

# Appendix J: Spill Prevention Plan/Spill Response Plan

# Spill Prevention Plan/Spill Response Plan

**Project**: Performing HDD for the CHPE Transmission Cable System:

## Overview

Caldwell Marine International (CMI) recognizes that reducing the risk of hazardous material spills is the most appropriate strategy for minimizing impacts to the environment. The purpose of this plan is to provide a description of the Best Management Practices (BMP) that will be followed by CMI marine personnel to reduce the risk of spills.

Should a spill occur, despite the best efforts of the CMI management and crew, the response will follow the Emergency Response Plan for Spills, under separate cover. Procedure

The most likely operational spill will result from fueling operations, consequently, the focus of this plan is to prevent spills during fueling. Additional procedures discuss the BMP's for storage and handling of hazardous materials.

## **Fueling**

The following practices will be used to minimize the potential for spillage during fuelling.

- CMI will ensure that re-fuelling activities are monitored at all times
- During re-fuelling oil/fuel absorbent pads will be placed under the filling port to mitigate spillage
- All containers, hoses, and nozzles will be in good condition with no loose covers, cracks, kinks, soft spots, or bulges, free of leaks, and visually inspected prior to fuelling
- All fuel nozzles will be equipped with functional automatic shut-off devices
- Hoses will be long enough to allow vessel movements within the limits of the mooring
- Before filling a fuel tank, its available capacity will be verified by the operator
- In the event of a leak, all fuelling operations will be halted until the cause of the leak has been identified and the leak repaired
- CMI will ensure that all employees involved in fuel handling have the appropriate training in transfer and emergency spill response procedures.

# Hazardous material storage and disposal

In addition to the above measures for fuel and oil handling, CMI will follow the following measures for storage and disposal of hazardous materials.

- Site personnel will be adequately trained in the handling and transportation of hazardous materials
- Material Safety Data Sheets (MSDS) for hazardous materials used on the project will be made available on site
- Hazardous materials will be labelled and stored in a secure area
- Hazardous materials used or generated in the course of the project will be disposed of in compliance with relevant acts and regulations
- A adequate number of members of the installation crew at all sites will be trained in Workplace Hazardous Materials Information System (WHMIS)



# SPILL RESPONSE PLAN



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## SPILL RESPONSE PLAN

#### 1.0 INTRODUCTION

The information contained herein details the provisions made to minimize the hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous or petroleum based materials to air, soil, surface water, or groundwater. This plan, in conjunction with the JAG Companies Corporate Health and Safety Plan Spill Prevention and Response Plan (HSE Section 022), is to be invoked by the emergency coordinator at each site (Project Manager) or his/her designee (Project Superintendent) should there be an imminent or actual emergency situation involving the aforementioned events.

This plan details the guidelines to be followed in the event of a non-routine occurrence such as a fire, explosion, or release of hazardous substance into the air, water, soil, or groundwater which poses or potentially poses a threat to human health and/or the environment.



# 2.0 Emergency Response

Hazardous waste spills can pose serious health risks to workers exposed, cause serious threats to the environment, and cost the company money. Health hazards will vary depending upon the material and size of the spill. Any person discovering a fire, explosion, or release of hazardous substance into the air, water, soil, or groundwater is to report the event to the Project Manager.

This information is to be immediately relayed to the emergency coordinator listed in 3.1.

Should the emergency involve a fire, explosion, or release of hazardous substance (including reactions from incompatible materials), the emergency coordinator/project manager will notify the local fire department.

A decision by the emergency coordinator will be made as to whether evacuation of non-essential personnel during the event is necessary.

The emergency coordinator shall keep the facility manager (or his designee) informed of the situation during the emergency. If any portion of the facility or all of the facility must be shut down, the emergency coordinator is to contact the facility manager, area supervisor, and departmental supervisor (if applicable).



