	CARDINAL SURVEYS COMPANY Safety Management System		Doc No:	HAZWOPER
			Initial Issue Date	JAN 1995
HAZWOPER AND HAZWOPER RCRA			Revision Date:	Initial Version
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Preparation: Safety Mgr	Authority: President	Issuing Dept: Safety	Page:	Page 1 of 8

Purpose

This requirement covers emergency and post-emergency response operations standards, to include training for personnel responding to releases or substantial threats of releases chemical or petroleum products without regard to the location of the hazard. Even though there is a specific section devoted to hazardous materials and emergency response (29 CFR 1910.120), this section does not encompass all work procedures around emergency response and 29 CFR 1910 and 29 CFR 1926 continue to apply in every respect during emergency response operations. If there is an apparent conflict or overlap, the provision that is more protective of employee health and safety shall apply. Emergency response efforts on land or water to releases of chemicals or petroleum products originating from CARDINAL SURVEYS COMPANY facilities or in the course of transportation will comply with the requirements of 29 CFR 1910.120(q). The primary concern in emergency response is the safety and security of responding personnel.

Scope

This section applies to all employees and independent contractors employed by and/or contracted to CARDINAL SURVEYS COMPANY when responding to chemical releases.

Definitions

Emergency response: A response effort by employees from outside the immediate release area or by other designated responders (e.g., mutual-aid groups, local fire departments, etc.) to an occurrence which results, or is likely to result, in an uncontrolled release of crude oil or petroleum products.


Post emergency response: That portion of an emergency response performed after the immediate threat of a release has been stabilized or eliminated and clean-up of the site has begun.

Health hazard: Chemicals which are carcinogens, toxic agents, reproductive toxins, irritants, corrosives, sensitizers, heptaotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes. It also includes stress due to temperature extremes

Requirements

Written Safety and Health Program and Emergency Response Plan

CARDINAL SURVEYS COMPANY and any contractors or subcontractors shall develop and implement a written pre-incident safety and health program to handle anticipated emergencies prior to the commencement of emergency response operations for their employees who are expected to be involved in any product spill emergency and post emergency response operations. The program shall be designed to identify, evaluate and control safety and health hazards and to provide for safe response efforts to product spill emergency and post emergency response operations. These programs shall be described in controlled manuals identified as contingency plans or hazardous materials handling procedures. The plan shall be in writing and available for inspection by employees, their representatives and OSHA representatives.

	CARDINAL SURVEYS COMPANY Safety Management System	Doc No:	HAZWOPER
		Initial Issue Date	JAN 1995
HAZWOPER AND HAZWOPER RCRA		Revision Date:	Initial Version
		Revision No.	02
		Next Revision Date:	N/A
Preparation: Safety Mgr	Authority: President	Issuing Dept: Safety	Page: Page 2 of 8

The following elements must be included in either a specific site safety plan or a combination of plans addressing the response activity:

- Pre-emergency planning and coordination with outside parties
- Personnel roles, lines of authority, training and communication
- Emergency recognition and prevention
- Safe distances and places of refuge
- Site security and control
- Evacuation routes and procedures
- A decontamination procedure shall be developed by the CARDINAL SURVEYS COMPANY safety office, communicated to employees through training and implemented through drills before any employees or equipment may enter areas on site where potential for exposure to hazardous substances exists.
- Emergency alerting and response procedures
- Critique method to evaluate the response and assure follow-up
- Personal protective equipment and spill control, containment, and recovery equipment
- Site and worker monitoring to ensure protective actions are commensurate with the conditions at the site.

Engineering controls, work practices and PPE shall be used to reduce and maintain exposure limits. Feasible engineering controls include the use of pressurized cabs or control booths on equipment and/or the use of remotely operated material handling equipment.

Procedure


Use of the following safety and control procedures will be used by those in charge at the scene to ensure the safety and health of personnel at spill locations.

Person Discovering the Spill

- Survey and Secure the Area. Evaluate the seriousness of the situation in regard to protecting personnel and the public. Do not approach the spill if you can smell hydrocarbons or potential chemical sources.
- Notify your supervisor as soon as possible. Remember, any device you use to call in spill notice may not be intrinsically safe. Place your call from a safe distance.
- If the situation requires, stay at the scene and control access at a safe distance from the spill until the initial response team arrives. The spill area will become subject to regulatory controls with restricted access

Initial Spill Control Actions


- Initial spill control actions designed to halt the spread of a spill, direct its movements, or minimize the area affected by the spill shall not be initiated in the immediate spill area until all of the following occur:
 - A complete site safety analysis

	CARDINAL SURVEYS COMPANY Safety Management System	Doc No:	HAZWOPER
		Initial Issue Date	JAN 1995
HAZWOPER AND HAZWOPER RCRA		Revision Date:	Initial Version
		Revision No.	02
		Next Revision Date:	N/A
Preparation: Safety Mgr	Authority: President	Issuing Dept: Safety	Page: Page 3 of 8

- Air monitoring shall be used to identify and qualify airborne levels of hazardous substances. The monitoring will address initial entry, periodic monitoring, possible IDLH conditions and wherever exposure may be a possibility.
- Gas detector readings are 10% or less of the lower explosive limit (LEL). If the readings are above 10% of the LEL, spill control actions shall be terminated in the immediate area and moved to an area where LEL conditions are less than 10%.

