



API Selection and Training Guidelines for In Situ Burning Personnel

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API Selection and Training Guidelines for *In Situ* Burning Personnel

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HOW TO USE THIS DOCUMENT

THE FIRST TEN SECTIONS OF THIS DOCUMENT DESCRIBE THE CAPABILITIES THAT MAY BE NEEDED BY EACH OF THE TEN POSITION DESCRIPTIONS THAT ARE EXPECTED TO DESCRIBE ALL *IN SITU* BURN RESPONDERS. DETAILS OF MANY OF THESE CAPABILITIES ARE COMMON TO SOME OR ALL POSITIONS. TO AVOID REPETITION, SUCH DETAILS ARE LISTED IN THE ELEVENTH SECTION.

FOR A LISTING OF CAPABILITIES THAT MAY BE NEEDED FOR A PARTICULAR POSITION, SEE THE SPECIFIC SECTION FOR THAT POSITION. THESE CAPABILITIES ARE INDEXED TO THE DETAILS IN THE ELEVENTH SECTION.

TO VIEW ALL *IN SITU* BURN RELATED CAPABILITIES AND THE DETAILED JOB PERFORMANCE REQUIREMENTS, REQUISITE KNOWLEDGE, AND REQUISITE SKILLS FOR EACH CAPABILITY—GO DIRECTLY TO THE ELEVENTH SECTION.

THE OVERALL SUPERVISOR OF AN *IN SITU* BURN OPERATION MAY HAVE A DIFFERENT INCIDENT COMMAND SYSTEM TITLE DEPENDING UPON WHETHER THE OPERATION IS THE ONLY RESPONSE OPERATION BEING CONDUCTED OR IS ONLY PART OF A LARGER RESPONSE EFFORT. TO AVOID CONFUSION, THE TERM **BURN BOSS** IS USED IN THIS DOCUMENT TO REFER TO THE OPERATIONAL SUPERVISOR OF THE *IN SITU* BURNING ACTIVITY; HOWEVER, THAT ACTIVITY MAY BE ASSIGNED IN A PARTICULAR INCIDENT COMMAND ORGANIZATIONAL STRUCTURE. THE TERM **BURN BOSS** ORIGINATED FROM THE WILDLAND PRESCRIBED BURN CONTEXT.

Introduction

This document was developed under the auspices of the Joint Industry Oil Spill Preparedness and Response (OSPR) Task Force (JITF) and the American Petroleum Institute, Oil Spill, Emergency Preparedness & Response Subcommittee (OSEPR). These groups convened to evaluate the procedures and lessons learned during the *Deepwater Horizon* oil spill response. The initial focus was to identify potential opportunities for improvement to the oil spill response system. One of the categories addressed by the JITF and OSPR was *in situ* burning of spilled oil. Within this category, a number of projects were identified to be worked on by individual project teams. One of those projects was to develop selection and training guidance for oil spill responders to *in situ* burns. Consequently, a project team was formed of volunteers representing the oil and gas industry, federal and state government, subject matter experts, oil spill response organizations, and manufacturers of relevant equipment.

This document was developed to assist in selection and training of *in situ* burn responders. Guidance for making an appropriate decision to use *in situ* burning is covered in *A Decision-maker's Guide to In-situ Burning*, API Publication 4740.

Project Mission: To develop guidelines to ensure *in situ* burn responders have the necessary competencies to safely execute their jobs during a burn. The purpose of this guidance is to provide a systematic approach to assist users in the selection of responder qualifications and the training requirements for responders to spilled oil in the open water environment, ice conditions on water bodies, and the inland environment, including spills affecting waterways and those lakes not considered open water.

Target Audience: These guidelines are intended to be primarily used by training officers, to develop a curriculum to train *in situ* burn responders, and a burn boss, to determine the level of competency of a burn team.

Charter: This document was produced by a cross-functional team of responders and interested parties who drew on their experience, their colleagues' experience, and available literature to develop guidelines of competencies for *in situ* burn responders.

