

# Training Marine Oil Spill Response Workers Under OSHA's Hazardous Waste Operations and Emergency Response Standard



U.S. Department of Labor  
Occupational Safety and Health Administration

OSHA 3172  
2001



---

## About this Booklet

This informational booklet is intended to provide a generic, non-exhaustive overview of a particular standards-related topic. This publication does not itself alter or determine compliance responsibilities, which are set forth in OSHA standards themselves and the *Occupational Safety and Health Act*. Moreover, because interpretations and enforcement policy may change over time, for additional guidance on OSHA compliance requirements, the reader should consult current and administrative interpretations and decisions by the Occupational Safety and Health Review Commission and the Courts.

Material contained in this publication is in the public domain and may be reproduced, fully or partially, without permission of the Federal Government. Source credit is requested but not required.

This information will be made available to sensory impaired individuals upon request.

Voice phone: (202) 693-1999  
Teletypewriter: (TTY) 1-877-889-5627  
See also OSHA's Website at [www.osha.gov](http://www.osha.gov)

# **Training Marine Oil Spill Response Workers Under OSHA's Hazardous Waste Operations and Emergency Response Standard**

---



U.S. Department of Labor  
Elaine L. Chao, Secretary

Occupational Safety and Health Administration  
John L. Henshaw, Assistant Secretary

OSHA 3172  
2001



---

## Contents

Introduction .....	1
How Marine Oil Spill Responses Are Organized and Managed .....	2
Applying the HAZWOPER Standard to Marine Oil Spills .....	4
Hazards to Marine Oil Spill Responders .....	5
Training Requirements .....	7
Oil Spill Scenario .....	17
Other Sources of OSHA Assistance .....	21
Appendix A: Related OSHA Standards and Directives .....	23
Appendix B: Related OSHA Publications .....	24
Appendix C. OSHA Offices Directory .....	25
<b>Figures and Tables</b>	
Figure 1. Training Decisions Flowchart for Emergency Response Workers .....	9
Figure 2. Training Decisions Flowchart for Post-Emergency Response Cleanup Workers .....	10
Figure 3. Sample Certifications .....	16
Figure 4. Illustration of Incident .....	17
Table 1. Hazardous Chemicals and Their Effects .....	6
Table 2. Training for Workers Who Perform Emergency Response .....	11
Table 3. Training for Workers Who Perform Only Post-Emergency Response .....	13
Table 4. Training Topics and Competency Areas .....	15



---

## Introduction

This booklet, written for marine oil spill response employers,\* describes the training your employees need under HAZWOPER, the Hazardous Waste Operations and Emergency Response standard, *Title 29 of Code of Federal Regulations*

**Train workers to the  
HIGHEST LEVEL of  
responsibility you  
may assign them.**

*(CFR)*  
*1910.120.*  
The Occupational Safety and Health Administration (OSHA) published HAZWOPER to protect

workers involved in hazardous substance emergency response and cleanup operations.

Not every spill response worker needs the same amount of training. The type of training you give your workers depends on how close they will be to a spill and what role they will have in stopping, containing, or recovering the spilled material from the release. For example, if you have workers who control an oil spill early in an incident, they need more training than workers who simply warn others about a spill. This booklet explains how HAZWOPER training requirements apply to the range of workers who participate in marine oil spill response. To use this guidance effectively, you need to know the duties you expect your workers to perform and the

exposure conditions under which you would allow them to work. You must train your workers to the highest level of skill, responsibility, and exposure that you will assign them.

This booklet was prepared by OSHA's Office of Health Compliance Assistance in conjunction with the U.S. Coast Guard Office of Response.

---

\*Oil spill response accounts for the majority of marine spill response operations and is the focus of this pamphlet. HAZWOPER training, however, is required for all marine spill response operations conducted under the National Contingency Plan. The training you provide must cover the range of hazardous substance spills you expect your marine response employees to handle.

---

## How Marine Oil Spill Responses Are Organized and Managed

Marine oil spill response is organized and managed according to the regulations found in 40 *CFR* 300, the National Oil and Hazardous Substance Pollution Contingency Plan (NCP). These regulations describe procedures for responding to hazardous substance releases and oil discharges. Appendix E of the regulation specifically addresses oil spill response. The U.S. Coast Guard (USCG) and the Environmental Protection Agency (EPA) jointly led the development of the NCP.

Marine oil spill response involves a network of government agencies, community organizations, industry groups, and contractors. Federal and/or state agencies usually monitor the responsible party (generally the owner or operator of the vessel, facility, port, or pipeline involved in the spill). The Federal Government can direct clean-up operations if the responsible party does not respond adequately, is not capable of taking action, or is unknown.

An On-Scene Coordinator (OSC) acts as the leader for response activities. In the coastal areas of the United States, USCG serves as the OSC for oil spill responses. In inland areas, including rivers and other inland waters, EPA generally takes the lead.

HAZWOPER requires that a senior official who is present at the response site, an Incident Commander, lead an emergency response operation. For marine oil spills, the ranking Coast Guard officer or EPA official at the spill scene usually functions as the On-Scene Incident Commander. The emergency response remains in effect until the Incident Commander declares it completed.

OSHA is responsible for assuring safe and healthful working conditions for working men and women. During marine oil spill response, OSHA provides advice and consultation at the request of other government agencies. If necessary, OSHA uses enforcement action to assure that workers are properly protected.



A spill and safety briefing at a major oil spill.

### Emergency Response vs. Post-Emergency Response

The HAZWOPER standard identifies two basic phases of a response action: emergency response and post-emergency response. Depending on the size of the spill, these phases may be managed differently. In addition, workers who participate **ONLY** in post-emergency response require different training than emergency response workers receive.

Emergency response is “a response effort...to an occurrence which results, or is likely to result, in an uncontrolled release of a hazardous substance” (29 *CFR* 1910.120(a)(3)). For marine oil spills, an uncontrolled release is a situation in which the oil and its associated airborne and surface contamination hazards are releasing into the environment or are in danger of releasing into the environment and posing a worker exposure hazard. Oil in grounded ships, which is in danger of being released into the environment, represents an emergency response situation. On-water containment, skimming operations, and underwater oil recovery operations also are considered to be emergency response activities because the oil is still in danger of being released into the environment. Shoreline cleanup is normally considered to be a post-emergency response unless the oil is below the high-tide mark or storm surge boundary (active or forecasted) and can reasonably be expected to be re-released into the marine environment.



---

Post-emergency response is performed “after the immediate threat of a release has been stabilized or eliminated and cleanup of the site has begun” (29 CFR 1910.120(a)(3)). Oil spilled into a marine environment is considered to be stabilized when it is in a stable container with no compromised structural integrity, to limit the potential for worker exposure to associated hazards. This includes floating bladders, barges, drums, and roll-off containers on shore. Oil also is considered to be stabilized when it is stranded on shore and not reasonably expected to re-release into the environment through wave or storm effects. Floating oil is not considered to be stabilized, even if contained within a boom.

During response to a large release such as a marine oil spill, emergency response and post-emergency response cleanup activities may occur at the same time. In these cases, the boundaries between the emergency response area and the post-emergency response area must be well defined and explained to responders and cleanup workers.

## Applying the HAZWOPER Standard to Marine Oil Spills

### HAZWOPER Requirements that Apply to Marine Oil Spills

The NCP defines oil as any kind of oil in any form, including petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes but not dredged spoil (dirt or rock).

Response actions conducted under the NCP must comply with the provisions of HAZWOPER. You'll find this requirement in 40 *CFR* 300.150. Therefore, if your workers are participating in a response action under the NCP, you must have an occupational safety and health program consistent with HAZWOPER and you must train your workers according to HAZWOPER's training requirements. This applies whether the responsible party or a government agency is directing the cleanup.

For marine oil spill emergency response, the HAZWOPER provisions that most directly apply include:

- Emergency response operations in HAZWOPER paragraph (q), and
- Post-emergency response cleanup operations in paragraph (q)(11).

See also emergency response training provisions in paragraph (q)(6), and post-emergency response training requirements in paragraph (q)(11).

### When HAZWOPER Does Not Apply

HAZWOPER does not apply to incidental releases that are limited in quantity and pose no safety and health threat to employees working in the immediate vicinity of the spill. These oil spills can be absorbed or controlled at the time of the release by employees in the immediate vicinity. The difference between emergency spills and incidental releases is described in the definition of emergency response in HAZWOPER paragraph (a)(3). An incidental release does not have the potential to become an emergency within a short time. If an incidental release occurs, employers do not need to implement HAZWOPER.

**The NCP defines oil as any kind of oil in any form, including petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes but not dredged spoil (dirt or rock.)**

### HAZWOPER Coverage for Volunteers

Volunteers frequently participate in marine oil spill response, but Federal OSHA standards do not cover uncompensated workers. In states

approved to manage their own occupational health and safety program (called OSHA state plan states), volunteers are often covered under state plan HAZWOPER requirements. In states administered by Federal OSHA, volunteers are covered by the EPA HAZWOPER standard (40 *CFR* 311). EPA's HAZWOPER standard has **identical requirements**, but the coverage is different from Federal OSHA standard coverage. The EPA standard covers local and state government employees, both compensated and volunteers.



A ship exploded and caught fire off the coast of New Jersey. About 127,000 gallons of oil were unaccounted for after the incident.

---

## Hazards to Marine Oil Spill Responders

Marine oil spill responders face a variety of health and safety hazards, including fire and explosion, oxygen deficiency, exposure to carcinogens and other chemical hazards, heat and cold stress, and safety hazards associated with working around heavy equipment in a marine environment. A full discussion of these hazards is beyond the scope of this training booklet, but a brief list of hazards and their known health consequences is shown in Table 1. Your workers should be trained to anticipate and control exposure to the hazards associated with their assigned duties.

