qualified individual;	§ 1.4
(b)(7)	A change in the NCP or an ACP that has significant impact on the equipment appropriate for response activities; and	§ 1.4
(b)(8)	Any other information relating to circumstances that may affect full implementation of the plan.	§ 1.4
(c)	If PHMSA determines that a change to a response plan does not meet the requirements of this part, PHMSA will notify the operator of any alleged deficiencies, and provide operator...opportunity to correct deficiencies.	-----
(d)	An operator who disagrees with a determination that proposed revisions to a plan are deficient may petition PHMSA for reconsideration, within 30 days from the date of receipt of PHMSA's notice...	-----

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## **GLOSSARY OF TERMS AND ACRONYMS**

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Glossary

Acronyms

## GLOSSARY OF TERMS

This glossary contains definitions of terms that will be used frequently during the course of response operations.

**Activate:** The process of mobilizing personnel and/or equipment within the response organization to engage in response operations.

**Activator:** An individual in the response organization whose responsibilities include notifying other individuals or groups within the organization to mobilize personnel and/or equipment.

**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 within the Captain of the Port (COTP) zone in which the systems or equipment are intended to function.

**Agency Representative:** Individual assigned to an incident from an agency who has been delegated full authority to make decisions on all matters affecting that agency's participation in response operations.

**Area Committee:** As defined by Sections 311(a)(18) and (j)(4) of CWA, as amended by OPA, means the entity appointed by the President consisting of members from Federal, State, and local agencies with responsibilities that include preparing an Area Contingency Plan for the area designated by the President. The Area Committee may include ex-officio (i.e., non-voting) members (e.g., industry and local interest groups).

**Area Contingency Plan:** As defined by Sections 311(a)(19) and (j)(4) of CWA, as amended by OPA, means the plan prepared by an Area Committee, that in conjunction with the NCP, shall address the removal of a discharge including a worst-case discharge and the mitigation or prevention of a substantial threat of such a discharge from a vessel, offshore facility, or onshore facility operating in or near an area designated by the President.

**Average Most Probable Discharge:** A discharge of the lesser of 50 barrels or 1% of the volume of the worst case discharge.

**Barrel (bbl):** Measure of space occupied by 42 U.S. gallons at 60 degrees Fahrenheit.

**Bioremediation Agents:** Means microbiological cultures, enzyme additives, or nutrient additives that are deliberately introduced into an oil discharge and that will significantly increase the rate of biodegradation to mitigate the effects of the discharge.

**Boom:** A piece of equipment or a strategy used to either contain free floating oil to a confined area or protect an uncontaminated area from intrusion by oil.

**Booming Strategies:** Strategic techniques which identify the location and quantity of boom required to protect certain areas. These techniques are generated by identifying a potential spill source and assuming certain conditions which would affect spill movement on water.

**Bulk:** Material that is stored or transported in a loose, unpackaged liquid, powder, or granular form capable of being conveyed by a pipe, bucket, chute, or belt system.

**Chemical Agents:** Means those elements, compounds, or mixtures that coagulate, disperse, dissolve, emulsify, foam, neutralize, precipitate, reduce, solubilize, oxidize, concentrate, congeal, entrap, fix, make the pollutant mass more rigid or viscous, or otherwise facilitate the mitigation of deleterious effects or the removal of the oil pollutant from the water. Chemical agents include biological additives, dispersants, sinking agents, miscellaneous oil spill control agents, and burning agents, but do not include solvents.

**Clean-up Contractor:** Persons contracted to undertake a response action to clean up a spill.

**Cleanup:** For the purposes of this document, cleanup refers to the removal and/or treatment of oil, hazardous substances, and/or the waste or contaminated materials generated by the incident. Cleanup includes restoration of the site and its natural resources.

**Coastal Waters:** For the purpose of classifying the size of discharges, means the waters of the coastal zone except for the Great Lakes and specified ports and harbors on inland rivers.

**Coastal Zone:** As defined for the purpose of the NCP, means all United States waters subject to the tide, United States waters of the Great Lakes, specified ports and harbors on inland rivers, waters of the contiguous zone, other waters of the high seas subject to the NCP, and the land surface or land substrata, ground waters, and ambient air proximal to those waters. The term coastal zone delineates an area of federal responsibility for response action. Precise boundaries are determined by EPA/USCG agreements and identified in federal regional contingency plans.

**Coast Guard District Response Group (DRG):** As provided for by CWA sections 311(a)(20) and (j)(3), means the entity established by the Secretary of the department in which the USCG is operating within each USCG district and shall consist of: the combined USCG personnel and equipment, including firefighting equipment, of each port within the district; additional prepositioned response equipment; and a district response advisory team.