Initial Approach and Gas Testing

- Gas testing personnel shall be trained to competently operate their equipment and other site specific requirements.
- Combustible gas detectors (LEL meters) must have current calibrations and be function tested prior to an approach to a spill site.
- At a minimum, the oxygen, LEL and permissible exposure level (PEL) must be evaluated throughout the regulated area at as many points around the spill perimeter as possible. These levels shall be monitored periodically throughout the work shift to detect changes in airborne hazards that may result from work activities, changing weather conditions, etc.
- Approach to the incident site.
 - Perform a function test and check the zero reading on the gas detector.
 - Don the respirator.
 - Observe the readings on the gas detectors as you approach the spill site.
 - Continue until one of the following conditions occurs.
 - You can see all that you need to observe, or
 - The gas detector reads 10% or more of the LEL, or
 - Liquid oil or gas condensates are encountered.
 - CAUTION Care must be taken to keep the gas detectors warm and prevent rough handling.
 - NOTE If any of these conditions are exceeded, do not proceed any closer to the spill perimeter.
 - NOTE Decontamination units, first aid kits, and eye flushing supplies shall be functional and on-site prior to attempting contact with liquid oil or gas condensates.

	CARDINAL SURVEYS COMPANY Safety Management System	Doc No:	HAZWOPER
		Initial Issue Date:	JAN 1995
HAZWOPER AND HAZWOPER RCRA		Revision Date:	Initial Version
		Revision No.:	02
		Next Revision Date:	N/A
Preparation: Safety Mgr	Authority: President	Issuing Dept: Safety	Page: Page 4 of 8

- After the initial observations are performed, the site conditions shall be reported to the Incident Commander.
- Mark or flag an exclusion area (hot zone) around the spill site to further control access.

Safety Procedures for Exclusion Areas


- Personnel shall be given a safety briefing on the specific hazards and hazard control procedures prior to entering the spill site.
- Decontamination units, first aid kits, and eye flushing supplies shall be functional and on-site prior to attempting contact with spill materials.
- To minimize personnel exposure and reduce potential ignition sources, where possible, all initial approaches to the suspected spill site will be from the upwind direction.
- Personnel shall not approach the site or attempt gas testing without wearing appropriate respiratory protection.

Personal Protective Equipment (PPE) and Chemical Protective Clothing

- Respiratory Protection - During spill response operations when gas detectors read 10% or more of the LEL, trained gas testing personnel shall measure PEL levels to determine appropriate respiratory protection levels.
- Skin Protection - The following PPE is recommended to minimize dermal exposure to chemicals:
 - Hands: neoprene, nitrile or butyl rubber gloves
 - Feet: neoprene, nitrile or butyl rubber boots
 - Body: coated tyvek or PVC rain suits (as necessary)
 - Eye Protection - At a minimum, safety glasses must be worn. If a splash hazard to the eyes is present, chemical goggles or a face shield with chemical goggles shall be used. Eye protection is not required if a full-face respirator is worn.
 - NOTE: Either one-piece or two-piece chemical (magnum 445) suits can be used. Gloves and boots can be taped to the arms and legs of the suits as needed. The flaps of a two-piece suit can be taped as well. Heavy duty duct tape is recommended

Other Considerations

- The purpose of personal protective clothing and equipment is to shield or isolate individuals from the chemical, physical, and biological hazards associated with handling crude oil. No single combination of protective equipment and clothing is capable of protecting against all hazards.
- Consider the following:
 - The use of PPE can itself create significant worker hazards, such as heat stress, physical and psychological stress, and impaired vision, mobility, and communication.
 - Equipment and clothing that provide an adequate level of protection shall be used.

	CARDINAL SURVEYS COMPANY Safety Management System	Doc No:	HAZWOPER
		Initial Issue Date	JAN 1995
HAZWOPER AND HAZWOPER RCRA		Revision Date:	Initial Version
		Revision No.	02
		Next Revision Date:	N/A
Preparation: Safety Mgr	Authority: President	Issuing Dept: Safety	Page: Page 5 of 8

- Overprotection, as well as under protection, should be avoided where possible.