To determine acceptable levels of exposure and train your workers about them, consult OSHA's exposure limits in Subparts G and Z. If OSHA does not regulate an exposure of concern, consult the National Institute of Occupational Safety and Health (NIOSH) Recommended Exposure Limits (RELs) and Immediately Dangerous to Life and Health (IDLH) levels. If neither OSHA nor NIOSH has established a limit, consult the American Conference of Government Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs) for chemical, physical, and biological agents. You may use a more protective limit than OSHA's if one has been established and plan your controls accordingly. Material Safety Data Sheets from the product manufacturer may provide useful information for worker training.

### Additional Hazards

Marine oil spill responders need training to work safely around these and other potential hazards. You should decide which hazards apply to your operations.

- Biological (e.g., plants, animals, insects, remediation materials)
- Drowning
- Noise
- Electricity
- Slips and Trips
- Biohazardous debris (e.g., syringes on shoreline)
- Ergonomic Stresses (e.g., repetitive strain, low back pain)
- Sunburn
- Confined Spaces
- Underwater Diving
- Falls
- Unguarded Equipment
- Cranes
- Fatigue
- Vehicles (e.g., aircraft, boats, cars, trucks)
- Cutting and Welding
- Fire and Explosion
- Degreasers
- Heat or Cold Stress
- Dispersants
- In-Situ Burning Particles

Other OSHA standards apply to marine oil spill response and cleanup operations. See Appendix A, Related OSHA Standards.



Fire ensues after oil is released during a lightering accident.

**Table 1. Hazardous Chemicals and Their Effects**

Hazardous Chemicals	Adverse Health Effects
Benzene (crude oils high in BTEX, benzene, toluene, ethylbenzene, and xylene)	Irritation to eyes, skin, and respiratory system; dizziness; rapid heart rate; headaches; tremors; confusion; unconsciousness; anemia; cancer
Benzo(a)pyrene (a polycyclic aromatic hydrocarbon reproductive [see below], formed when oil or gasoline burns)	Irritation to eyes and skin, cancer, possible effects
Carbon dioxide (inerting atmosphere, byproduct of combustion)	Dizziness, headaches, elevated blood pressure, rapid heart rate, loss of consciousness asphyxiation, coma
Carbon monoxide (byproduct of combustion) Irritation to eyes, skin, and respiratory	Dizziness, confusion, headaches, nausea, weakness, loss of consciousness, asphyxiation, coma
Ethyl benzene (high in gasoline)	Irritation to eyes, skin, and respiratory system; loss of consciousness; asphyxiation; nervous system effects
Hydrogen sulfide (oils high in sulfur, decaying plants and animals)	Irritation to eyes, skin, and respiratory system; dizziness; drowsiness; cough; headaches; nervous system effects
Methyl tert-butyl ether (MTBE) (octane booster and clean air additive for gasoline, or pure MTBE)	Irritation to eyes, skin, and respiratory system; headaches; nausea; dizziness; confusion; fatigue; weakness; nervous system, liver, and kidney
Polycyclic aromatic hydrocarbons (PAHs) (occur in crude oil, and formed during burning of oil)	Irritation to eyes and skin, cancer, possible reproductive effects, immune system effects
Sulfuric acid (byproduct of combustion of sour petroleum product)	Irritation to eyes, skin, teeth, and upper respiratory system; severe tissue burns; cancer
Toluene (high BTEX crude oils)	Irritation to eyes, skin, respiratory system; fatigue; confusion; dizziness; headaches; memory loss; nausea; nervous system, liver, and kidney effects
Xylenes (high BTEX crude oils)	Irritation to eyes, skin, respiratory system; dizziness; confusion; change in sense of balance; nervous system gastrointestinal system, liver, kidney, and blood effects

## Training Requirements

HAZWOPER training requirements that apply to marine oil spill emergency response are located in 29 *CFR* 1910.120(q)(6). Requirements and training guidance for post-emergency response are in HAZWOPER paragraph (q)(11) and in OSHA Instruction CPL 2-2.51, Inspection Guidelines for Post-Emergency Response Operations Under 29 *CFR* 1910.120. The HAZWOPER training requirements are based on your workers' assigned duties during an oil spill. For example, if you have deck hands who are assigned to equipment decontamination during and after an oil spill, you need to provide the level of HAZWOPER training required for the duties and hazards of the decontamination tasks.

Figures 1 and 2 comprise a training decision flowchart. Begin at the top of the chart (Figure 1) if your workers participate in emergency response. Begin at Figure 2 (indicated by the arrow) if your workers perform cleanup only after the release is stabilized (post-emergency). Emergency response workers may perform cleanup activities without further HAZWOPER training if you can certify that they have the skills and knowledge to do so safely.

After you determine the type(s) of training your workers need, turn to Table 2 or 3, as indicated on Figure 1. These tables show each type or category of training described in the flowchart. Table 2 contains the emergency response training requirements. For each type of emer-

gency response training shown in the flowchart, Table 2 lists the specific HAZWOPER training requirements and examples of corresponding oil spill job functions.

Table 3 shows post-emergency response training. In the left-hand column, you'll find the hazard characteristics that distinguish each type of training because this is how the HAZWOPER standard itself separates cleanup training categories. Verify that the hazards your workers might face fit within the training category you've chosen. Table 3 also lists the HAZWOPER training requirements and examples of job functions that might require that training.

### Training Content

Because workers need to be trained **before** they respond, you should train your emergency response workers to the highest level of responsibility they might need to assume. You should train your cleanup workers to the highest exposure conditions they may encounter. You must never expect or allow your workers to perform an emergency response or cleanup operation without proper training and certification.

Table 4 lists training topics and competencies for categories of training described in Tables 2 and 3. The listed topics paraphrase the HAZWOPER required competencies listed in paragraphs (q) and (e) of the standard. As an

example, if your workers perform defensive actions for all emergency response operations, they need 8 hours of training in areas 31-36 and competency in areas 25-30 on Table 4. This is equivalent to HAZWOPER requirements for the first-responder operations level in (q)(6)(ii) of the standard.



A vessel carrying more than 7 million gallons of oil breaks apart, spilling its entire cargo.

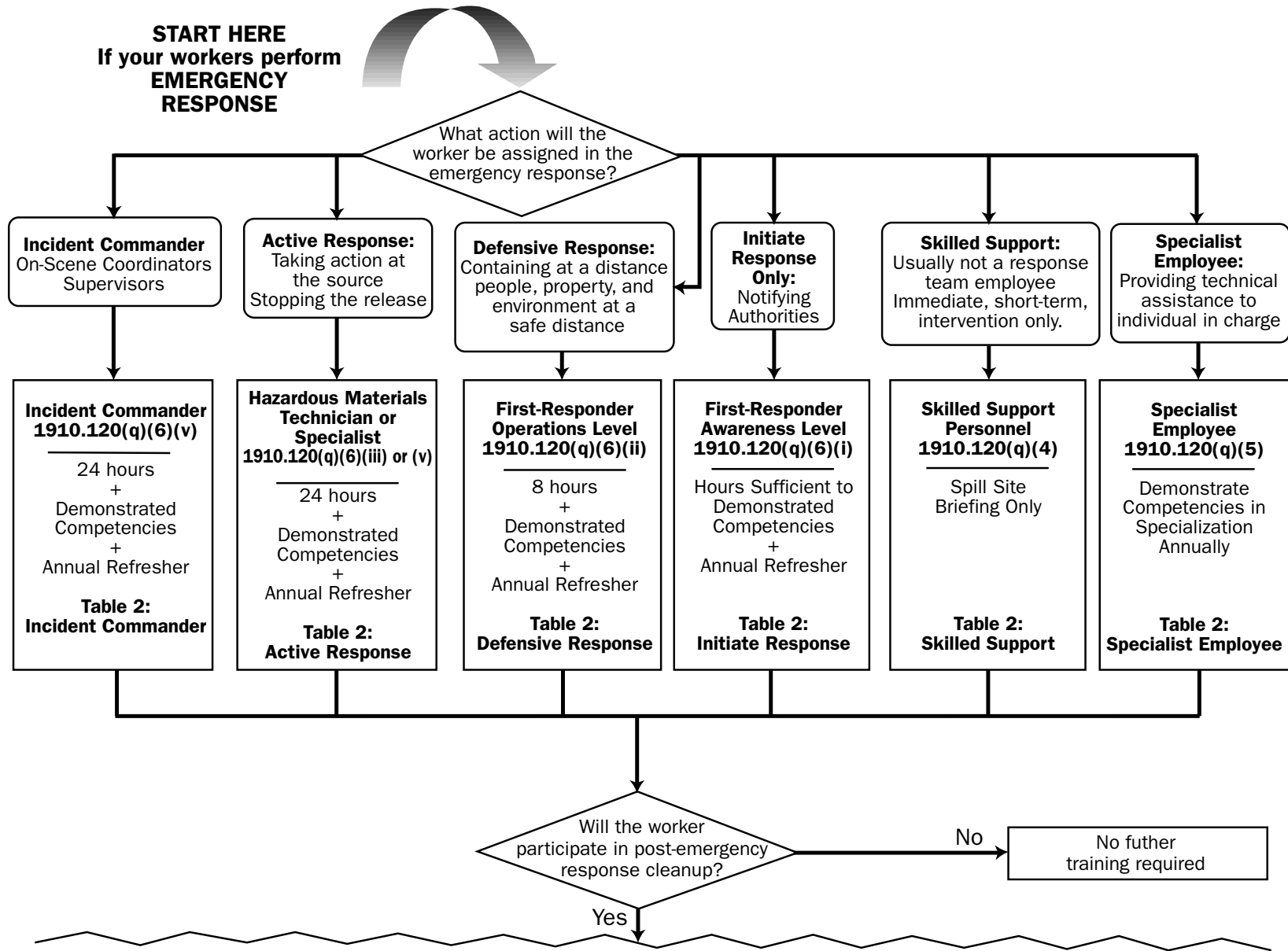
---

## Certifying and Updating Training

Workers who receive HAZWOPER training must receive a written certificate when they successfully complete the training. This is a requirement of paragraphs (e)(6) and (q)(6). Figure 2, Sample Certifications, illustrates examples of training certification cards given to workers completing various levels of HAZWOPER training. You do not need to repeat the initial training if the worker goes to work at a new site. The worker must have additional training or site briefings, however, that are needed to work safely at the new spill incident or cleanup site. Every year, your emergency responders and cleanup workers must receive refresher training to maintain and demonstrate competency.