**Command:** The act of controlling manpower and equipment resources by virtue of explicit or delegated authority.

**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.

**Communications Equipment:** Equipment that will be utilized during response operations to maintain communication between the Company employees, contractors, Federal/State/Local agencies. (Radio/ telephone equipment and links)

**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.

**Contingency Plan:** A document used by (1) federal, state, and local agencies to guide their planning and response procedures regarding spills 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:** For OPA 90, a written contract with a response contractor; certification by the facility owner or operator that personnel and equipment are owned, operated, or under the direct control of the facility, and available within the stipulated times; active membership in a local or regional oil spill removal organization; and/or the facility's own equipment.

**Critical Areas to Monitor:** Areas which if impacted by spilled oil may result in threats to public safety or health.

**Cultural Resources:** Current, historic, prehistoric and archaeological resources which include deposits, structures, ruins, sites, buildings, graves, artifacts, fossils, or other objects of antiquity which provide information pertaining to the historical or prehistorical culture of people in the state as well as to 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 their equipment necessary to prevent adverse health effects.

**Discharge:** Any spilling, leaking, pumping, pouring, emitting, emptying, or dumping.

**Dispersants:** Means 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 floatation/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.

**Drinking Water Supply:** As defined by Section 101(7) of CERCLA, means any raw or finished water source that is or may be used by a public water system (as defined in the Safe Drinking Water Act) or as drinking water by one or more individuals.

**EM:** Emergency Management. Serves as the focal point for senior management support of an incident.

**Economically Sensitive Areas:** Those areas of explicit economic importance to the public that due to their proximity to potential spill sources may require special protection and include, but are not limited to: potable and industrial water intakes; locks and dams; and public and private marinas.

**Emergency Management:** The personnel identified to staff the organizational structure identified in a response plan to manage response plan implementation.

**Emergency Service:** Those activities provided by state and local government to prepare for and carry out any activity to prevent, minimize, respond to, or recover from an emergency.

**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 other areas protected or managed for its natural resource value.

**Facility:** Either an onshore facility or an offshore facility and includes, but is not limited to structures, equipment, and appurtenances thereto, used or capable of being used to transfer oil to or from a vessel or a public vessel. A facility includes federal, state, municipal, and private facilities.

**Facility Operator:** The person who owns, operates, or is responsible for the operation of the facility.

**Federal Fund:** The spill liability trust fund established under OPA.

**Federal 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.

**Federal Response Plan (FRP):** Means the agreement signed by 25 federal departments and agencies in April 1987 and developed under the authorities of the Earthquake Hazards Reduction Act of 1977 and the Disaster Relief Act of 1974, as amended by the Stafford Disaster Relief Act of 1988.

**First Responders, First Response Agency:** A public health or safety agency (e.g., 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.

**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 upon or discoloration of the surface of the water or a 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 the EPA pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act; regulated pursuant to Section 311 of the Federal Water Pollution Control Act, or discharged by the SERC.

**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 Resource 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.

**HAZMAT:** Hazardous materials or hazardous substances, exposure to which may result in adverse effects on health or safety of employees.

**HAZWOPER:** Hazardous Waste Operations and Emergency Response Regulations published by OSHA to cover worker safety and health aspects of response operations.

**Heat Stress:** Dangerous physical condition caused by over exposure to extremely high temperatures.

**Hypothermia:** Dangerous physical condition caused by over exposure to freezing temperatures.

**Incident:** Any event that results in a spill or release of oil or hazardous materials. Action by emergency service personnel may be required to prevent or minimize loss of life or damage to property and/or natural resources.

**Incident Briefing Meeting:** Held to develop a comprehensive, accurate, and up-to-date understanding of the incident, nature of status of control operations, and nature and status of response operations; ensure the adequacy of control and response operations; begin to organize control and response operations; and prepare for interactions with outside world.

**Incident Command Post (ICP):** That location at which all primary command functions are executed.

**Incident Command System (ICS):** The combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure, with responsibility for the management of assigned resources at an incident.

**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.

**Indian Tribe:** As defined in OPA section 1001, means any Indian tribe, band, nation, or other organized group or community, but not including any Alaska Native regional or village corporation, which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians and has governmental authority over lands belonging to or controlled by the Tribe.

**Initial Cleanup:** 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 the Company personnel and Federal/ State/Local agencies that a spill has occurred, including all pertinent available information surrounding the incident.