## 3.0 CMI Spill Response Plan

#### EMPLOYEE SPILL PROCEDURES

(a) SPILL DETECTION ACTIONS. Anyone detecting a spill, shall notify the emergency coordinator or alternate emergency coordinator. If the amount of the release is known, ensure the emergency coordinator is notified. The following categories apply:

Minor Spill: A minor spill is one that involves the release of five gallons or less of a material, other than water, which does not go into any drain system.

Major Spill: A major spill is one that involves the release of (A) five gallons or less of a material that goes into a drain system, or (B) over five gallons of a material, other than water.

(b) SPILL CONTROL ACTIONS. To prevent further pollution, the spill source shall be determined and additional spillage curtailed, if possible, and it is safe to do so. In no case should any person attempt to stop a spill without proper equipment or personnel backup.

# **Spill Response Steps**

If a spill of fuels, oils, lubricants or other harmful substances occurs, the following procedures are to be implemented.

- **3.1 ENSURE SAFETY**
- 3.2 STOP THE FLOW
- 3.3 SECURE THE AREA
- **3.4** CONTAIN THE SPILL
- 3.5 NOTIFY/REPORT
- 3.6 CLEAN-UP



## 3.1 ENSURE SAFETY

- Notify the CMI Superintendent immediately of any spill or chemical incidents.
- Ensure Personal/Public, Electrical and Environmental Safety.
- Wear appropriate Personal Protective Equipment (PPE).
- Assess the situation. Never rush in; always determine the product spilled before acting.
- Determine if it is a minor or major spill.
- Warn people in the immediate vicinity.
- Ensure no ignition sources if spill is a flammable material.

## 3.2 STOP THE FLOW

- Act quickly to reduce the risk of environmental impacts.
- Close valves, shut off pumps or plug holes/leaks.
- Stop the flow or the spill at its source.

## 3.3 SECURE THE AREA

- Limit access to the spill area.
- Prevent unauthorized entry onto the site.

## 3.4 CONTAIN THE SPILL

- Block off and protect drains and culverts.
- Prevent spilled material from entering drainage structures (ditches, culverts, drains).
- Use spill sorbent material to contain the spill.
- If necessary, use a dyke or any other method to prevent any discharge on site.
- Make every effort to minimize contamination.



#### 3.5 NOTIFY/REPORT

- Notify appropriate Field Manager or alternate of incident (provide spill details).
- When necessary, the first external call should be made to: Corporate Safety Director
- Provide necessary spill details to other external agencies. (See Appendix A How to Report)
- Complete a CMI Environmental Release Report (ERR).

## 3.6 CLEAN-UP

- Technical assistance is available from *CMI* on clean-up procedures and residue sampling and to ensure compliance with regulations.
- All equipment and/or material used in clean up (e.g., used sorbent, oil containment materials, etc.) must be disposed of in accordance with requirements.
- Accidental spills may produce hazardous wastes (e.g., material with > 3% oil by mass) and contaminated soil. All waste disposals must comply with the Environmental Management Act and Regulations. The Environmental Monitor will assist in complying with the requirements.
- Subject to prior approval, waste sorbent material may be disposed of in a landfill.
- Contaminated soil must be treated and dealt with as required on a site-specific basis.

## 3.7 SPILL REPORT

The spill report should include the following information:

- Name and phone number of person reporting the spill
- Name and phone number of person involved with the spill
- Location and time of the spill
- Type and quantity of material spilled
- Cause and effect of spill
- Details of action taken or proposed to contain the spill and minimize its effect
- Names of agencies on the scene
- Names of other persons or agencies advised
- Report must be filed in Corporate Headquarters within 24 hours

## 3.8 SPILL CONTAINMENT AND CLEAN-UP SUPPLIES

Contractors shall have emergency spill response equipment in supply. Oil spill response kits, vehicle kits, and aggressive liquid kits (acids and caustics) appropriate for the quantities and types of materials and receiving environment, shall be supplied by all Contractors. Some local suppliers are listed below.



## 3.9 SPILL RESPONSE EQUIPMENT SUPPLIERS

Sorbent materials are designed for specific uses and purposes (e.g., oil only sorbents vs. general sorbents). Ensure that the appropriate materials are ordered for the Project.

