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Standard Guide for Health and Safety Training of Oil Spill Responders[1]

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1. Scope

1.1 This guide establishes minimum health and safety training standards for three types of oil spill responders: Type *A*, first responders who are responsible for initial containment and cleanup; Type *B*, longer-term shoreline cleanup personnel; and Type *C*, other necessary support personnel who have minimal contact with the contamination.

1.2 The oil covered by this guide includes light, medium, and heavy crudes, as well as hydrocarbon products, such as gasoline, light fuel oil, distillates, and bunker (heavy fuel) oil. It is not aimed at specialty chemicals and other potentially hazardous materials, although some aspects of the training program would apply to those substances.

1.3 A number of topics are not specifically addressed in this guide because they are covered by other standards or guidelines. Examples are hot work practices, maintenance and repair of equipment, fire fighting, electrical hazards, emergency medical care, disposal of wastes, and so forth. The user is expected to become familiar with standards for these areas as required.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Terminology

2.1 *Definitions of Terms Specific to This Standard:*

2.1.1 *area contingency plan*—provides the initial governmental organization structure and mode of operation for the spill response.

2.1.2 *cold (support) zone*—minimal exposure area maintained as an uncontaminated location for support functions. Food service, clean equipment storage, and financial offices are examples of a cold zone. Operations in this area are generally carried out by Type *C* personnel.

2.1.3 *confined space*—an enclosed space or area, such as a tank, compartment, or pit where ventilation or access, or both, may be limited.

2.1.4 *hot (early response) zone*—an area where there are potential exposure hazards. Type *A* workers are involved in containment and recovery operations in this zone. Airborne concentrations of hazardous substances may require respiratory protection in addition to other personal protective equipment.

2.1.5 *hyperthermia*—an abnormally high body temperature caused by exposure to elevated temperatures or radiant heat, or both.

2.1.6 *hypothermia*—an abnormally low body temperature caused by exposure to cold air or water.

2.1.7 *personal protective equipment (PPE)*—equipment used to shield or insulate a person from a chemical, physical, or thermal hazard. Personal protective equipment is available for skin, eyes, face, hands, feet, head, ears, and respiratory system, as appropriate.

2.1.8 *site safety and health plan*—the framework that defines safety and health considerations and strategy for a specific site.

2.1.9 *site safety and health supervisor*—an individual in the field responsible for ensuring that the site safety and health plan is implemented as prescribed.

2.1.10 *warm (contamination reduction) zone*—an area where oil is present but in a generally weathered state. In addition to decontamination and equipment decommissioning areas, contaminated shorelines containing weathered oil with vapor levels below that requiring respiratory protective equipment are considered warm zones for purposes of this guide. Type *A* or *B* workers, or both, would operate in these zones.

3. Significance and Use

3.1 This guide summarizes required course components to be included in training programs for oil spill response personnel. Its purpose is to assist trainers in developing curricula that address the health and safety risks specific to oil spill response. This guide may be tailored by the trainer to fit unique circumstances that are present if training is conducted during an actual spill emergency and is not intended to preclude consideration of regulatory requirements.

4. Types of Response Workers

4.1 The level of training required will depend on the level of involvement for each type of worker. For purposes of this guide, the three categories or types of workers are defined in Table 1.

4.1.1 *Type A Workers*, operate in the hot zone and are the

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TABLE 1 Oil Spill Response Worker Categories

Type A—Hot-Zone Personnel
Response managers
Supervisors
Equipment operators
Boom deployers
Boat operators
Skimmer crews
Dispersant handlers
Barge personnel
Tank truck operators
Bulldozer operators
Other initial response personnel
Security forces
Shoreline assessment team
Site safety and health supervisor
Field medical personnel
Vapor monitoring personnel
Decontamination personnel
Etc.
Type B—Warm-Zone Personnel
Shoreline clean-up personnel
Wildlife coordinators
Animal handlers
Waste management/handling personnel
Etc.
Type C—Cold-Zone Personnel
General land-based support
Historians
Legal advisors
Food-service personnel
Financial services personnel
Supply personnel
Etc.

TABLE 2 Health and Safety Training Matrix

Subjects	Worker Types		
	Type A	Type B	Type C
General awareness	•	•	•
Exposures and chemical hazards			
Mechanical hazards	•	•	
Slips, trips, and falls	•	•	
Explosion and fire	•	•	
Biological hazards	•	•	
Physical hazards	•	•	
Water hazards	•	•	
Exposure routes (air, skin, ingestion)	•	•	
Confined space entry	•		
First aid	•	•	•
Safety and health requirements			
Industrial hygiene monitoring	•		
Respiratory protection	•		
Eye and ear protection	•	•	
Flotation devices	•	•	
Footwear	•	•	
Skin protection (gloves and protective clothing)	•	•	
Hard hats	•	•	
Personal hygiene	•	•	
Decontamination procedures	•	•	

most likely to encounter the spilled oil in a fresh state. Training for Type *A* workers should emphasize methods for determining the presence of harmful vapors, and proper use of respiratory protective equipment.

4.1.2 *Type B Workers*, operate in the warm zone and include shoreline cleaning crews. The oil they encounter will be in a weathered state. Training for Type *B* workers should emphasize mechanical hazards, dermal exposure, slips, trips, falls, and so forth.

4.1.3 *Type C Workers*, operate in the cold zone and include support personnel with no probability of contacting the spilled oil (cafeteria staff, financial advisors, secretaries, and so forth). Type *C* workers do not require specialized safety and health training unless they expect to visit the spill site or take part in Type *A* or *B* activities.