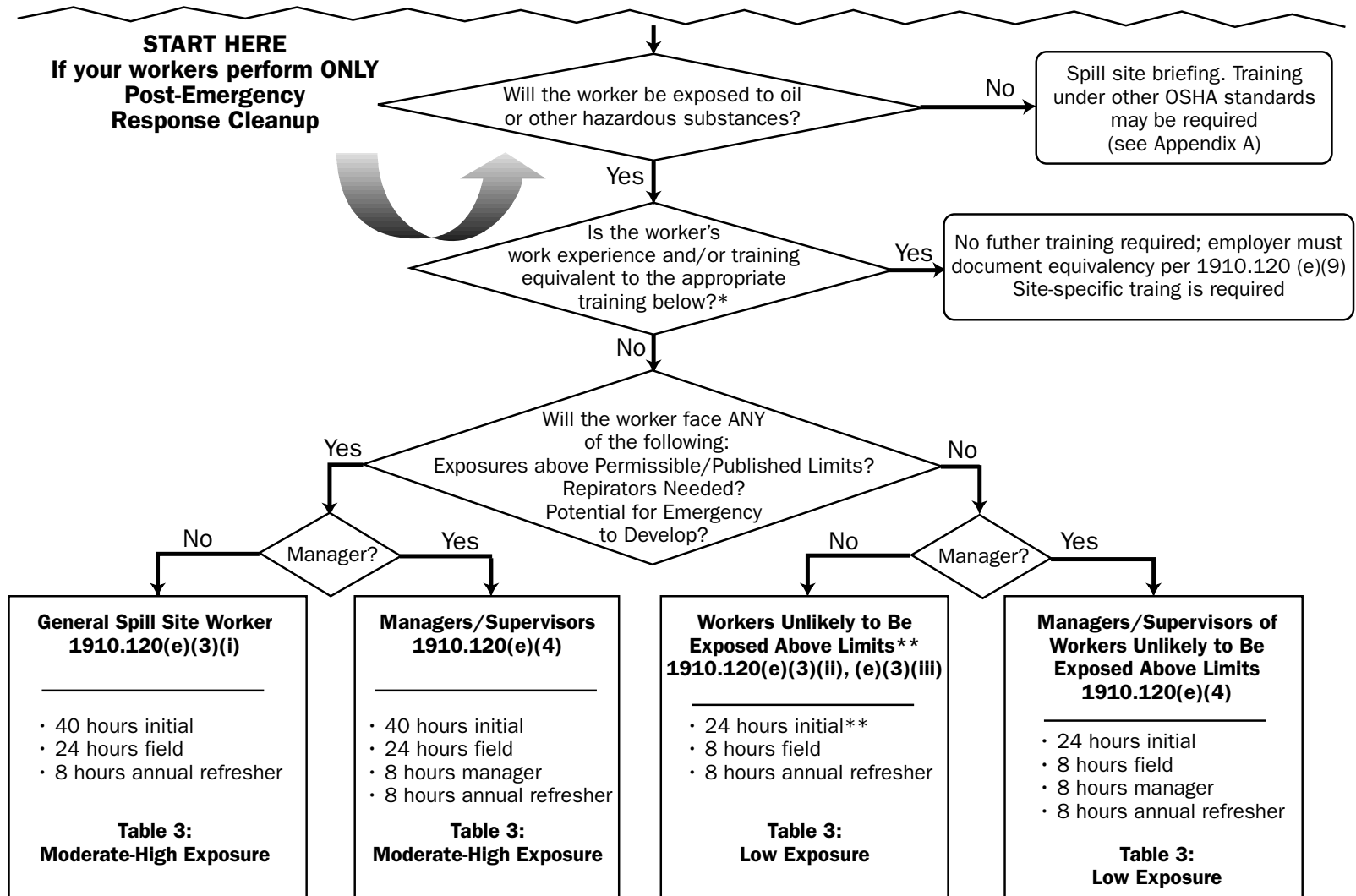
Note that Tables 2, 3, and 4 clarify HAZWOPER training requirements. You cannot use these tables as a substitute for the language of the regulation. Also, training required by other OSHA standards that may also apply to your employees is not discussed in this booklet.

**For information about the acceptability of various technology-based training formats, see OSHA letters of interpretation on OSHA's website at: <http://www.osha.gov>.**



**Figure 1. Training Decisions Flowchart for Emergency Response Workers**





\*Typically, First Responder Awareness Level training (1910.120 (q)(6)(i)) will NOT prepare a worker for cleanup operations because it addresses emergency notification procedures only. Workers who could have direct contact with or potential exposure to hazardous substances often need additional training.

\*\*If you need to train workers for a specific spill and for tasks that involve minimal exposure (e.g., beach cleanup workers) you may be able to use the reduced training provision OSHA describe in its compliance directive, CPL2-2.51. This directive applies in limited circumstances. See the directive and Table 1B.

**Figure 2. Training Decisions Flowchart for Post-Emergency Response Cleanup Workers**



**Table 2. Training for Workers Who Perform Emergency Response**

Job functions are examples **only**. Workers should be trained to the highest level of responsibility you would assign them. See Table 4 for descriptions of training topics and competency areas.

Job Function Examples		Minimum Training & Experience
<b>Incident Commander</b>	<ul style="list-style-type: none"> <li>- On-Scene Coordinators</li> <li>- On-Scene Coordinator Representatives</li> <li>- On-Scene Industry Representatives</li> <li>- ICS Operations Section Chief</li> <li>- ICS Site Safety Enforcement Personnel</li> </ul> <ul style="list-style-type: none"> <li>- Supervisors/Managers</li> <li>- ICS Safety Officer</li> <li>- ICS Group Supervisors</li> </ul>	<p><b>As shown on Figure 1</b></p> <p>24 hours initial emergency response training covering areas 25-36 <b>AND</b> competency in areas 1-6</p> <p>Annual refresher training or annual demonstration of competency, ensuring competencies in areas 25-36 and 1-6</p>
<b>Active Response</b>	<ul style="list-style-type: none"> <li>- Work close to flammable/combustible liquids such as in a pumping operation</li> <li>- Work in confined or enclosed spaces containing volatile oil</li> <li>- Underwater free-floating oil removal</li> <li>- Soil/sand subsurface oil assessment</li> <li>- Plugging holes/emergency repairs to source</li> <li>- Diving operations close to source</li> <li>- Work adjacent to volatile fuel during initial spill hours (boat operations, etc.)</li> <li>- Site characterization of chemical exposures, air monitoring/sampling</li> <li>- Soil investigation/sampling</li> <li>- Dispersant application and monitoring operations</li> <li>- In-situ burn and monitoring operations</li> <li>- Application of herding agents/emulsion breakers</li> </ul> <ul style="list-style-type: none"> <li>- Marine chemist activities</li> <li>- Salvage response</li> <li>- Booming operations at source</li> <li>- Vessel damage assessment</li> <li>- Accident investigation</li> <li>- Firefighting response</li> </ul>	<p><b>As shown on Figure 1</b></p> <p><b>Technician Level [(q)(6)(iii)]:</b></p> <ul style="list-style-type: none"> <li>• 24 hours initial emergency response training covering areas 25-36 <b>AND</b> competency in areas 7-15</li> <li>• Annual refresher training or annual demonstration of competency, ensuring competencies in areas 25-36 and 7-15</li> </ul> <p style="text-align: center;"><b>OR</b></p> <p><b>Specialist Level [(q)(6)(iv)]:</b></p> <ul style="list-style-type: none"> <li>• 24 hours initial emergency response training covering areas 7-15 and 25-36 <b>AND</b> competency in areas 16-24</li> <li>• Annual refresher training or annual demonstration of competency, ensuring competencies in areas 7-36</li> </ul>
<b>Defensive Response</b>	<ul style="list-style-type: none"> <li>- Booming operations at a safe distance*</li> <li>- Surface level shoreline impact assessment</li> <li>- Manual pickup and removal of irritant oil and oily debris for oils that could be re-released into environment</li> <li>- Damming/diking at a safe distance</li> <li>- Loading of oil into receptacles at a safe distance</li> <li>- Emergency medical personnel (if working in contaminated areas)</li> </ul> <ul style="list-style-type: none"> <li>- Staging area managers</li> <li>- Vacuum truck operations at a safe distance</li> <li>- Security operations</li> <li>- Safety zone enforcement</li> <li>- Skimmer/boat operations at a safe distance</li> </ul>	<p><b>As shown on Figure 1</b></p> <ul style="list-style-type: none"> <li>• 8 hours initial emergency response training covering areas 31-36 <b>AND</b> competency in areas 25-30</li> <li>• Annual refresher training or annual demonstration of competency, ensuring competencies in areas 25-36</li> </ul>