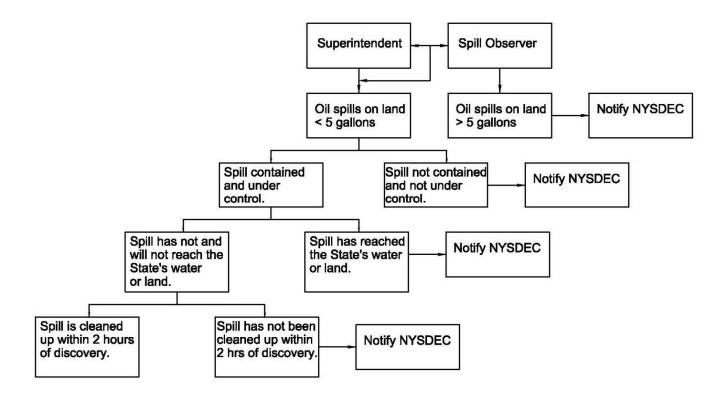
Spill containment booms, sorbent sweeps and pads are also available from the companies listed below. Custom made kits and supplies are also available upon request.



# 4.0 CMI Spill Reporting Notification Chart

**All spills to water are reportable.** If in doubt as to whether or not to report a spill to a regulatory agency, err on the side of caution and report the spill. Check the MSDS for Reporting Quantity and consult the Corporate Safety Director for additional information.

## **Petroleum Products**





## **Chemical Products**

Determine if the chemical spill has left the containment area and if it is released to land, sanitary sewer, storm drain or water. If spill is outside containment areas:

- Notify Corporate Safety Director and Superintendent
- Determine if Reportable Quantity is exceeded by checking the MSDS and with the Safety Director.
- If its determined to be a minor spill clean-up.
- Major spills require notifying clean up contractors and reporting spill to applicable agencies.

Note: **All spills to water are reportable.** If in doubt as to whether or not to report a spill, err on the side of caution and report the spill. All spills must be reported to the Corporate Safety Director.

#### **EMERGENCY CONTACTS**

EMERGENCY CONTACTS			
Name	Agency	Number	
Lucky Abernathy	Caldwell Marine International	908-433-3755	
CMI Safety Director			
Paul Larrabee	Caldwell Marine International	732-620-3938	
Cable Operations Manager			
Ed Phillips	Caldwell Marine International	732-620-4906	
Civil Works Operations Manager			
Mike Shaw	Caldwell Marine International	604-785-3745	
Cable Installation Manager			
Thomas Ulisse	Caldwell Marine International	732-620-3470	
Project Executive			
Greg Gashlin	Caldwell Marine International	732-620-3133	
Project Manager			
Dominic Palermo	Caldwell Marine International	732-742-9326	
Project Engineer			
US Ecology DBA NRC East	Emergency Spill Response/Clean up	1-800-899-4672	
Michael Henssler	NKT, Inc.	917-287-3989	
Project Manager			
MSRC	Marine Spill Response Organization	480-991-5599	
Clean Harbors	Spill Response Contractor	1-800-645-8265	
Coast Guard MCTS (NY)	New York Coast Guard	1-718-354-4088/9	
Coast Guard Group Burlington	Vermont Coast Guard	1-802-951-6760	
(VT)			
NYDEC Hotline	New York State Spill Hotline	1-800-457-7362 (within NY State)	
	N	1-518-457-7362 (outside NY State)	
NJDEP Hotline	New Jersey State Spill Hotline	1-877-927-6337	
VTDEC Hotline	Vermont State Spill Hotline	1-802-828-1138	
National Response Center (NRC)	USEPA & USCG	1-800-424-8802	



## 5.0 Environmental Release Reporting Standard

#### **5.1 PURPOSE**

This plan describes CMI's procedures and systems for recording and posting Environmental Incidents as they occur. This procedure ensures timely communication and reporting to senior management and to appropriate technical individuals that may be impacted by the incident.