Post-Emergency Response Cleanup or Decontamination Procedures

All employees leaving a contaminated area shall be appropriately decontaminated and all contaminated clothing and equipment leaving a contaminated area shall be appropriately disposed of or decontaminated. Engineering controls, work practices and PPE shall be used to reduce and maintain exposure limits.

CARDINAL SURVEYS COMPANY does not provide removal of contaminated substances such as soil or other elements of the natural environment.

Decontamination procedures shall be monitored by the CARDINAL SURVEYS COMPANY safety department to determine their effectiveness. When such procedures are found to be ineffective, appropriate steps shall be taken to correct any deficiencies

Where the decontamination procedure indicates a need for regular showers and change rooms outside of a contaminated area, they shall be provided and meet the requirements of 29 CFR 1910.141. Decontamination shall be performed in geographical areas that will minimize the exposure of uncontaminated employees or equipment to contaminated employees or equipment. Take into consideration ground water, wind direction, construction material, barriers and fencing, signage and training.

PPE and equipment shall be decontaminated, cleaned, laundered, maintained or replaced as needed to maintain their effectiveness. Employees whose non-impermeable clothing becomes wetted with hazardous substances shall immediately remove the clothing.

Unauthorized employees shall not remove protective clothing or equipment from change rooms.


General Safety/Physical Hazards

During training drills, spill responses, and remediation operations, the physical working environment of personnel shall be continually evaluated. Exposure to either hot or cold weather conditions along with long working hours, could adversely affect both the psychological and physiological condition of those involved. Continued exposure may result in physical discomfort, loss of efficiency, and a higher susceptibility to accidents and injuries.

Personnel must be constantly alert to signs of distress and eliminate or protect against accident causes. There is a need to constantly review methods and procedures for routine work and emergency response situations so that all personnel may function as safely and effectively as possible.

Supervision shall keep the following procedures and safety precautions in mind when working with petroleum and petroleum products and as decisions are made in how the work is to be conducted:

- A job shall be planned and all personnel briefed as to the procedures to be followed and the responsibilities of each person.

	CARDINAL SURVEYS COMPANY Safety Management System	Doc No:	HAZWOPER
		Initial Issue Date	JAN 1995
HAZWOPER AND HAZWOPER RCRA		Revision Date:	Initial Version
		Revision No.	02
		Next Revision Date:	N/A
Preparation: Safety Mgr	Authority: President	Issuing Dept: Safety	Page: Page 6 of 8

- Supervision shall remain on the job at all times or designate a qualified person to take their place if called away.
- When responding to hydrocarbon spills or gas leaks, the hazardous area shall be defined. No personnel or equipment shall be permitted in the area of a spill until the hazards associated with the contaminated area have been clearly defined by a qualified person.
- Before moving to the job site, supervision should check tools and safety equipment (including personal protective equipment), to ensure everything is safe, usable, and all required tools and safety equipment are available
- Vehicles, heavy equipment, hand tools, and power equipment shall not be moved into a spill area until adequate precautions have been taken. When power equipment is moved into a spill area to expedite repairs, it should be removed from the area as soon as work with it is completed. Personnel who are not required should be kept out of the work area.
- Use of matches, lighters, and smoking materials shall be in a place designated as safe by supervision.
- Upon completion of equipment repairs, necessary operating checks should be made before placing the unit in service.
- The senior official at an emergency response site is the most senior official on the site who has the responsibility for controlling operations at the site.
- Medical Surveillance – Any emergency response person who exhibits signs or symptoms which may have resulted from exposure to hazardous substances during the course of an emergency shall be provided with medical consultation at no cost to them. This shall include all employees who are or may be exposed to hazardous substances or health hazards at or above the established permissible exposure limit, above the published exposure levels for these substances, without regard to the use of respirators, for 30 days or more a year.


Training

The CARDINAL SURVEYS COMPANY new hire orientation program trains all new CARDINAL SURVEYS COMPANY employees and independent contractors so they will know what to do in case they witness or discover a chemical release. They are instructed to leave the area and take no further action beyond notifying the CARDINAL SURVEYS COMPANY facility operations personnel of the release.


Training for employees expected to participate in an emergency or post-emergency response shall be completed before they take part in response operations. CARDINAL SURVEYS COMPANY and contractor personnel shall receive initial and refresher training. The level of training received will be commensurate with their assigned duties and functions and take place in the area they are working in.

Initial Emergency Response Training

Who Needs Emergency Response Training?