**Table 2. Training for Workers Who Perform Emergency Response (Cont).**

<b>Job Function Examples</b>		<b>Minimum Training &amp; Experience</b>
<b>Initiate Response</b>	<ul style="list-style-type: none"> <li>- Crew members who discover a release and alert the proper emergency response personnel</li> <li>- Industry and government watchstanders</li> </ul>	<p><b>As shown on Figure 1</b></p> <ul style="list-style-type: none"> <li>• Sufficient hours to demonstrate competency in areas 31-36</li> <li>• Annual refresher training including demonstration of competency in areas 31-36</li> <li>• Additional training required for post-emergency cleanup activities unless there is no exposure to hazardous substances. See Figure 1 for guidance.</li> </ul>
<b>Skilled Support</b>	<ul style="list-style-type: none"> <li>- Immediate, short-term intervention of a specialized nature that cannot be performed by other workers</li> <li>- On-scene resource documentation</li> <li>- Operation of certain equipment such as mechanized digging equipment, cranes, and other hoisting equipment</li> </ul> <ul style="list-style-type: none"> <li>- Aerial assessment</li> <li>- Remote sensing aerial platforms</li> <li>- Photo-documentation</li> <li>- Administrative/finance support</li> </ul>	<p><b>As shown on Figure 1</b></p> <ul style="list-style-type: none"> <li>• Spill site briefing in areas 55-59</li> </ul>
<b>Specialist Employer</b>	<ul style="list-style-type: none"> <li>- Dispersion modeling personnel</li> <li>- Meteorologist</li> <li>- Analytical chemical/oil specialist</li> <li>- Professional engineer/spill recovery system or shipbuilding specialist</li> </ul>	<p><b>As shown on Figure 1</b></p> <ul style="list-style-type: none"> <li>• Briefing covering areas 55-59</li> <li>• Training or demonstrated competency in area of specialization annually</li> </ul>

NOTES:

1. Tables 2, 3, and 4 are intended to clarify HAZWOPER (29 CFR 1910.120 or 1926.65) training requirements for marine oil spill response. The tables do not relieve employers from the requirements of HAZWOPER, nor do they specifically address training that may be required by other OSHA standards.
2. All employees should receive pre-entry site briefings covering, at a minimum, training areas 55-59 in Table 4.
3. Table 4 lists the training areas referenced throughout Tables 2 and 3. For example, an Incident Commander must receive 24 hours of initial training covering training areas 25-36 in Table 4.

\*Defensive personnel must be at a safe distance from the point of release, outside the hot zone or danger zone.

**Table 3. Training for Workers Who Perform Only Post-Emergency Response**

Job functions are examples **only**. Workers should be trained to the highest level of responsibility you would assign them.

	<b>Job/Site Characterization</b>	<b>Job Function Examples</b>	<b>Minimum Training &amp; Experience</b>
<b>Moderate-High (At/Above Exposure Limits)</b>	<ul style="list-style-type: none"> <li>• Unknown oil or unknown hazardous substance mixed with oil</li> <li>• Exposures equal or exceed exposure limits or other published limits</li> <li>• Respiratory protection required</li> <li>• Concentrations at or above 10 percent of the Lower Explosive Limit (LEL)</li> <li>• Oxygen levels <math>\geq 19.5 &lt; 22</math> percent</li> <li>• Carcinogen: known or suspected</li> <li>• Situations in which oil is known but parameters above cannot be reasonably assessed</li> </ul>	<ul style="list-style-type: none"> <li>- Manual cleanup of stranded oil with potential skin carcinogens (e.g., benzo (a) pyrene)</li> <li>- Cleanup of stranded oil when toxic chemicals are persistent and above exposure limits</li> <li>- Wildlife capture and treatment depending on explosives</li> <li>- Load and transfer piled oil-saturated decaying plants and animals that provide a hydrogen sulfide risk</li> <li>- Cleanup of stranded oil in confined spaces</li> <li>- On land marsh burning operations</li> </ul>	<ul style="list-style-type: none"> <li>• 40 hours of initial training in areas 37-43 and 3 days supervised field experience, or equivalent training certification</li> <li>• At least 8 hours of annual refresher training</li> <li>• Supervisory/management personnel must also receive 8 hours of additional initial training covering at a minimum areas 51-54</li> </ul>
<b>Low (Below Exposure Limits)</b>	<p><b>Routine spill cleanup workers [(e)(3)(iii)]:</b></p> <ul style="list-style-type: none"> <li>• Oil and other hazards of spill constituents known</li> <li>• Exposures may cause irritation (skin, eye, respiratory) but are below permissible published limits</li> <li>• Oxygen levels <math>\geq 19.5 &lt; 22</math> percent</li> <li>• Concentrations less than 10 percent, but more than the LEL</li> <li>• Other significant hazards may be present: Physical, safety, ergonomic, thermal.</li> </ul> <p><b>[(e)(3)(ii)]:</b></p> <ul style="list-style-type: none"> <li>• Oil and other hazards of spill constituents known</li> <li>• Exposures below permissible/published limits</li> </ul>	<ul style="list-style-type: none"> <li>- Pressure washing operations of stranded weathered oil</li> <li>- Cutting of contaminated live vegetation</li> <li>- Natural resource damage assessment</li> <li>- Bioremediation operations</li> <li>- Shoreline cleanup assessment</li> <li>- Vessel/equipment decontamination</li> <li>- Underwater stranded oil removal operations</li> <li>- Soil/sand substance oil removal</li> <li>- Containerized/packaged waste handling and disposal for transport operations</li> </ul>	<p><b>As shown in Figure 1</b></p> <ul style="list-style-type: none"> <li>• 24 hours of initial training in areas 44-50 and 1 day supervised field experience, or equivalent training</li> <li>• At least 8 hours of annual refresher training</li> <li>• Supervisory management personnel must also receive 8 hours of additional initial training covering at a minimum areas 51-54</li> </ul>

**Table 3. Training for Workers Who Perform Only Post-Emergency Response (Cont.)**

Job/Site Characterization		Job Function Examples	Minimum Training & Experience
<b>Non-Recurring/Minimal Exposure</b>	<ul style="list-style-type: none"> <li>• Oil and other spill constituents known</li> <li>• Exposures below permission/published limits</li> <li>• Respirators not required</li> <li>• Oxygen levels <math>\geq 19.5 &lt; 22</math> percent)</li> <li>• No potential for chemical emergency, explosion, or fire</li> <li>• Minimal irritants to respiratory system, eyes, or skin</li> <li>• No significant physical, safety, ergonomic, and thermal hazards</li> </ul>	<ul style="list-style-type: none"> <li>- Workers who do not participate in marine oil spill responses on a frequent recurring basis and who will have minimal exposure</li> <li>- Tarball shoreline cleanup</li> <li>- On scene cost documentation</li> <li>- Operators of large construction vehicles during stranded oil removal</li> </ul>	<p><b>As footnoted in Figure 1</b></p> <ul style="list-style-type: none"> <li>• If conditions described in CPL 2-2.51 are met, reduced initial training or equivalent training certification covering items 44-50</li> <li>• Up-to-date training consistent with 1910.38(a) and 1910.1200, and health and safety training associated with assigned tasks</li> </ul> <p><b>Supervisory/management personnel</b> must receive:</p> <ul style="list-style-type: none"> <li>• At least 24 hours of initial training in areas 44-50 and 1 day of supervised field experience;</li> <li>• 8 hours of additional initial training covering at a minimum areas 51-54; and</li> <li>• 8 hours annual refresher training</li> </ul>
<b>No Exposure</b>	<ul style="list-style-type: none"> <li>• Area characterized and stable with:</li> <li>• <b>No</b> potential for exposure to hazardous waste or substances by any route (i.e., inhalation, skin absorption, ingestion)</li> </ul> <p>No safety hazards associated with hazardous waste or hazardous substances</p>	<ul style="list-style-type: none"> <li>- Aerial photo documentation - Historians</li> <li>- Command Post support - Press</li> <li>- Food service personnel</li> <li>- Legal representation</li> <li>- Over-flight assessment (if no potential for exposure)</li> <li>- Resource tracking (if no potential for exposure)</li> <li>- Financial services personnel</li> </ul>	<p><b>As shown in Figure 1</b></p> <ul style="list-style-type: none"> <li>• Briefing covering areas 55-59</li> </ul>

NOTES:

1. Tables 2, 3, and 4 are intended to clarify HAZWOPER (29 CFR 1910.120 or 1926.65) training requirements for marine oil spill response. The tables do not relieve employers from the requirements of HAZWOPER, nor do they specifically address training that may be required by other OSHA standards.
2. All employees should receive pre-entry site briefings covering, at a minimum, training areas 55-59 in Table 4.
3. Equivalent training must be documented or certified by the employer. The documentation or certification must show that an employee's work experience and/or training has resulted in training equivalent to the training required in paragraphs (e)(1) through (e)(4) of 1910.120. Equivalently trained employees must receive appropriate, site-specific training prior to site entry and have appropriate supervised experience at the new site. Equivalent training includes any academic training or the training that existing employees might have received from prior spill site experience. Certification or documentation as equivalently trained does not apply to refresher training requirements.
4. Table 4 lists the training areas referenced throughout Tables 2 and 3. For example, Supervisory/Management personnel in low exposure level conditions must receive 8 hours of additional initial training covering those training areas 51-54 in Table 4.
5. The oxygen concentration range used in these tables,  $\geq 19.5 < 22$  percent, is consistent with 29 CFR 1915 Subpart B, Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment.

**Table 4. Training Topics and Competency Areas (from Tables 2 and 3)**

**ON-SCENE COORDINATOR**

- 1) Know and be able to implement the employer's incident command system.
- 2) Know how to implement the employer's emergency response plan.
- 3) Know and understand the hazards and risks associated with employees working in personal protective clothing.
- 4) Know how to implement the local emergency response plan.
- 5) Know the state emergency response plan and the Federal Regional Response Team.
- 6) Know and understand the importance of decontamination procedures.