Incident reporting benefits CMI by:

- Alerting managers so they can manage contacts and pressures (e.g., from employees, agencies, communities or media) with timely and accurate information.
- Meeting specific obligations and legal standards of care.
- Providing a source of data that can be used to identify trends and to provide justification for actions to correct the underlying problem and prevent future incidents.

This standard applies to all work, including work performed by Contractors, and all events which affect CMI.

## **5.2 REPORTING REQUIREMENTS**

This plan specifies internal CMI Incident Reporting requirements only. Additional legal obligations to report certain spills to regulatory agencies may be necessary.

Releases of gases that are sudden and uncontrolled are considered spills and must be reported internally. Controlled release of gases or release of gases through maintenance are not considered incidents and are thus not reportable in the ERR system.

In the event of an emergency (e.g., flood, forest fire, extreme storm, earthquake or dam breach, etc.) the reporting responsibilities governed by *Emergency Preparedness Plans take precedence*.

#### **5.3 DEFINITION**

An Environmental Incident is one that has caused, or has the potential for causing, one or more of the following:

- Adverse impact on the quality of air, land or water, wildlife, aquatic species or species at risk.
- Exceedance of permit or external reporting requirement.
- Notification of external agencies due to emergency/beyond normal circumstances.
- Adverse publicity with respect to environment.
- Legal or regulatory action with respect to violation of statues or environmental damage.
- Alteration of, or damage to, heritage or archeological resources.



## Examples of Environmental Incidents include, but are not limited to:

- Spills of oil, fuel, PCB or chemicals.
- Visible damage to equipment where the public may believe there is an environmental effect.
- Sudden and uncontrolled emission or discharge of air pollutants (e.g., NOx) or sudden and uncontrolled gaseous releases (e.g., SF<sub>6</sub>, H<sub>2</sub>, propane, compressed CO<sub>2</sub>, natural gas).
- Discharge of deleterious substances into fish-bearing water.
- Landslides, erosion, or floods as they affect environmental quality.
- Dust storms in drawn-down reservoirs.
- High or low flows, or flow changes, that adversely affect fish or fish habitat, wildlife or recreation.
- Adverse impacts on notable fish or wildlife species (e.g., sturgeon, eagles).
- Any ground disturbance (i.e., setting a new pole) where an archeological site is encountered.
- Work and/or removal of vegetation in or near water bodies without regulatory approval.
- Violation of pesticide use, storage or application regulations and approvals.
- Violation of other environmental regulations, permits, or approvals.

All environmental incidents require communication within CMI including immediate notification to the Corporate Safety Director. Discretion should be exercised and consultation undertaken with environment staff when in doubt, to ensure that all appropriate incidents are reported. This will ensure timely reporting and updating of incidents to senior management when required.



#### **5.4 PROCEDURE**

#### **NEW ENVIRONMENTAL RELEASE REPORTS**

- CMI Environmental Release Reports (ERR) (Appendix A) are to be prepared as soon as
  possible by the Project Manager/Emergency Coordinator. The target timeline for reporting is
  within 24 hours of the occurrence. Some incidents may have a higher degree of sensitivity,
  severity, or critical circumstances. In those cases, senior management must be notified
  immediately. Refer to the Critical Notification section for more details. It is the
  responsibility of the Contractor to ensure any notification as required by the Law is
  undertaken within the prescribed time limits of applicable Law. The Environmental
  Release Report is to be prepared by Project Manager or emergency coordinator with input
  from the Contractor's Site Supervisor.
- The Project Manager or emergency coordinator shall notify the appropriate personnel based on the severity of the incident A preset list of people including vice-presidents, managers, environmental specialists, Legal, and Corporate communications and environmental staff is available within the ERR system

#### CRITICAL NOTIFICATION

- On certain occasions, an incident may be elevated in stature by site specific circumstances, the severity of its environmental impact, the public, the media, or government representatives. When this happens, immediate notification of senior management must be initiated.
- The target for this type of notification is within one hour of the incident, or its escalation to severe status.
- Notification may be made via Telephone, Fax or Microsoft Outlook, but preference is for personal contact.