**Initial Response Actions:** The immediate actions that are to be taken by the spill observer after detection of a spill.

**Inland Area:** The area shoreward of the boundary lines defined in 46 CFR part 7, except that in the Gulf of Mexico, it means the area shoreward of the lines of demarcation (COLREG lines) as defined in §80.740 through 80.850 of this chapter. The inland area does not include the Great Lakes.

**Inland Waters:** State waters not considered coastal waters; lakes, rivers, ponds, streams, underground water, et. al.

**Inland Zone:** Means the environment inland of the coastal zone excluding the Great Lakes, and specified ports and harbors on inland rivers. The term inland zone delineates an area of federal responsibility for response action. Precise boundaries are determined by EPA/USCG agreements and identified in federal regional contingency plans.

**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 activities.

**Lead Federal Agency:** The agency which coordinates the federal response to incident on navigable waters. The lead federal agencies are:

- **U.S. Coast Guard:** Oil and chemically hazardous materials incidents on navigable waters.
- **Environmental Protection Agency:** 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.

**Loading:** Transfer from Facility to vehicle.

**Local Emergency Planning Committee (LEPC):** A group of local representatives appointed by the State Emergency Response Commission (SERC) to prepare a comprehensive emergency plan for the local emergency planning district, as required by the Emergency Planning and Community Right-to-know Act (EPCRA).

**Local Response Team:** Designated Facility individuals who will fulfill the roles determined in the oil spill response plan in the event of an oil or hazardous substance spill. They will supervise and control all response and clean-up operations.

**Lower Explosive Limit:** Air measurement utilized 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.

**Medium Discharge:** Means a discharge greater than 2,100 gallons (50 Bbls) and less than or equal to 36,000 gallons (85+ Bbls) or 10% of the capacity of the largest tank, whichever is less and not to exceed the WCD.

**National Contingency Plan:** The plan prepared under the Federal Water Pollution Control Act (33 United State 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.

**National Pollution Funds Center (NPFC):** Means the entity established by the Secretary of Transportation whose function is the administration of the Oil Spill Liability Trust Fund (OSLTF). Among the NPFC's duties are: providing appropriate access to the OSLTF for federal agencies and states for removal actions and for federal trustees to initiate the assessment of natural resource damages; providing appropriate access to the OSLTF for claims; and coordinating cost recovery efforts.

**National Response System (NRS):** Is the mechanism for coordinating response actions by all levels of government in support of the OSC. The NRS is composed of the NRT, RRTs, OSC, Area Committees, and Special Teams and related support entities.

**National Strike Force (NSF):** Is a special team established by the USCG, including the three USCG Strike Teams, the Public Information Assist Team (PIAT), and the National Strike Force Coordination Center. The NSF is available to assist OSCs in their preparedness and response duties.

**National Strike Force Coordination Center (NSFCC):** Authorized as the National Response Unit by CWA section 311(a)(23) and (j)(2), means the entity established by the Secretary of the department in which the USCG is operating at Elizabeth City, North Carolina, with responsibilities that include administration of the USCG Strike Teams, maintenance of response equipment inventories and logistic networks, and conducting a national exercise program.

**Natural Resource:** Land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources belonging to, managed by, held in trust by, appertaining to or otherwise controlled by the state, federal government, private parties, or a municipality.

**Navigable Waters:** As defined by 40 CFR 110.1 means the waters of the United States, including the territorial seas. The term includes:

All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide;

Interstate waters, including interstate wetlands;

All other waters such as interstate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, and wetlands, the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

- that are or could be used by interstate or foreign travelers for recreational or other purposes;
- from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; and
- that are used or could be used for industrial purposes by industries in interstate commerce.

All impoundments of waters otherwise defined as navigable waters under this section;

Tributaries of waters identified in paragraphs (a) through (d) of this definition, including adjacent wetlands; and

Wetlands adjacent to waters identified in paragraphs (a) through (e) of this definition: Provided, that waste treatment systems (other than cooling ponds meeting the criteria of this paragraph) are not waters of the United States.

Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act jurisdiction remains with EPA.

**Nearshore Area:** For OPA 90, 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 defined in §80.740 - 80.850 of title 33 of the CFR.

**Non-persistent or Group I Oil:** A petroleum-based oil that, at the time of shipment, consists of hydrocarbon fractions:

1. At least 50% of which by volume, distill at a temperature of 340 degrees C (645 degrees F);
2. At least 95% of which volume, distill at a temperature of 370 degrees C (700 degrees F).