5. Training Matrix

5.1 The recommended training curriculum subjects are presented in matrix form by worker types in Table 2. Though there is some flexibility in depth of coverage for each subject, the curriculum should be sufficient to familiarize each participant with all the possible hazards that may be encountered by that type of worker in his or her role.

5.2 *General Awareness*:

5.2.1 *Training Objectives*—Summarize the overall intent and purpose of the training program.

5.2.2 *Applicable Regulations*—Review the guidelines and regulations applicable to the specific region of operation.

5.2.3 *Response Command Structure*—Review the makeup of area contingency plans, response management structure, responsibilities of the site safety and health supervisor and other relevant information on how regional responses are managed.

5.2.4 *Local or Organizational Issues, or Both*—Include alcohol and drug policies, firearm policy, local wildlife that may be at risk, and local natural hazards such as earthquakes, avalanche and rock slide potential, hurricanes, and so forth.

5.2.5 *Historical and Cultural Features*—Raise awareness so that experts can be called in if there is suspicion that the work area contains important archeological sites or sacred grounds.

5.3 *Exposures and Chemical Hazards*:

5.3.1 *Mechanical Hazards*—Include a summary of potential hazards from rotating equipment, electrical generators, boom deployment, boat operations, and so forth.

5.3.2 *Slips, Trips, and Falls*—Highlight that these are the most common sources of injury at a spill clean-up site. Review precautions for handling hoses, lines, and wires.

5.3.3 *Explosions and Fires*—Include a review of the fire triangle and presentation of lower and higher explosion limits for common hydrocarbon products.

5.3.4 *Biological Hazards*—Include discussion of poisonous plants, insects, spiders, snakes, rabid animals, and so forth. Also include marine hazards and wildlife rescue and rehabilitation.

5.3.4.1 *Marine Hazards*—Include jellyfish, Portuguese man-o-war, anemones, corals, urchins, and so forth.

5.3.4.2 *Emergency Care*—Include procedures to follow in the event of a sting or bite.

5.3.5 *Physical Hazards*:

5.3.5.1 *Noise*—Define the decibel range that characterizes high noise levels and the potential long-term impacts from prolonged exposure.

5.3.5.2 *Hypothermia*—Review causes and early warning signs of hypothermia as well as recommended treatment.

5.3.5.3 *Heat Stress*—Review safety problems common to

hot environments, including a summary of heat-induced disorders (hyperthermia, stroke, exhaustion, cramps, fainting, and so forth) and the required medical attention for each. Training should emphasize the magnified potential for heat stress with use of protective clothing.

5.3.5.4 *Ultraviolet (UV) Hazards*—Review the hazards associated with UV exposure and the protection provided by different types of sunscreen and sunglasses.

5.3.6 *Water Hazards*—Include discussion of safe boating practices, personal flotation devices, other protective gear, unsafe weather conditions, and so forth.

5.3.7 *Exposure Routes*:

5.3.7.1 *Airborne Contaminants*—Review the key airborne hazards of concern with emphasis on benzene and hydrogen sulfide.

5.3.7.2 *Skin Exposure*—Include a discussion of dermatitis associated with skin contact with hydrocarbons.

5.3.7.3 *Ingestion*—Review the routes by which hydrocarbons can enter the body, including food and water contamination, hand to mouth contact, and so forth.

5.3.8 *Confined Space Entry*—Review guidelines for entry, including required oxygen level, testing for presence of combustible vapors, and other hazards.

5.3.9 *First Aid*—Review first-aid basics and general orientation.

5.4 *Safety and Health Requirements*—Methods to protect workers from chemical, physical, and thermal hazards will vary with incident.

5.4.1 *Industrial Hygiene (IH) Monitoring*—Summarize the available techniques for monitoring ambient air concentrations.

5.4.1.1 *Data Sheets*—Review documented information on oils of concern.

5.4.1.2 *Medical Monitoring*—Required for all workers exposed to levels above the permissible exposure limits.

5.4.2 *Respiratory Protection*—Infrequently used in oil spill cleanup. Required training covers the selection, inspection, use, care, and maintenance of the respirator.

5.4.3 *Eye and Ear Protection*—Conditions requiring splash goggles or face shields as opposed to safety glasses should be reviewed. Describe available ear protection equipment and conditions under which it would be required (see 5.3.5.1).

5.4.4 *Flotation Devices*—Required for workers who will respond on water.

5.4.5 *Footwear*—Review types of boots available for shoreline work.

5.4.6 *Skin Protection*:

5.4.6.1 *Gloves*—Oil-resistant gloves should be identified pointing out unacceptable options.

5.4.6.2 *Personal Protective Clothing*—The required type of clothing and cleaning requirements should be discussed as well as the suitability of disposable garments.

5.4.7 *Hard Hats*—Review available types and minimum acceptable standards.

5.4.8 *Personal Hygiene*—Review the importance of cleanliness and sanitation for maintaining worker health during prolonged clean-up assignments. Also cover such personal needs as potable water, toilet facilities, food handling, and so forth.

5.4.9 *Decontamination Procedures*—Review the setup of a decon site (warm zone) and the procedures for ensuring that contaminated (oiled) materials do not inadvertently leave the work site.

6. Skilled Personnel Exemption

6.1 In some cases, a comprehensive and well-structured site safety briefing, instead of a formal training program, may suffice. This is especially important in the case of such skills as boat operators, whose formal training could delay a prompt response effort.

7. Assessment

7.1 The effectiveness of the training should be assessed by methods such as written or oral examination, field observation, interactive observations, and so forth.

7.2 Training should be reviewed and repeated as necessary to maintain worker qualification.

8. Keywords

8.1 health and safety training; initial response personnel; oil spill responders; oil spills; training curriculum

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