#### **ERR UPDATES**

• The responsible supervisor or manager at the site of the incident (with input from any subsequent operations or environmental staff that become involved) shall maintain a record of incident updates. This person is also responsible for exercising discretion and forwarding the significant updates on the incident to appropriate personnel. A preset list of people including vice-presidents, managers, environmental specialists, Legal, Corporate communications and environmental staff is available within the ERR system.

#### **ERR UPDATES**

- All ERRs will require closure by the Project Manager or emergency coordinator. All fields of the ERR reports must be completed. Before closure, the Environmental Officer must verify that the environmental response is appropriate and complete (i.e., to review cleanup, waste disposal, lessons learned, accuracy of report).
- An ERR should be closed only after completing all of the following actions:



- i. Verification that physical aspects of the incident have been remediated;
- ii. Verification that any associated wastes have been disposed of legally;
- iii. Lessons learned (if any) have been captured and transmitted;
- iv. Root cause analysis and corrective action plan (if applicable) have been identified and initiated; and
- v. Report has been reviewed for consistency and completeness (e.g., lab results, regulators notified).
  - The closed ERR must be forwarded to the preset list (including Corporate Safety Director, Senior Managers, Environmental Specialists and Legal) within the ERR and the CMI Project Manager, and Engineering Project Manager. Pending the nature of the incident and the involvement of other staff during its resolution, the notification of closure should also be communicated to other applicable staff. The latter is left to the discretion of the originator and the Engineering Project Manager.

#### TRAINING

The Engineering Project Manager shall coordinate with the Corporate Safety Director to:

- Identify positions that require knowledge of environmental incidents and the ERR system; and
- Provide ERR training to those positions identified.
- Site specific emergency response training will be conducted at each site prior to commencing work.
- Quarterly drills will be conducted and documented
- Weekly Toolbox talks will be used to supplement formal training

ERR training may include a formal training program, one on one mentoring or supervision, or other means deemed appropriate for the Project. All ERR training will be documented. The target for ERR training for new employees (new hires, rehires, transfers, etc.) is six months from the date of hire. Refresher training will be provided as deemed appropriate. All training sessions will be documented and available at the site.