	CARDINAL SURVEYS COMPANY Safety Management System	Doc No:	HAZWOPER
		Initial Issue Date	JAN 1995
HAZWOPER AND HAZWOPER RCRA		Revision Date:	Initial Version
		Revision No.	02
		Next Revision Date:	N/A
Preparation: Safety Mgr	Authority: President	Issuing Dept: Safety	Page: Page 7 of 8

- **Support Personnel:** This designation applies to CARDINAL SURVEYS COMPANY or contractor personnel who are supporting in the operation of equipment or material (such as general laborers, equipment operators, mechanized earth moving operators or crane and hoisting equipment operators), and who are needed temporarily to perform immediate emergency support work that cannot reasonably be done in a timely manner by CARDINAL SURVEYS COMPANY employee responders. Support personnel who will be or may be exposed to the hazards at an emergency response scene shall be trained on the use of personal protective equipment and also will cover work practices which minimize hazardous risks and safe use of engineering controls & equipment.
- **First Responder Awareness Level:** CARDINAL SURVEYS COMPANY personnel who are likely to witness or discover a hazardous substance release and have been trained to initiate an emergency response sequence by notifying CARDINAL SURVEYS COMPANY facility operations personnel of the release. Personnel at this level must receive initial training or have had enough experience to objectively demonstrate competency. Annual refresher training or demonstration of competency is also required. First Responder Awareness Level employees shall have sufficient training or experience to objectively demonstrate competency in the following areas:
 - An understanding of what hazardous substances are, and the risks associated with them in an incident.
 - An understanding of the potential outcomes associated with an emergency created when hazardous substances are present.
 - The ability to recognize the presence of hazardous substances in an emergency.
 - The ability to identify the hazardous substances if possible.
 - An understanding of the role of the first responder awareness individual in the client's emergency response plan including site security and control and the U.S. Department of Transportation's Emergency Response Guidebook.
 - The ability to realize the need for additional resources, and to make appropriate notifications.
- **First Responder Operations Level:** CARDINAL SURVEYS COMPANY personnel who are identified in contingency plans as responders to releases or potential releases of hazardous materials -- as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release -- shall be trained to this level. Their function is to contain the release from a safe distance and help it from spreading. All personnel at this level must receive 8 hours of initial training or have had sufficient experience to objectively demonstrate competency. Annual refresher training or demonstration of competency is also required. Certification is required.
- **Hazardous Materials Technicians:** CARDINAL SURVEYS COMPANY personnel, who are identified in contingency plans as responders to releases or potential releases of hazardous materials for the purpose of stopping the release, shall be trained to this level. Technicians have the knowledge of how to implement emergency response plans, know the classification, identification and verification of known or unknown substances, functions with an assigned role in the incident command system, how to select and use proper PPE, perform advanced containment and understands decontamination and toxicology. All personnel at this level must

	CARDINAL SURVEYS COMPANY Safety Management System	Doc No:	HAZWOPER
		Initial Issue Date	JAN 1995
HAZWOPER AND HAZWOPER RCRA		Revision Date:	Initial Version
		Revision No.	02
		Next Revision Date:	N/A
Preparation: Safety Mgr	Authority: President	Issuing Dept: Safety	Page: Page 8 of 8

receive at least 24 hours of training equal to first responder operations level. Annual refresher training or demonstration of competency is required. Certification is required.

- Hazardous Materials Specialists: All CARDINAL SURVEYS COMPANY and personnel working as field Safety Specialist shall be trained to this level. Material Specialists receive at least 24 hours of training the technical level and have the ability to develop a site and safety control plan. Annual refresher training or demonstration of competency is also required. Certification is required.
- On-Scene Incident Commander: The Incident Commander must have at least 24 hours of training equal to the first responder operations level and know how to implement the program and system, PPE requirements, hazard and risk assessment, state and federal regulations and all elements of decontamination. Certification is required.

Post-Emergency Response Training

For chemical spills, a minimum of four hours of training for post-emergency response workers who have job duties and responsibilities with a low magnitude of risk shall occur.

Refresher Training

- Employees trained for Initial Emergency Response Training must receive annual refresher training of sufficient content and duration to maintain their competencies or shall demonstrate competencies in those areas at least annually. CARDINAL SURVEYS COMPANY must keep records of all employee training or competency demonstrations.
- Participation in drills, completion of approved response training modules, and on-the-job training based on the duties and functions each employee is expected to perform during an emergency response may be substituted for, or used in conjunction with, formal classroom training to demonstrate competency. If demonstrated competency is used in lieu of or in conjunction with classroom training then CARDINAL SURVEYS COMPANY must keep a record of the methodology used to demonstrate competency.

Trainers and Training Material

- The Safety Manager shall designate who has the responsibility to approve trainers and training materials used in CARDINAL SURVEYS COMPANY provided training for employees who are identified in contingency plans as responders to hazardous material spills, emergency and post-emergency response operations. All instructors shall have the training and or academic credentials and instructional experience to demonstrate competency.