**ACTIVE RESPONSE**

- 7) Know how to implement the employer's emergency response plan.
- 8) Know how to use field survey instruments and equipment to classify, identify, and verify known and unknown materials.
- 9) Be able to function within an assigned role in the Incident Command System.
- 10) Know how to select and use proper specialized personal protective equipment provided to the hazardous materials technician.
- 11) Understand and be able to apply hazard and risk assessment techniques.
- 12) Be able to perform advanced control, containment, and/or confinement operations within the capabilities of the resources and available personal protective equipment.
- 13) Understand and implement decontamination procedures.
- 14) Understand termination procedures.
- 15) Understand terminology and behavior of chemicals and their toxic effects.
- 16) Know how to use advanced survey instruments and equipment to classify, identify, and verify known and unknown materials.
- 17) Understand in-depth hazard and risk techniques.
- 18) Be able to determine and implement decontamination procedures.
- 19) Know how to implement the local emergency response plan.
- 20) Know the state emergency response plan.
- 21) Be able to develop a site safety and control plan.

- 22) Understand chemical, radiological, and toxicological terminology and behavior.
- 23) Be able to select and use proper specialized chemical personal protective equipment provided to the hazardous materials specialist.
- 24) Be able to perform specialized control, containment, and/or confinement operations within the capabilities of the resources and personal protective equipment available.

**DEFENSIVE RESPONSE**

- 25) Know basic hazard and risk assessment techniques.
- 26) Know how to select and use proper personal protective equipment necessary for the first responder operation level.
- 27) Understand basic hazardous materials terms.
- 28) Know how to perform basic control, containment, and/or confinement operations within the capabilities of the resources and available personal protective equipment.
- 29) Know how to implement basic decontamination procedures.
- 30) Understand the relevant standard operating and termination procedures.

**INITIATE RESPONSE ONLY**

- 31) Understand the hazards of oil and the risks in a spill.
- 32) Understand what happens during an emergency involving spilled oil.
- 33) Recognize the presence of oil or related hazardous materials in an emergency.
- 34) Identify hazardous substances, if possible (e.g., appearance, smell, monitoring equipment).
- 35) Understand individual role in employer's emergency response plan.
- 36) Recognize when help is needed and when to request assistance from the response team.

**POST-EMERGENCY CLEANUP—EXPOSURES ABOVE EXPOSURE LIMITS**

- 37) Know the name(s) of and how to contact the site safety and health personnel for spill cleanup.
- 38) Know the safety, health, and other hazards present during oil spill cleanup.
- 39) Know safe cleanup work practices including decontamination procedures to minimize risks.
- 40) Know how to use available controls and equipment, including contamination control procedures and personal protective equipment, to minimize risks.

- 41) Know the contents of the safety and health plan for the specific cleanup.
- 42) Know and be able to recognize signs and symptoms of overexposure to hazards present.
- 43) Know the medical surveillance requirements.

**POST-EMERGENCY CLEANUP—EXPOSURES BELOW EXPOSURE LIMITS OR NON-RECURRING MINIMAL EXPOSURE**

- 44) Know the name(s) of and how to contact site safety and health personnel for spill cleanup.
- 45) Know the safety, health, and other hazards present during oil spill cleanup.
- 46) Know safe cleanup work practices including decontamination procedures to minimize risks.
- 47) Know how to use available controls and equipment, including contamination control and personal protective equipment, to minimize risks from hazards present.
- 48) Know the contents of the safety and health plan prepared for the specific cleanup.
- 49) Know and be able to recognize signs and symptoms of overexposure to hazards present.
- 50) Know the medical surveillance requirements.

**SUPERVISOR/MANAGER FOR CLEANUP OPERATIONS**

- 51) Know and be able to implement effectively the employer's safety and health program.
- 52) Know and be able to implement effectively the employer's personal protective equipment plan.
- 53) Know and be able to implement effectively the employer's spill containment program.
- 54) Know and be able to implement effectively health hazard monitoring procedure and techniques.

**BRIEFING TOPICS**

- 55) Purpose of visit or duties to be performed.
- 56) Site personnel, chain-of-command, and communications procedures.
- 57) Chemical/physical hazards involved, signs and symptoms of exposure.
- 58) Emergency alarm system, escape routes, and places of refuge.
- 59) Appropriate contamination control procedures, personal protective equipment, decontamination, and other control measures provided.

**Figure 3. Sample Certifications**

No. 00232

This is to certify that  
**John Smith**  
has satisfactorily completed  
**40-Hour HAZWOPER Marine Oil Spill Training**  
as described in 29 *CFR* 1910.120(e)

\_\_\_\_\_  
**H.L. Teacher, Instructor**                      Date  
SEA Training Institute  
Street, City, ST 00001

No. 00233

This is to certify that  
**Jane Smith**  
has satisfactorily completed  
**8-Hour HAZWOPER Marine Oil Spill  
Supervisor Training**  
as described in 29 *CFR* 1910.120(e)(4)

\_\_\_\_\_  
**H.L. Teacher, Instructor**                      Date  
SEA Training Institute  
Street, City, ST 00001

No. 00234

This is to certify that  
**Joy Smith**  
satisfactorily completed  
**HAZWOPER Post-Emergency Response  
Cleanup Training for Minimal Exposure Conditions  
Only for (insert name of spill) Spill**  
consistent with OSHA CPL 2-2.51

\_\_\_\_\_  
**H.L. Teacher, Instructor**                      Date  
SEA Training Institute  
Street, City, ST 00001

No. 00235

This is to certify that  
**James Smith**  
has satisfactorily completed  
**24-Hour Marine Oil Spill Training  
for Hazardous Materials Technicians  
and demonstrated the necessary competencies**  
as described in 29 *CFR* 1910.120(q)(6)(iv)

\_\_\_\_\_  
**H.L. Teacher, Instructor**                      Date  
SEA Training Institute  
Street, City, ST 00001

No. 00236

This is to certify that  
**Julie Smith**  
has satisfactorily completed  
**8-Hour HAZWOPER Marine Refresher Training  
for Hazardous Waste Site Workers**  
as described in 29 *CFR* 1910.120(e)(8)

\_\_\_\_\_  
**H.L. Teacher, Instructor**                      Date  
SEA Training Institute  
Street, City, ST 00001

No. 00237

This is to certify that  
**Joe Smith**  
has satisfactorily demonstrated competency  
in lieu of annual refresher training for  
**Marine Oil Spill First Responder Operations Level**  
as described in 29 *CFR* 1910.120(q)(8)

\_\_\_\_\_  
**H.L. Teacher, Instructor**                      Date  
SEA Training Institute  
Street, City, ST 00001

## Oil Spill Scenario

This scenario is not intended to represent a typical marine oil spill. It illustrates levels of training needed for several job functions and hazardous exposure levels. Information in parentheses refers to the training levels in the Figure 1 flowchart.

### Incident

A tugboat is pushing a barge loaded with a sour crude that contains sulfur, benzene, toluene, and xylene to an anchorage for lightering (See Figure 4). The anchorage is within sight of the local Coast Guard Marine Safety Office. Contractor resources also are located in the port within view of the anchorage. The tug pushing the barge miscalculates the turning radius, causing the barge to collide with the stern of a tank vessel. The vessels lock together. As a result, two of the barge's port cargo tanks are breached, releasing several thousand gallons of crude oil into the water. Prevailing winds and currents carry the oil away from the vessels. Some oil is trapped between the barge and the tank vessel.

It is midday on a sunny summer day. The wind is 5 knots. The water temperature is around 70 degrees Fahrenheit. Air temperature is around 84 degrees Fahrenheit.

### Discovery

Members of the tug crew immediately notify the Coast Guard of the incident (Figure 1: First Responder Awareness Level).

The tug and tank vessel crews remain with their vessels to ensure control of their ships. Vapors from the fresh oil begin to irritate the eyes of the captains and the crews. Both captains order crew members to remain upwind of the oil and avoid the area between the vessels where the oil is trapped.

### Initial Emergency Response

The owner of the barge is located across the country. According to the company's emergency response plan, the owner calls an Oil Spill Removal Organization (OSRO) to clean up the spill. The tug captain is designated by the owner to be the company's representative. Because the owner is not on-scene and does not participate in spill response activities, he is not required to have HAZWOPER training. The tug captain is on-scene making decisions in the response. Therefore, the tug captain must have Incident Commander training for emergency response (Figure 1: Incident Commander).

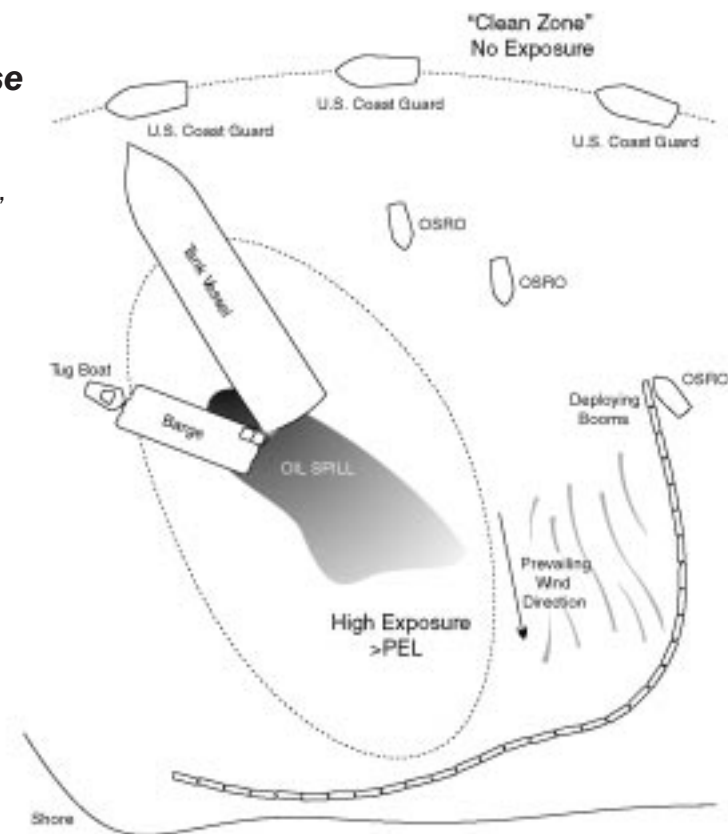


Figure 4. Illustration of Incident



---

The Coast Guard radios the tug captain to confirm the oil type, the same type listed on the cargo manifest faxed by the owner. The owner also faxes the cargo manifest to the OSRO. The Coast Guard uses references and advice from federal health professionals to estimate a safe distance from the spill.