**Ocean:** The open ocean, offshore area, and nearshore area as defined in this subpart.

**Offshore area:** The area up to 38 nautical miles seaward of the outer boundary of the nearshore area.

**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 Liability Trust Fund:** Means the fund established under section 9509 of the Internal Revenue Code of 1986 (26 U.S.C. 9509).

**Oily Waste:** Product contaminated waste resulting from a spill or spill response operations.

**On-Scene Coordinator (OSC):** Means the federal official predesignated by the EPA or the USCG to coordinate and direct response under subpart D.

**On-site:** Means the areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of a response action.

**Open Ocean:** Means the area from 38 nautical miles seaward of the outer boundary of the nearshore area, to the seaward boundary of the exclusive economic zone.

**Owner or Operator:** Any person, individual, partnership, corporation, association, governmental unit, or public or private organization of any character.

**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:

1. Group II specific gravity less than .85
2. Group III specific gravity between .85 and less than .95
3. Group IV specific gravity .95 and including 1.0
4. Group V specific gravity greater than 1.0

**Plan Holder:** The plan holder is the industry transportation related facility for which a response plan is required by federal regulation to be submitted by a vessel or facility's owner or operator.

**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.

**Post Emergency:** The phase of response operations conducted after the immediate threat of the release has been stabilized, and cleanup operations have begun.

**Primary Response Contractors or Contractors:** An individual, company, or cooperative that has contracted directly with the plan holder to provide equipment and/or personnel for the containment or cleanup of spilled oil.

**Qualified Individual (QI):** That person or entity who has authority to activate a spill cleanup contractors, act as liaison with the "On-Scene Coordinator" and obligate funds required to effectuate response activities.

**Recreation Areas:** Publicly accessible locations where social/sporting events take place.

**Regional Response Team (RRT):** The Federal response organization (consisting of representatives from selected Federal and State agencies) which acts as a regional body responsible for overall planning and preparedness for oil and hazardous materials releases and for providing advice to the OSC in the event of a major or substantial spill.

**Remove or Removal:** As defined by section 311(a)(8) of the CWA, refers to containment and removal of oil or hazardous substances from the water and shorelines or the taking of such other actions as may be necessary to minimize or mitigate damage to the public health or welfare (including, but not limited to, fish, shellfish, wildlife, public and private property, and shorelines and beaches) or to the environment. For the purpose of the NCP, the term also includes monitoring of action to remove discharge.

**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 public health or welfare, or 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 type of product involved in the spill, these guidelines are utilized to determine clean-up methods and equipment.

**Response Plan:** A practical manual used by industry for responding to a spill. Its features include: (1) identifying the notifications 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 data required by regulatory agencies to prevent confusion during a spill incident.

**Response Priorities:** Mechanism used to maximize the effective use of manpower and equipment resources based upon their availability during an operational period.

**Response Resources:** All personnel and major items of equipment available, or potentially available, for assignment to incident tasks on which status is maintained.

**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 project 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 discharge of oil at the source of the spill.

**Sinking Agents:** Means those additives applied to oil discharges to sink floating pollutants below the water surface.

**Site Characterization:** An evaluation of a cleanup site to determine the appropriate safety and health procedures needed to protect employees from identified hazards.

**Site Conditions:** Details of the area surrounding the facility, including shoreline descriptions, typical weather conditions, socioeconomic breakdowns, etc.

**Site Safety and Health Plan:** A site specific plan developed at the time of an incident that addresses:

- Safety and health hazard analysis for each operation.
- Personal protective equipment to be used.
- Training requirements for site workers.
- Medical surveillance requirements.
- Air monitoring requirements.
- Site control measures.
- Decontamination procedures.
- Emergency response procedures.
- Confined space entry procedures.

**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.

**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.

**Snare Boom:** Oil will adhere to the material of which this boom is made of and thus collect it.

**Sorbents:** Materials ranging from natural products to synthetic polymeric foams placed in confined areas to soak up small quantities of oil. Sorbents are very effective in protecting walkways, boat decks, working areas, and previously uncontaminated or cleaned areas.

**Spill:** An unauthorized discharge of oil or hazardous substance into the waters of the state.

**Spill Observer:** The first Facility individual who discovers a spill. This individual must function as the first responder and person-in-charge until relieved by an authorized supervisor.

**Spill of National Significance (SONS):** Means a spill which due to its severity, size, location, actual or potential impact on the public health and welfare or the environment, or the necessary response effort, is so complex that it requires extraordinary coordination of federal, state, local, and responsible party resources to contain and cleanup the discharge.