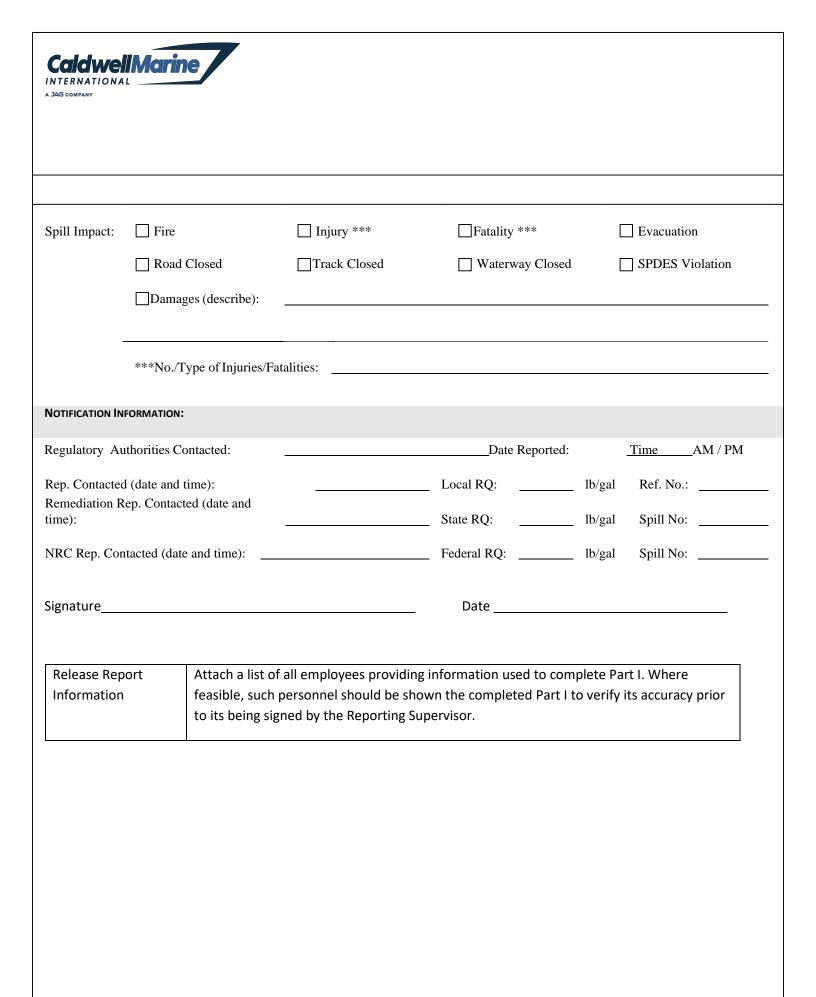
# Appendix A

**Environmental Release Report (ERR)** 



# **Environmental Release Report (ERR)**

# **PART 1 - INITIAL NOTIFICATION** (To Be Completed By The Facility Supervisor On-Duty) FACILITY/CONTACT INFORMATION: Reporting Supervisor: \_\_\_\_\_ Facility Phone: \_\_\_\_\_ Location: Spill Location (facility/building): Address: ☐ Yes □No **FACILITY INVOLVEMENT:** Facility/Contractor Responsible (if any): Contract # Company Contact: Phone: SPILL INFORMATION: Start Date, Time of Event / AM / PM End Date, Time of Event / AM / PM Chemical Name: \_\_\_\_\_\_ CAS No: \_\_\_\_\_ Trade Name: \_\_\_\_\_\_Concentration (if applicable) \_\_\_\_\_ ☐ Tank Truck ☐ Drums Source: Tank Pipe Other: PBS# Tank # Tank Size Leak Rate Vehicle # Amount Spilled: How Calculated: Daily Inventory Record Meter Scale Estimate (how): Temp.: Wind Direction/Speed: Weather: Secondary Containment Sewer ☐ Air Storm Drain Catch Basin Spilled to: Surface Water \* ☐ Soil Groundwater Other (list): \* Water Body: \_\_\_\_\_





A JAG COMPANY				
Part 2 - Investigat	TION/REPORT (To Be Complet	ed By The Investigator or	Team)	
Date Investigation S	tarted:		Time Started:	AM / PM
DESCRIPTION OF INCIDENT				rsonnel involved (name/title), etc. red. <b>Fact ONLY</b> . Avoid speculation.
				Continued - see attached
CONTRIBUTING FACTORS				r procedures, training, equipment, ributed to the occurrence or severity.
				Continued - see attached
		Cause & Contribut		
Procedures	Training	Process Design a	and Controls	Inspection and Prevent Maint.
Equipment, Mater	•	Human Action	L	External
Other: Explanation	n			
CLEANUE	Describe who cleaned up, w	show how and any varific	eation/tasting	
CLEANUP	Describe who cleaned up, w	men, now, and any verific	anon testing.	
				☐ Continued - see attached
				Continued - see attached

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CORRECTI VE ACTIONS	List each recommendatio columns after implemente					and the last 2
Description of Corrective Action and Intent		Assigned to	Target Date	Date Resolved	Resolution/ Comments	
Conclusions	Summarize investigation	conclusions below.				
Investigation Team	The incident investigation Spill investigation report.		sign below hav	e reviewed and agree	with the conc	clusions of this
Name		Signature	Title/Affiliation			Date
REPORTS SUBMITTE D:	Written reports must be s above their respective RQ		ays, State withi	in 7 days and NRC as	s soon as poss.	<u>ible</u> for Spills
L		Dates:		☐ State		CMI