After consultation with references, mathematical computer models, and federal health and safety professionals, the Coast Guard creates a safety zone around the spill and uses its boats to enforce it (Figure 1: First-Responder Operations Level).

The safety zone is conservatively large to maximize public safety. Support staff, news media, and other workers who will have no exposure to hazardous substances (Figure 1: Workers unlikely to be exposed over limits) will use the safety zone.

## ***Initial Assessment***

An hour after the initial oil release, two OSRO boats approach the spill from downwind to characterize the plume and determine the release zone boundaries. Their crews will monitor exposure levels using air-monitoring equipment (Figure 1: Hazardous Materials Technician or Specialist). Because exposure to hydrogen sulfide and benzene is expected, these responders must wear self-contained breathing apparatus (SCBA) while confirming estimated exposures. They may be able to switch to air-purifying respirators after the assessment.

They continue monitoring as the OSRO boats approach the spill until reaching permissible exposure limits. The boats work around the spill area to identify the limits of the High Exposure zone caused by vapors escaping the oil. Colorimetric tubes confirm air concentrations of 0.5 ppm of benzene and 4 ppm hydrogen sulfide at 200 feet (61 meters) downwind of the slick and 100 feet (30 meters) across the widest part of the plume.

The responders complete site characterization in areas where oil could be trapped between vessels, beneath piers, and in dock corners and other bounded spaces.

Outside the high exposure zone (the hot zone), workers prepare deflection and exclusion booms to divert the oil to a recovery site (Figure 1: First-Responder Operations Level).

The response team sets up a command center to coordinate response and cleanup activities. This area supports the Incident Commander, (Figure 1: Incident Commander), supervisors of the clean-up crews (Figure 1: Managers/Supervisors) with hourly requirements dependent on exposure, and other personnel (training depends on duties and exposures).

## ***Mechanical Recovery***

Four hours have passed. Air measurements of hydrogen sulfide, benzene, toluene, and xylene, taken with colorimetric tubes, register well below permissible exposure limits near the leading edge of the slick. An industrial hygienist and a marine chemist conduct a more detailed site characterization using advanced air-monitoring equipment such as a portable infrared analyzer and portable gas chromatograph (Figure 1a: Hazardous Materials Technician/Specialist, or Specialist Employee, depending on job duties). They confirm that the air exposures from the oil slick are below permissible limits. Air concentrations are above permissible limits, however, near oil trapped between the vessels and oil remaining in the damaged tanks.



Oil recovery skimmers arrive to skim free-floating oil. Containment boom and skimmer operators work from a boat. These operators wear goggles and protective clothing because the oil could irritate their skin and eyes. Because air concentrations are below permissible limits, operators are not required to wear respirators (Figure 1: First-Responder Operations Level).

The ships' support crews remain upwind of the spill (Figure 1: Skilled Support Personnel or Figure 1: Workers unlikely to be exposed over limits).



Tending an oil skimmer.

## Shoreline Cleanup

Six hours have passed. Oil reaches the shoreline. Skimmers near the shore remove oil that was deflected into recovery areas (Figure 1: First-Responder Operations Level, if these workers also participate in emergency response; or Figure 1: Workers unlikely to be exposed over limits, if these workers perform cleanup only).

The oil continues to irritate skin and eyes, so workers cleaning the shoreline wear chemical protective clothing, gloves, booties, and goggles. Because of the increased clothing requirements, site safety officer assistants begin monitoring for heat stress (Figure 1: Skilled Support Personnel or Figure 2: Workers unlikely to be exposed over limits, depending on the assistants' job duties).

Responders form decontamination lines at each shoreline cleanup area. Each worker decontaminates before a break period and at the end of the shift. Workers dispose of outer booties, wash or remove oiled clothing, dispose of outer gloves, wash goggles and remove inner gloves. To minimize the spread of contamination, workers conduct their own decontamination while a worker stands by to assist. The decontamination assistants take responsibility for maintaining and dismantling the decontamination line (Figure 2: Workers unlikely to be exposed over limits, if these workers perform cleanup operations only).

## Vessel

A skimming team recovers oil trapped between the vessels. Vessel personnel in SCBAs measure chemical and oxygen concentrations and the percentage of the lower explosive limit (LEL) for the space between the vessels (Figure 1: Hazardous Materials Technician/Specialist, or Specialist Employee, depending on job duties). Results of the monitoring indicate that workers conducting skimming operations must also be in SCBA. The workers decide to wait until exposure levels register below permissible limits before removing the oil.



Cleanup worker in Level C personal protective equipment.

---

Aboard the barge, a pumping team prepares to pump oil from the damaged cargo tanks into the tank vessel (Figure 1: Hazardous Materials Technician or Specialist). Explosion is a risk during pumping operations, so responders measure the LEL percentage and oxygen concentration throughout the operation. Before starting the pumping operations, workers in SCBAs put vapor recovery systems in place. Once the vapor recovery systems are in place, measured chemical concentration levels drop below permissible exposure limits and workers begin pumping.

### **Final Stages**

Two days later, no free-floating oil remains. Pumping operations are completed. No hazardous chemicals are detected by air-monitoring equipment. The oil is weathered and is no longer an irritant; however, slip and trip hazards persist. Shoreline cleanup operations continue.

No repair facility is located within a reasonably safe distance for transport, so workers conduct initial, temporary repairs for safe sailing. They clean the damaged tanks inside and out before patching and welding them. There is a risk of explosion, oxygen deficiency, and overexposures to chemicals (Figure 1: General Spill Site Worker, if the workers perform cleanup only). Forced ventilation makes the holds safe, and a competent person tests them before the cleaning begins. A marine chemist tests and certifies the areas Safe for Hot Work before cutting and/or welding operations begin.

The company's site safety and health plan does not cover the disposal of waste containers. Because of this oversight, oiled debris and waste decay in the containers, releasing hydrogen sulfide. A hazardous materials response team removes the contaminated waste from the containers (Figure 1: General Spill Site Worker).

A week has passed. To speed removal of remaining debris on shore, training is offered to a team of local volunteers (Figure 2: Workers unlikely to be exposed above limits, and associated footnote). Trained supervisors (Figure 2: Managers/Supervisors of workers unlikely to be exposed above limits, with training level dependent on anticipated exposures) oversee the volunteers. As shoreline cleanup progresses, shoreline clean-up assessment teams begin to verify that shorelines are clean (Figure 2: Workers unlikely to be exposed above limits).



**Shoreline cleanup operations during New Carissa oil spill, March 2000.**

---

## Other Sources of OSHA Assistance

### **Safety and Health Program Management Guidelines**

Effective management of worker safety and health protection is a decisive factor in reducing the extent and severity of work-related injuries and illnesses and their related costs. To assist employers and employees in developing effective safety and health programs, OSHA published recommended *Safety and Health Program Management Guidelines* (*Federal Register* 54(16): 3904-3916, January 26, 1989). These voluntary guidelines apply to all places of employment covered by OSHA.

The guidelines identify four general elements that are critical to the development of a successful safety and health management program:

- Management leadership and employee involvement,
- Worksite analysis,
- Hazard prevention and control, and
- Safety and health training.

The guidelines recommend specific actions, under each of these general elements, to achieve an effective safety and health program. The *Federal Register* notice containing the guidelines is available online at [www.osha.gov](http://www.osha.gov).

### **State Programs**

The *Occupational Safety and Health Act of 1970* (*OSH Act*) encourages states to develop and operate their own job safety and health plans. OSHA approves and monitors these plans. There are currently 26 state plan states; 23 of these states administer plans covering both private and public (state and local government) employment; the other 3 states—Connecticut, New Jersey, and New York—cover the public sector only.

The 25 states and territories with their own OSHA-approved occupational safety and health plans must adopt standards identical to, or at least as effective as, the federal standards. Until a state standard is promulgated, OSHA will provide interim enforcement assistance, as appropriate, in these states. A listing of states with approved plans appears at the end of this booklet.

### **Consultation Services**

Consultation assistance is available on request to employers who want help in establishing and maintaining a safe and healthful workplace. Largely funded by OSHA, the service is provided at no cost to the employer. Primarily developed for smaller employers with more hazardous operations, the consultation service is delivered by state governments employing professional safety and health consultants. Comprehensive

assistance includes an appraisal of all mechanical systems, physical work practices, and occupational safety and health hazards of the workplace and all aspects of the employer's present job safety and health program. In addition, the service offers assistance to employers in developing and implementing an effective safety and health program. No penalties are proposed or citations issued for hazards identified by the consultant.

For more information concerning consultation assistance, see the list of consultation projects listed at the end of this publication, or visit OSHA's website at [www.osha.gov](http://www.osha.gov).

---

## **Voluntary Protection Programs (VPPs)**

Voluntary Protection Programs and onsite consultation services, when coupled with an effective enforcement program, expand worker protection to help meet the goals of the *OSH Act*. The three VPPs—Star, Merit, and Demonstration—are designed to recognize outstanding achievements by companies that have successfully incorporated comprehensive safety and health programs into their total management system. The VPPs motivate others to achieve excellent safety and health results in the same outstanding way as they establish a cooperative relationship between employers, employees, and OSHA.