**Spill Management Team:** The personnel identified to staff the organizational structure identified in a response plan to manage response plan implementation.

**Spill Response:** All actions taken in responding to spills of oil and hazardous materials, e.g.: 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 pre-approved 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 Re-authorization Act of 1986 (SARA). The SERC approves the State Oil and Hazardous Substance Discharge Prevention and Contingency Plan and Local Emergency Response Plans.

**Surface Collecting Agents:** Means those chemical agents that form a surface film to control the layer thickness of oil.

**Surface Washing Agent:** Is any product that removes oil from solid surfaces, such as beaches and rocks, through a detergency mechanism and does not involve dispersing or solubilizing the oil into the water column.

**Tanker:** A self-propelled tank vessel constructed or adapted primarily to carry or hazardous material in bulk in the cargo spaces.

**Tidal Current Tables:** Tables which contain the predicted times and heights of the high and low waters for each day of the year for designated areas.

**Trajectory Analysis:** Estimates made concerning spill size, location, and movement through aerial surveillance or computer models.

**Transfer:** Any movement of oil to, from, or within a vessel by means of pumping, gravitation, or displacement.

**Trustee:** Means an official of a federal natural resources management agency designated in subpart G of the NCP or a designated state official or Indian tribe or, in the case of discharges covered by the OPA, a foreign government official, who may pursue claims for damages under section 1006 of the OPA.

**Underwriter:** An insurer, a surety company, a guarantor, or any other person, other than an owner or operator of a vessel or facility, that 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.

**Unified or Coordinated Command Meeting:** Held to obtain agreement on strategic objectives and response priorities; review tactical strategies; engage in joint planning, integrate response operations; maximize use of resources; and minimize resolve conflicts.

**Volunteers:** An individual who donates their services or time without receiving monetary compensation.

**Waste:** Oil or contaminated soil, debris, and other substances removed from coastal waters and adjacent waters, shorelines, estuaries, tidal flats, beaches, or marshes in response to an unauthorized discharge. Waste means any solid, liquid, or other material intended to be disposed of or discarded and generated as a result of an unauthorized discharge of oil. Waste does not include substances intended to be recycled if they are in fact recycled within 90 days of their generation or if they are brought to a recycling facility within that time.

**Waters of the United States:** See **Navigable Waters** in this Glossary.

**Wetlands:** Those areas that are inundated or saturated by surface or groundwater at a frequency or duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include playa lakes, swamps, marshes, bogs, and similar areas such as sloughs, prairie potholes, wet meadows, prairie river overflows, mudflats, and natural ponds (40 CFR 112.2(y)).

**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 Discharge:** The largest foreseeable discharge under adverse weather conditions. For facilities located above the high water line of coastal waters, a worst case discharge includes those weather conditions most likely to cause oil discharged from the facility to enter coastal waters.

## ACRONYMS

<b>AMIO</b>	- Alien Migration Interdiction Operation
<b>AQI</b>	- Alternate Qualified Individual
<b>AM</b>	- Ante Meridiem
<b>ACP</b>	- Area Contingency Plan
<b>ACP</b>	- Area Contingency Plans
<b>Avg.</b>	- Average
<b>bbl/hr</b>	- Barrel per Hour
<b>Br</b>	- Branch
<b>BLM</b>	- Bureau of Land Management
<b>COTP</b>	- Captain of the Port
<b>Ctr.</b>	- Center
<b>CAS Number</b>	- Chemical Abstracts Service
<b>CST</b>	- Civil Support Team
<b>CG</b>	- Coast Guard
<b>CFR</b>	- Code of Federal Regulations
<b>Cont'd</b>	- Continued
<b>CMT</b>	- Crisis Management Team
<b>DOA</b>	- Dead on Arrival
<b>Dept.</b>	- Department
<b>DOD</b>	- Department of Defense
<b>DENR</b>	- Department of Environment and Natural Resources
<b>DHS</b>	- Department of Homeland Security
<b>DOI</b>	- Department of Interior
<b>DNR</b>	- Department of Natural Resources
<b>DOT</b>	- Department of Transportation
<b>Div.</b>	- Division
<b>DOCL</b>	- Documentation Unit Leader
<b>EMS</b>	- Emergency Management System
<b>EM</b>	- Emergency Manager
<b>EOC</b>	- Emergency Operations Center
<b>ESA</b>	- Endangered Species Act
<b>EET</b>	- Environmental Emergency Team
<b>EDRC</b>	- Estimated Daily Recovery Capability
<b>EPA</b>	- Environmental Protection Agency
<b>ETA</b>	- Estimated Time of Arrival
<b>etc.</b>	- Et Cetera
<b>exempli gratia e.g.</b>	- For Example
<b>FAA</b>	- Federal Aviation Administration
<b>FBI</b>	- Federal Bureau of Investigation
<b>FOSC</b>	- Federal On-Scene Coordinator
<b>Ft./Sec.</b>	- Feet/Second
<b>FIR</b>	- Field Investigation Report
<b>FR</b>	- Fire Retardant
<b>FWD</b>	- Forward
<b>Freq.</b>	- Frequency
<b>GRP</b>	- Group
<b>Gru Sups.</b>	- Group Supervisors
<b>HAZMAT</b>	- Hazardous Material
<b>HAZWOPER</b>	- Hazardous Waste Operations and Emergency Response Standard
<b>HVAC</b>	- Heating, Ventilating, and Air Conditioning
<b>HEPA</b>	- High Efficiency Particle Air Device
<b>HF ERW</b>	- High Frequency Electric-Resistance Weld
<b>HLS</b>	- Homeland Security
<b>Hrs.</b>	- Hours
<b>ID NO.</b>	- Identification Number
<b>IAW</b>	- In Accordance With