#### **DEFINITIONS USED FOR ROOT CAUSE AND CONTRIBUTING FACTORS**

- 1. Procedures may include, but are not limited to, Policies, procedures, work instructions and plans. Types of procedures may include Environmental, Health & Safety, Administrative, Operating or Maintenance. A Procedural Root Cause or Contributing Factor can be attributed to an incident if:
  - procedures that could have prevented the incident from occurring have not been written.
  - procedures are in place; however, they did not consider the situation in which the incident occurred or contained errors
  - procedures were drafted, but not approved.
  - Procedures exist, but are not typically followed or enforced

A Procedural Root Cause or Contributing Factor does not include conditions in which training was not performed or was inadequate.

- 2. A Training Root Cause or Contributing Factor can be attributed to an incident if:
  - training that could have reasonably prevented the incident was not provided.
  - training was significantly late
  - training did not address the tasks assigned to the position.
  - training was performed, but not checked to ensure the person understood (e.g. passing a test or observed for proficiency)
- 3. A Process Design and Controls Root Cause or Contributing Factor can be attributed to an incident if:
  - The process was not designed to address normal operating conditions
  - Insufficient safeguards were in place (this does not include if safeguards were bypassed)
  - The process does not have controls to manage design parameters, such as level or pressure



- 4. An Inspection and Preventive Maintenance Root Cause or Contributing Factor can be attributed to an incident if inspection and preventive maintenance were not in accordance with applicable procedures, manufacturer's recommendations, government standards and industry standards and are adequate for the service conditions. If Preventive Maintenance procedures do not exist, it is considered a Procedural Root Cause.
- 5. An Equipment, Materials or Change Root Cause or Contributing Factor can be attributed to an incident if:
  - the equipment, parts, and materials procured were not as initially specified,
  - the equipment, parts and materials were defective
  - the equipment, parts and materials did not meet or exceeded the applicable specifications.
  - the process has been changed from its design (excluding changes approved by Engineering).
- 6. A Human Action Root Cause or Contributing Factor can be attributed to an incident if personnel actions, activities and decisions were in accordance with procedures, training and expected workplace standards. This includes both errors and willfully not following standards.
- 7. An External Root Cause or Contributing Factor can be attributed to an incident if external items, such as weather or third parties (excluding contractors) did not cause or contribute to the incident.
- 8. An Other Root Cause or Contributing Factor can be attributed to an incident if the incident has not been satisfactorily classified in one or more of the above categories. The Other cause must be identified.



# Appendix B



# **How to Report A Hazardous Substance or Oil Spill**

A report of a hazardous substance release or oil spill takes only a few minutes. To report a release or spill, contact the federal government's centralized reporting center, the <u>National Response Center (NRC)</u>, at 1-800-424-8802. The National Response Center is staffed 24 hours a day by U.S. Coast Guard personnel, who will ask you to provide as much information about the incident as possible, including:

- Your name, location, organization, and telephone number
- Name and address of the party responsible for the incident
- Date and time of the incident
- Location of the incident
- Source and cause of the release or spill
- Types of material(s) released or spilled
- Quantity of materials released or spilled
- Medium (e.g. land, water) affected by release or spill
- Danger or threat posed by the release or spill
- Number and types of injuries or fatalities (if any)
- Weather conditions at the incident location
- Name of the carrier or vessel, the railcar/truck number, or other identifying information
- Whether an evacuation has occurred
- Other agencies notified or about to be notified
- Any other information that may help emergency personnel respond to the incident



If reporting directly to the National Response Center is not possible, reports also can be made to the EPA Regional office or the U.S. Coast Guard Marine Safety Office in the area where the incident occurred. In general, EPA should be contacted if the incident involves a release to inland areas or inland waters, and the U.S. Coast Guard should be contacted for releases to coastal waters, the Great Lakes, ports and harbors, or the Mississippi River. The EPA or U.S. Coast Guard will relay release and spill reports to the National Response Center promptly.