For additional information on VPPs and how to apply, contact the OSHA regional offices listed at the end of this publication.

### **Training and Education**

OSHA's area offices offer a variety of information services, such as publications, audiovisual aids, technical advice, and speakers for special engagements. OSHA's Training Institute in Des Plaines, IL, provides basic and advanced courses in safety and health for federal and state compliance officers, state consultants, federal agency personnel, and private sector employers, employees, and their representatives.

The OSHA Training Institute also has established OSHA Training Institute Education Centers to address the increased demand for its courses from the private sector and from other federal agencies. These centers are nonprofit colleges, universities, and other organizations that have been selected after a competition for participation in the program. They are located in various parts of the U.S.

OSHA also provides funds to nonprofit organizations, through grants, to conduct workplace training and education in subjects where OSHA believes there is a lack of workplace training. Grants are awarded annually. Grant recipients are expected to contribute 20 percent of the total grant cost.

For more information on grants, training, and education, contact the OSHA Training Institute, Office of Training and Education, 1555 Times Drive, Des Plaines, IL 60018, (847) 297-4810.

For further information on any OSHA program, contact your nearest OSHA area or regional office listed at the end of this publication.

### **Electronic Information**

Internet—OSHA standards, interpretations, directives, and additional information are now on the World Wide Web at <http://www.osha.gov>.

CD-ROM—A wide variety of OSHA materials, including standards, interpretations, directives, and more, can be purchased on CD-ROM from the U.S. Government Printing Office. To order, write to the Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 or phone (202) 512-1800. Specify OSHA Regulations, Documents and Technical Information on CD-ROM (ORDT), GPO Order No. S/N 729-013-00000-5. The price is \$46 per year (\$57.50 foreign); \$17 per single copy (\$21.25 foreign).

### **Emergencies**

For life-threatening situations, call (800) 321-OSHA. The teletypewriter (TTY) number is (877) 889-5627. Complaints will go immediately to the nearest OSHA area or state office for help. For further information on any OSHA program, contact your nearest OSHA area or regional office listed at the end of this publication.

---

## Appendix A: Related OSHA Standards and Directives

OSHA standards, interpretations, and directives are available online at <http://www.osha.gov>

### **Occupational Safety and Health Standards**

1910 Subpart D - Walking-Working Surfaces  
1910 Subpart E - Means of Egress  
1910 Subpart F - Powered Platforms, Manlifts, and Vehicle-Mounted Work Platforms  
1910 Subpart G - Occupational Health and Environmental Control  
1910 Subpart H - Hazardous Materials  
1910 Subpart I - Personal Protective Equipment  
1910 Subpart J - General Environmental Controls  
1910 Subpart K - Medical and First Aid  
1910 Subpart L - Fire Protection  
1910 Subpart M - Compressed Gas and Compressed Air Equipment  
1910 Subpart N - Materials Handling  
1910 Subpart O - Machinery and Machine Guarding  
1910 Subpart P - Hand and Portable Powered Tools and Other Hand-Held Equipment  
1910 Subpart Q - Welding, Cutting, and Brazing  
1910 Subpart S - Electrical

1910 Subpart T - Commercial Diving Operations  
1910 Subpart Z - Toxic and Hazardous Substances

### **Occupational Safety and Health Standards for Shipyard Employment**

1915 Subpart B Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment  
1915 Subpart C - Surface Preparation and Preservation  
1915 Subpart D - Welding, Cutting, and Heating  
1915 Subpart E - Scaffolds, Ladders, and Other Working Surfaces  
1915 Subpart F - General Working Conditions  
1915 Subpart G - Gear and Equipment for Rigging and Materials Handling  
1915 Subpart H - Tools and Related Equipment  
1915 Subpart I - Personal Protective Equipment

1915 Subpart J - Ship's Machinery and Piping Systems  
1915 Subpart L - Electrical Machinery  
1915 Subpart Z - Toxic and Hazardous Substances

### **Compliance Directives**

Inspection Guidelines for Post-Emergency Response Operations Under 29 *CFR* 1910.120 - Directive Number: CPL 2-2.51  
Inspection Procedures for the Hazardous Waste Operations and Emergency Response Standard, 29 *CFR* 1910.120 and 1926.65, Paragraph (q): Emergency Response to Hazardous Substance Releases - Directive Number: CPL 2-2.59A



---

## Appendix B: Related OSHA Publications

Single copies of the following booklets can be obtained from the nearest OSHA area or regional office or the U.S. Department of Labor, OSHA/ OSHA Publications, P.O. Box 37535, Washington, DC 20013-7535. Telephone (202) 693-1888 or fax (202) 693-2498. Please send a self-addressed mailing label with your request. Many copies are available online at <http://www.OSHA.gov>.

*Chemical Hazard Communication* - OSHA 3084

*Concepts & Techniques of Machine Safeguarding*  
- OSHA 3067 (Available only online.)

*Control of Hazardous Energy (Lockout/Tagout)*  
- OSHA 3120

*Controlling Electrical Hazards* - OSHA 3075

*Ergonomics: The Study of Work* - OSHA 3125

*Handbook for Small Businesses* - OSHA 2209

*Hazardous Waste Operations and Emergency Response* - OSHA 3114

*Hearing Conservation* - OSHA 3074

*How to Prepare for Workplace Emergencies*  
- OSHA 308

*Job Hazard Analysis* - OSHA 3071

*Respiratory Protection* - OSHA 3079

*Sling Safety* - OSHA 3072

*Stairways and Ladders* - OSHA 3124

---

## Appendix C. OSHA Offices Directory

### OSHA Regional Offices

#### REGION I

(CT,\* ME, MA, NH, RI, VT\*)  
JFK Federal Building, Room E340  
Boston, MA 02203  
(617) 565-9860

#### REGION II

(NJ,\* NY,\* PR,\* VI\*)  
201 Varick Street, Room 670  
New York, NY 10014  
(212) 337-2378

#### REGION III

(DE, DC, MD,\* PA,\* VA,\* WV)  
The Curtis Center  
170 S. Independence Mall West  
Suite 740 West  
Philadelphia, PA 19106-3309  
(215) 861-4900

#### REGION IV

(AL, FL, GA, KY,\* MS, NC,\* SC,\* TN\*)  
Atlanta Federal Center  
61 Forsyth Street, SW, Room 6T50  
Atlanta, GA 30303  
(404) 562-2300

#### REGION V

(IL, IN,\* MI,\* MN,\* OH, WI)  
230 South Dearborn Street, Room 3244  
Chicago, IL 60604  
(312) 353-2220

#### REGION VI

(AR, LA, NM,\* OK, TX)  
525 Griffin Street, Room 602  
Dallas, TX 75202  
(214) 767-4731 or 4736 x224

#### REGION VII

(IA,\* KS, MO, NE)  
City Center Square  
1100 Main Street, Suite 800  
Kansas City, MO 64105  
(816) 426-5861

#### REGION VIII

(CO, MT, ND, SD, UT,\* WY\*)  
1999 Broadway, Suite 1690  
Denver, CO 80202-5716  
(303) 844-1600

#### REGION IX

(American Samoa, AZ,\* CA,\* HI, NV\*)  
71 Stevenson Street, Room 420  
San Francisco, CA 94105  
(415) 975-4310

#### REGION X

(AK,\* ID, OR,\* WA\*)  
1111 Third Avenue, Suite 715  
Seattle, WA 98101-3212  
(206) 553-5930

\*These states and territories operate their own OSHA-approved job safety and health programs (Connecticut, New Jersey, and New York plans cover public employees only). States with approved programs must have a standard that is identical to, or at least as effective as, the federal standard.

## OSHA Area Offices

Area	Telephone	Area	Telephone
Albany, NY .....	(518) 464-4338	Fairview Heights, IL .....	(618) 632-8612
Albuquerque, NM .....	(505) 248-5302	Fort Lauderdale, FL .....	(954) 424-0242
Allentown, PA .....	(610) 776-0592	Fort Worth, TX .....	(817) 428-2470
Anchorage, AK .....	(907) 271-5152	Frankfort, KY .....	(502) 227-7024
Appleton, WI .....	(920) 734-4521	Guaynabo, PR .....	(787) 277-1560
Austin, TX .....	(512) 916-5783	Harrisburg, PA .....	(717) 782-3902
Avenel, NJ .....	(908) 750-3270	Hartford, CT .....	(860) 240-3152
Bangor, ME .....	(207) 941-8179	Hasbrouck Heights, NJ .....	(201) 288-1700
Baton Rouge, LA .....	(225) 389-0474	Honolulu, HI .....	(808) 541-2685
Bayside, NY .....	(718) 279-9060	Houston, TX .....	(281) 286-0583
Bellevue, WA .....	(206) 553-7520	Houston, TX .....	(281) 591-2438
Billings, MT .....	(406) 247-7494	Indianapolis, IN .....	(317) 226-7290
Birmingham, AL .....	(205) 731-1534	Jackson, MS .....	(601) 965-4606
Bismarck, ND .....	(701) 250-4521	Jacksonville, FL .....	(904) 232-2895
Boise, ID .....	(208) 321-2960	Kansas City, MO .....	(816) 483-9531
Bowmansville, NY .....	(716) 684-3891	Linthicum, MD .....	(410) 865-2055
Braintree, MA .....	(617) 565-6924	Little Rock, AR .....	(501) 324-6291
Bridgeport, CT .....	(203) 579-5516	Lubbock, TX .....	(806) 472-7681
Calumet City, IL .....	(708) 891-3800	Madison, WI .....	(608) 441-5388
Carson City, NV .....	(702) 885-6963	Marlton, NJ .....	(609) 757-5181
Charleston, WV .....	(304) 347-5937	Methuen, MA .....	(617) 565-8110
Cincinnati, OH .....	(513) 841-4132	Milwaukee, WI .....	(414) 297-3315
Cleveland, OH .....	(216) 522-3818	Minneapolis, MN .....	(612) 664-5460
Columbia, SC .....	(803) 765-5904	Mobile, AL .....	(334) 441-6131
Columbus, OH .....	(614) 469-5582	Nashville, TN .....	(615) 781-5423
Concord, NH .....	(603) 225-1629	New York, NY .....	(212) 466-2482
Corpus Christi, TX .....	(512) 888-3420	Norfolk, VA .....	(757) 441-3820
Dallas, TX .....	(214) 320-2400	North Aurora, IL .....	(630) 896-8700
Denver, CO .....	(303) 844-5285	Oklahoma City, OK .....	(405) 231-5351
Des Plaines, IL .....	(847) 803-4800	Omaha, NE .....	(402) 221-3182
Des Moines, IA .....	(515) 284-4794	Parsippany, NJ .....	(201) 263-1003
Eau Claire, WI .....	(715) 832-9019	Peoria, IL .....	(309) 671-7033
El Paso, TX .....	(915) 534-6251	Philadelphia, PA .....	(215) 597-4955
Englewood, CO .....	(303) 843-4500	Phoenix, AZ .....	(602) 640-2007
Erie, PA .....	(814) 833-5758	Pittsburgh, PA .....	(412) 644-4903