<b>IAP</b>	- Incident Action Plan
<b>ICS</b>	- Incident Command System
<b>ICS</b>	- Incident Command System
<b>IC</b>	- Incident Commander
<b>IMH</b>	- Incident Management Handbook
<b>IMS</b>	- Incident Management System
<b>Info.</b>	- Information
<b>KM</b>	- Kilometer
<b>KP</b>	- Kilometer Point
<b>LE</b>	- Law Enforcement
<b>LO</b>	- Liaison Officer
<b>LPG</b>	- Liquefied Petroleum Gas
<b>LEPC</b>	- Local Emergency Planning Committee
<b>LRT</b>	- Local Response Team
<b>LSC</b>	- Logistics Section Chief
<b>LF ERW</b>	- Low Frequency Electric-Resistance Weld
<b>LEL</b>	- Lower Explosive Limit
<b>MSDS</b>	- Material Safety Data Sheets
<b>MEDEVAC'D</b>	- Medical Evacuation
<b>NCP</b>	- National Contingency Plan
<b>NEECP (CA)</b>	- National Environmental Emergencies Contingency Plan
<b>NFPA</b>	- National Fire Protection Association
<b>NIMS</b>	- National Incident Management System
<b>NOAA</b>	- National Oceanographic Atmospheric Administration
<b>NCP (U.S.)</b>	- National Oil and Hazardous Substances Contingency Plan
<b>NRC</b>	- National Response Center
<b>NRDAR</b>	- Natural Resource Damage Assessment and Restoration
<b>N</b>	- No
<b>NW</b>	- North West
<b>N/A</b>	- Not Available
<b>OSHA</b>	- Occupational Safety & Health Administration
<b>OSRO</b>	- Oil Spill Removal Organization
<b>OSRP</b>	- Oil Spill Response Plan
<b>OSRV</b>	- Oil Spill Response Vessel
<b>OSC</b>	- On-Scene Coordinate
<b>OSC</b>	- Operation Section Chief
<b>OP</b>	- Operational Period
<b>Op.</b>	- Operations
<b>OPS</b>	- Operations
<b>O&amp;M</b>	- Operations and Maintenance
<b>OCC</b>	- Operations Coordination Center
<b>OV</b>	- Organic Vapor
<b>PPM</b>	- Parts Per Million
<b>PFD</b>	- Personal Floatation Device
<b>PPE</b>	- Personal Protective Equipment
<b>PHMSA</b>	- Pipeline and Hazardous Materials Safety Administration
<b>PSC</b>	- Planning Section Chief
<b>PSC</b>	- Planning Section Chief
<b>POC</b>	- Point of Contact
<b>PVC</b>	- Polyvinyl Chloride
<b>P.M.</b>	- Post Meridiem
<b>PREP</b>	- Preparedness for Response Exercise Program
<b>Prot.</b>	- Protection
<b>PWSD</b>	- Public Water Supply District
<b>QI</b>	- Qualified Individual
<b>RPT</b>	- Regional Preparedness Team
<b>Req.</b>	- Required
<b>RCRA</b>	- Resource Conservation and Recovery Act