A report of a release of an <u>extremely hazardous substance</u> should be made to the state emergency response commission (SERC) or the local emergency planning committee (LEPC) established for the location where the incident occurred. To identify the appropriate SERC and LEPC, contact the EPCRA Hotline at 1-800-535-0202.



# Appendix C



# **Emergency Response Plan**

**Project**: Performing HDD for the CHPE Transmission Cable System

**Emergency:** Spill

## **Overview**

Caldwell Marine International (CMI) recognizes that reducing the risk of hazardous material spills is the most appropriate strategy for minimizing impacts to the environment. The purpose of this plan is to provide a description of the Best Management Practices (BMP) that will be followed by CMI marine personnel to reduce the risk of spills.

Should a spill occur, despite the best efforts of the CMI management and crew, the response will follow the Emergency Response Plan for Spills, under separate cover. Procedure he most likely operational spill will result from fueling operations, consequently, the focus of this plan is to prevent spills during fueling. Additional procedures discuss the BMP's for storage and handling of hazardous materials.

Organization	Phone Number	Alternate
Coast Guard MCTS (NY)	1-718-354-4088/9	VHF channel 11,12,14 & 16
US Ecology DBA NRC East Emergency Spill Response/Cleanup	1-800-899-4672	1-802-923-1445
Clean Harbors Spill Response Contractor	1-800-645-8265	
CMI Safety Director Lucky Abernathy	732-557-6100 (office)	908-433-3755 (cell)



## **Procedures**

Whenever a spill of oil occurs it is the duty of the person finding the spill to immediately inform the project superintendent/emergency coordinator, who should call out the vessel's pollution prevention procedures. Remember that an oil spill may create a fire or explosion hazard, requiting safety requiring safety precautions to be observed.

#### **OPERATIONAL SPILLS OF OIL**

The most likely operational spill will result from:

- Pipeline leakages, including transfer hoses
- Cargo tank or bunker tank overflows
- · Hull leakages

## Pipeline Leakage During Discharging or Loading of Oil Cargoes, or During Bunkering

Measures to be implemented immediately:

- Stop all cargo and bunkering operations, and close manifold valves
- Sound the emergency alarm, and initiate emergency response procedures
- Inform terminal/ loading master/ bunkering personnel about the incident

#### Further measures:

- Consider whether to stop air intake into accommodation and non-essential air intake to engine room.
- Locate source of leakage, and begin clean-up procedures.
- Drain affected section of pipeline into an empty or slack tank (e.g. the slop tank or another cargo tank).
- Prepare portable pumps where it is possible to transfer spilled liquid into a slack or empty tank.
- If the source of the leakage is located in the pump-room at the sea-valves the necessary measures must be taken to relieve the pressure from the relevant section of the pipeline.

If the spilled liquid is contained on board and can be handled on board then:

- Use sorbents and permissible solvents to clean up liquid spilled on board.
- Ensure that any residues collected, and any contaminated absorbent materials used in the clean-up operation are stored carefully prior to disposal.

After dealing with the cause of the spill it may be necessary to obtain permission from local authorities or the terminal (or both) to continue normal operations.



## Tank Overflow During Loading Or Bunkering

Measures to be implemented immediately:

- Stop all cargo and bunkering operations, and close manifold valves.
- Sound the emergency alarm, and initiate emergency response procedures.
- Inform terminal/ loading master/ bunkering personnel about the incident.

#### Further measures:

- Consider whether to stop air intake into accommodation and non-essential air intake to engine-room.
- Reduce the tank level by dropping cargo or bunkers into an empty or slack tank.
- Prepare pumps for transfer of cargo/bunkers to shore if necessary.
- Begin clean-up procedures.
- Prepare portable pumps if it is possible to transfer the spilled liquid into a slack or empty tank.

If the spilled liquid is contained on board and can be managed:

- Use sorbents and permissible solvents to clean up the liquid spilled on board.
- Ensure that any residues collected, and any contaminated absorbent materials used in the clean-up operation are stored carefully prior to disposal.

After remediating the spill it may be necessary to obtain permission from local authorities or the terminal (or both) to continue normal operations.