---

<b>Area</b>	<b>Telephone</b>
Portland, ME .....	(207) 780-3178
Portland, OR .....	(503) 326-2251
Providence, RI .....	(401) 528-4663
Raleigh, NC .....	(919) 856-4770
Sacramento, CA .....	(916) 566-7470
Salt Lake City, UT .....	(801) 487-0680
San Diego, CA .....	(619) 557-2909
Savannah, GA .....	(912) 652-4393
Smyrna, GA .....	(770) 984-8700
Springfield, MA .....	(413) 785-0123
St. Louis, MO .....	(314) 425-4249
Syracuse, NY .....	(315) 451-0808
Tampa, FL .....	(813) 626-1177
Tarrytown, NY .....	(914) 524-7510
Toledo, OH .....	(419) 259-7542
Tucker, GA .....	(770) 493-6644
Westbury, NY .....	(516) 334-3344
Wichita, KS .....	(316) 269-6644
Wilkes-Barre, PA .....	(717) 826-6538
Wilmington, DE .....	(302) 573-6115

---

## **States with Approved Plans**

### **Commissioner**

Alaska Department of Labor  
1111 W. 8th Street, Room 306  
P.O. Box 21149  
Juneau, AK 99802-1149  
(907) 465-2700

### **Director**

Industrial Commission of Arizona  
800 W. Washington  
Phoenix, AZ 85007  
(602) 542-5795

### **Director**

California Department of Industrial Relations  
455 Golden Gate Avenue - 10<sup>th</sup> floor  
San Francisco, CA 94102  
(415) 703-5050

### **Commissioner**

Connecticut Department of Labor  
200 Folly Brook Boulevard  
Wethersfield, CT 06109  
(860) 566-5123

### **Director**

Hawaii Department of Labor and  
Industrial Relations  
830 Punchbowl Street  
Honolulu, HI 96831  
(808) 586-8844

### **Commissioner**

Indiana Department of Labor  
State Office Building  
402 West Washington Street - Room W195  
Indianapolis, ID 46204  
(317) 232-2378

### **Commissioner**

Iowa Division of Labor  
1000 E. Grand Avenue  
Des Moines, IA 50319  
(515) 281-3447

### **Commissioner**

Indiana Department of Labor  
State Office Building  
402 West Washington Street  
Room W195  
Indianapolis, IN 46204  
(317) 232-3325

### **Secretary**

Kentucky Labor Cabinet  
1047 U.S. Highway 127 South, Suite 4  
Frankfort, KY 40601  
(502) 564-3070

### **Commissioner**

Maryland Division of Labor and Industry  
Department of Labor Licensing and Regulation  
1100 N. Eutaw Street, Room 613  
Baltimore, MD 21201-2206  
(410) 767-2215

### **Director**

Michigan Department of Consumer  
and Industry Services  
P.O. Box 30004 - 4th Floor, Law Building  
Lansing, MI 48909  
(517) 373-7230

### **Commissioner**

Minnesota Department of Labor and Industry  
443 Lafayette Road  
St. Paul, MN 55155  
(651) 296-2342

### **Commissioner**

North Carolina Department of Labor  
4 West Edenton Street  
Raleigh, NC 27601-1092  
(919) 807-2900

### **Commissioner**

New Jersey Department of Labor  
John Fitch Plaza - Labor Building  
Market and Warren Streets  
P.O. Box 110  
Trenton, NJ 08625-0110  
(609) 292-2975

---

**Secretary**

New Mexico Environment Department  
1190 St. Francis Drive  
P.O. Box 26110  
Santa Fe, NM 87502  
(505) 827-2850

**Commissioner**

New York Department of Labor  
W. Averell Harriman State Office  
Building-12, Room 500  
Albany, NY 12240  
(518) 457-2741

**Administrator**

Nevada Division of Industrial Relations  
400 West King Street  
Carson City, NV 89703  
(775) 687-3032

**Administrator**

Oregon Department of Consumer and  
Business Services  
Occupational Safety and Health Division  
(OR-OSHA)  
350 Winter Street, N.E. Room 430  
Salem, OR 97310-0220  
(503) 378-3272

**Secretary**

Puerto Rico Department of Labor and  
Human Resources  
Prudencio Rivera Martinez Building  
505 Munoz Rivera Avenue  
Hato Rey, PR 00918  
(787) 754-2119

**Director**

South Carolina Department of Labor,  
Licensing and Regulation  
Koger Office Park, Kingstree Building  
110 Centerview Drive  
P.O. Box 11329  
Columbia, SC 29210  
(803) 896-4300

**Commissioner**

Tennessee Department of Labor and  
Workforce Development  
710 James Robertson Parkway  
Nashville, TN 37243-0659  
(615) 741-2582

**Commissioner**

Labor Commission of Utah  
160 East 300 Street, 3rd floor  
P.O. Box 146650  
Salt Lake City, UT 84114-6650  
(801) 530-6901

**Commissioner**

Virginia Department of Labor and Industry  
Powers-Taylor Building  
13 South 13th Street  
Richmond, VA 23219  
(804) 786-2377

**Commissioner**

Virgin Islands Department of Labor  
2203 Church Street  
Christiansted, St. Croix, VI 00820-4660  
(340) 773-1990

**Commissioner**

Vermont Department of Labor  
and Industry  
National Life Building—Drawer 20  
120 State Street  
Montpelier VT 05620-3401  
(802) 828-2288

**Director**

Washington Department of Labor  
and Industries  
P.O. Box 44001  
Olympia, WA 98504-4001  
(360) 902-4200  
(360) 902-5430

**Administrator**

Worker's Safety and Compensation Division  
(WSC)  
Wyoming Department of Employment  
Herschler Building, 2<sup>nd</sup> Floor East  
122 West 25<sup>th</sup> Street  
Cheyenne, WY 82002  
(307) 777-7786

---

## OSHA Consultation Projects

Alabama .....	(205) 348-3033	Oklahoma .....	(405) 528-1500
Alaska .....	(907) 269-4957	Oregon .....	(503) 378-3272
Arkansas .....	(501) 682-4522	Pennsylvania .....	(724) 357-2396
Arizona .....	(602) 542-1695	Puerto Rico .....	(787) 754-2171
California .....	(916) 574-2555	Rhode Island .....	(401) 222-2438
Colorado .....	(970) 491-6151	South Carolina .....	(803) 734-9614
Connecticut .....	(860) 566-4550	South Dakota .....	(605) 688-4101
District of Columbia .....	(202) 541-3727	Tennessee .....	(615) 741-7036
Delaware .....	(302) 761-8219	Texas .....	(512) 804-4640
Florida .....	(813) 974-9962	Utah .....	(801) 530-6901
Georgia .....	(404) 894-2643	Vermont .....	(802) 828-2765
Guam .....	9-1-(671) 475-1101	Virginia .....	(804) 786-6359
Hawaii .....	(808) 586-9100	Virgin Islands .....	(809) 772-1315
Idaho .....	(208) 426-3283	Washington .....	(360) 902-5638
Illinois .....	(312) 814-2337	West Virginia .....	(304) 558-7890
Indiana .....	(317) 232-2688	Wisconsin .....	(608) 266-9383 (H)
Iowa .....	(515) 281-7629	.....	(262) 523-3044 (S)
Kansas .....	(785) 296-7476	Wyoming .....	(307) 777-7786
Kentucky .....	(502) 564-6895		
Louisiana .....	(225) 342-9601	(H) - Health	
Maine .....	(207) 624-6460	(S) - Safety	
Maryland .....	(410) 880-4970		
Massachusetts .....	(617) 727-3982		
Michigan .....	(517) 322-1809		
Minnesota .....	(651) 297-2393		
Mississippi .....	(601) 987-3981		
Missouri .....	(573) 751-3403		
Montana .....	(406) 444-6418		
Nebraska .....	(402) 471-4717		
Nevada .....	(702) 486-9140		
New Hampshire .....	(603) 271-2024		
New Jersey .....	(609) 292-3923		
New Mexico .....	(505) 827-4230		
New York .....	(518) 457-2238		
North Carolina .....	(919) 807-2905		
North Dakota .....	(701) 328-5188		
Ohio .....	(614) 644-2631		





---

---