<b>RESL</b>	- Resource Leader
<b>RP</b>	- Responsible Party
<b>RPIC</b>	- Responsible Party Incident Commander
<b>Rev.</b>	- Revision
<b>R/W</b>	- Right-of-Way
<b>RWD</b>	- Rural Water District
<b>SAR</b>	- Search and Rescue
<b>SART</b>	- Search and Rescue Transporter
<b>SI</b>	- Security Incident
<b>SO</b>	- Security Officer
<b>SCBA</b>	- Self Contained Breathing Apparatus
<b>SSPs</b>	- Site Safety Plans
<b>SITL</b>	- Situation Unit Leader
<b>Spec.</b>	- Special
<b>SPCC</b>	- Spill Prevention, Control, and Countermeasure
<b>SORS</b>	- Spilled oil Recovery System
<b>Sq. Ft.</b>	- Square Foot
<b>STAM</b>	- Staging Area Manager
<b>SERC</b>	- State Emergency Response Center
<b>SERC</b>	- State Emergency Response Commission
<b>SOSC</b>	- State On-Scene Coordinator
<b>SOR</b>	- Statutory Orders and Regulations
<b>SCADA</b>	- Supervisory Control and Data Acquisition
<b>TOC</b>	- Table of Contents
<b>TSD</b>	- Temporary Storage and Disposal
<b>TSC</b>	- Temporary Storage Capacity
<b>id est, I.E.</b>	- That is
<b>TBA</b>	- To be Assigned
<b>TSB</b>	- Transportation Safety Board
<b>TWIC</b>	- Transportation Worker Identification Credential
<b>UC</b>	- Unified Command
<b>UN Number</b>	- United Nations
<b>US</b>	- United States
<b>USCG</b>	- United States Coast Guard
<b>USN</b>	- US Navy Supervisor Salvage
<b>Vsl.</b>	- Vessel
<b>VOSS</b>	- Vessel of Opportunity Skimmer System
<b>VOC</b>	- Volatile Organic Compound
<b>Vol.</b>	- Volume
<b>W</b>	- West
<b>WCD</b>	- Worst Case Discharge
<b>Y</b>	- Yes

## RESPONSE ZONE INFORMATION

### Live Oak County Zone

#### RESPONSE ZONE CONTACT INFORMATION

Owner Name: Valero Terminating and Distribution Company

Addresses: Physical Address  
One Valero Way  
San Antonio, Texas 78249

24 Hour Emergency Contact Phone Numbers: (866) 382-5376 (24 Hours)

Telephone/Fax: Telephone references, including 24 hour numbers, for the Facility, Owner, and Qualified Individual/Alternate Qualified Individual are provided in Figure 2.2.

States Traversed: Texas

Areas/Counties Traversed: Live Oak

#### INFORMATION SUMMARY

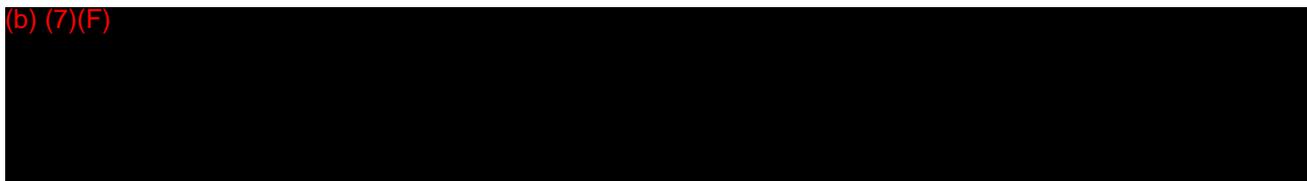
##### **Determination of Significant and Substantial Harm (United States Department of Transportation/Pipeline and Hazardous Materials Safety Administration):**

This Response Zone has been determined to meet the significant and substantial harm classification because at least one (1) line section within the response zone has met at least one of the criteria listed in 49CFR194.103(c)(1).

##### **Worst Case Discharge**(Refer to Appendix B for calculations):

Potential Oil Group: 3

(b) (7)(F)



<b>RESPONSE ZONE COMPANY CONTACTS</b>				
<b>POSTION/TITLE</b>	<b>NAME</b>	<b>OFFICE</b>	<b>HOME</b>	<b>CELL</b>
Sr. Area Manager Pipeline & Terminals	Bobby Hill	(361) 289-3226	-----	(361) 215-8987
Pipeline Operator I	Paul Valdez	(361) 786-8037	-----	(361) 726-7550
HS&E Specialist	Jeff Ritcheson	(210) 345-2983	-----	(210) 452-8707

**Area: Live Oak County Response Area****Qualified Individuals**

<b>NAME</b>	<b>OFFICE</b>	<b>HOME</b>	<b>CELL</b>
Paul Valdez	(361) 786-8037	-----	(361) 726-7550
Bobby Hill	(361) 289-3226	-----	(361) 215-8987

**Alternate Qualified Individuals**

<b>NAME</b>	<b>OFFICE</b>	<b>HOME</b>	<b>CELL</b>
Bobby Hill	(361) 289-3226	-----	(361) 215-8987

<b>Pipeline Specifications</b>			
<b>Location</b>	<b>Type of Oil</b>	<b>State</b>	<b>County</b>
Three Rivers	3	Texas	Live Oak

<b>Company Owned Response Equipment</b>		
<b>NAME</b>	<b>LOCATION</b>	<b>DESCRIPTION</b>
	NONE	

<b>Breakout Tanks</b>			
<b>FACILITY NAME</b>	<b>TANK NUMBER</b>	<b>CAPACITY (Bbls)</b>	<b>TYPE OF OIL</b>
NONE			

**EXTERNAL NOTIFICATION REFERENCES**  
**Texas**

<b>LOCAL EMERGENCY SERVICES NOTIFICATIONS</b>			
<b>COUNTY</b>	<b>AGENCY</b>	<b>LOCATION</b>	<b>OFFICE/ ALTERNATE</b>
<i>* Additional reporting information may be contained in the Document Library under Other Documents.</i>			
Live Oak	Live Oak County (LEPC)	George West, Texas	(361) 449-1693

## RESPONSE ZONE INFORMATION

### Nueces County Zone

#### RESPONSE ZONE CONTACT INFORMATION

Owner Name: Valero Terminating and Distribution Company

Addresses: Physical Address  
One Valero Way  
San Antonio, Texas 78249

24 Hour Emergency Contact Phone Numbers: (24 Hours)

Telephone/Fax: Telephone references, including 24 hour numbers, for the Facility, Owner, and Qualified Individual/Alternate Qualified Individual are provided in Figure 2.2.

States Traversed: Texas

Areas/Counties Traversed: Nueces

#### INFORMATION SUMMARY

##### **Determination of Significant and Substantial Harm (United States Department of Transportation/Pipeline and Hazardous Materials Safety Administration):**

This Response Zone has been determined to meet the significant and substantial harm classification because at least one (1) line section within the response zone has met at least one of the criteria listed in 49CFR194.103(c)(1).

##### **Worst Case Discharge**(Refer to Appendix B for calculations):

Potential Oil Group: 3

(b) (7)(F)

<b>RESPONSE ZONE COMPANY CONTACTS</b>				
<b>POSTION/TITLE</b>	<b>NAME</b>	<b>OFFICE</b>	<b>HOME</b>	<b>CELL</b>
Sr. Area Manager Pipeline & Terminals	Bobby Hill	(361) 289-3226	-----	(361) 215-8987
Pipeline Operator I	Paul Valdez	(361) 786-8037	-----	(361) 726-7550
HS&E Specialist	Jeff Ritcheson	(210) 345-2983	-----	(210) 452-8707

**Area: Nueces County Response Area****Qualified Individuals**

<b>NAME</b>	<b>OFFICE</b>	<b>HOME</b>	<b>CELL</b>
Paul Valdez	(361) 786-8037	-----	(361) 726-7550
Bobby Hill	(361) 289-3226	-----	(361) 215-8987

**Alternate Qualified Individuals**

<b>NAME</b>	<b>OFFICE</b>	<b>HOME</b>	<b>CELL</b>
Bobby Hill	(361) 289-3226	-----	(361) 215-8987

<b>Pipeline Specifications</b>			
<b>Location</b>	<b>Type of Oil</b>	<b>State</b>	<b>County</b>
Corpus Christi	3	Texas	Nueces

<b>Company Owned Response Equipment</b>		
<b>NAME</b>	<b>LOCATION</b>	<b>DESCRIPTION</b>
	NONE	

<b>Breakout Tanks</b>			
<b>FACILITY NAME</b>	<b>TANK NUMBER</b>	<b>CAPACITY (Bbls)</b>	<b>TYPE OF OIL</b>
NONE			

**EXTERNAL NOTIFICATION REFERENCES**  
**Texas**

<b>LOCAL EMERGENCY SERVICES NOTIFICATIONS</b>			
<b>COUNTY</b>	<b>AGENCY</b>	<b>LOCATION</b>	<b>OFFICE/ ALTERNATE</b>
<i>* Additional reporting information may be contained in the Document Library under Other Documents.</i>			
Nueces	Nueces County LEPC	Corpus Christi, Texas	(361) 826-3960