Organization of the Guidelines: Ten specific job positions descriptions are identified, which are designed such that all participants in an *in situ* burn operation can be assigned to one or several of the positions described, for training and experience purposes. The ISB positions are:

1. [Burn Boss \(ISB Operations Supervisor\)](#)
2. [Safety Officers](#)
3. [Vessel Captains](#)
4. [Fire Suppression Specialists](#)
5. [Ignition and Spill Control Agent Specialists](#)
6. [Small Boat Operators and Deck Hands](#)
7. [Air Monitoring Specialists](#)
8. [Skilled Support Personnel](#)
9. [Aerials Surveillance Specialists](#)
10. [Observers](#)

The basic requisite skills, which apply across all positions, are presented last, in [Section 11](#) of this document. Each of the ten identified positions have five competency categories. These follow the usual time sequence of a response: analysis, planning, implementation, evaluation, and termination. Training and fitness are a sixth category. Each competency category has a number of competencies that are usually relevant for that position.

For each position:

- Competencies are listed in the section with the position description.
- Competencies are further defined by Job Performance Requirements.
- Training and/or experience for each Job Performance Requirement are described by the listed *Requisite Knowledge* and *Requisite Skills*.
- Competencies are identified for three types of spill locations:
 - open water,
 - on land, rivers, streams, and small lakes,
 - various ice on water conditions.

The detail of Job Performance Requirements is only contained in Section 11 of this document to avoid repetition. Section 11 is cross-referenced with Sections 1 through 10 by using a parallel numbering system in the following manner.

X Position

X.X Competency Category

X.X.X Competency

X.X.X.X Job Performance Requirement
Requisite Knowledge...
Requisite Skills...

0 Administration

0.1 General

0.1.1 Scope: This guidance is intended to be international in its scope with United States regulatory requirements used as exemplars that may be replaced by applicable jurisdictional requirements. References to the Hazardous Waste Operations and Emergency Response (HAZWOPER) regulation (29 *CFR* 1910.120) and the Incident Command System (ICS) may be replaced by local jurisdictional requirements outside of the United States. In the absence of applicable local requirements, HAZWOPER and ICS should be considered as a recognized standard of practice. This guidance is not intended to instruct the reader on how to conduct an *in situ* burn, or overlap with either of the *in situ* burn manuals (API Technical Reports 1251 & 1252).

0.1.2 Purpose: The purpose of this guidance is to provide a systematic approach to assist users in the selection of responder qualifications and the training requirements for responders to *in situ* burning of spilled oil in the open water environment, ice conditions on water bodies, and the inland environment, including spills affecting waterways and those lakes not considered open water. It is not intended to describe when to use *in situ* burning.

0.1.3 Applicability: The intent of this guidance is not to specify minimum training and/or competency requirements applicable to all situations. Instead, it is intended to inform those managing an oil spill response of likely skill levels needed to perform in a variety of circumstances. Situation specific requirements should be selected from among the following guidance by spill managers to reflect the needs of that incident, with personnel safety being a primary consideration. In some situations one person may have dual roles for which a blend of competencies and/or training may be appropriate.

0.1.4 Equivalency of Experience and Training: Competencies listed in this guidance are designed to be met by either experience or training, except where applicable law specifies training. Each competency has a description of the requisite knowledge and skills that usually apply to that competency. Those managing responder selection for a specific incident can modify the knowledge and skills necessary for the situation and conditions.

0.1.5 Medical Qualification and Skills

0.1.5.1 Medical Qualification: Some jurisdictions require by law or regulation that workers assigned certain tasks be medically qualified as capable of performing the tasks without risk of medical complications due to a lack of medical fitness of the worker. In the United States, the HAZWOPER regulation has such requirements that apply to oil spill response using *in situ* burning. The fitness of each worker for assigned tasks is determined by a licensed health care professional, usually an occupational health physician. If a worker exhibits symptoms of exposure, the worker must be re-qualified to be allowed to return to performing those tasks.

0.1.5.2 First Aid: Some jurisdictions require by law or regulation that employers ensure the ready availability of medical treatment in near proximity to the workplace. In the United States, the OSHA regulation on Medical Services and First Aid (29 *CFR* 1910.151) applies. Near proximity means 3–4 minutes in workplaces where serious accidents such as those involving falls, suffocation, electrocution, or amputation are possible. The employer must ensure that an available employee trained in basic first aid; EMS response personnel; or a clinic, infirmary, or hospital must be in near proximity. The HAZWOPER regulation at 29 *CFR* 1910.120(q)(3)(vi) also has requirements about advanced first aid availability; see the standard and the OSHA interpretation letter of July 17, 1991.

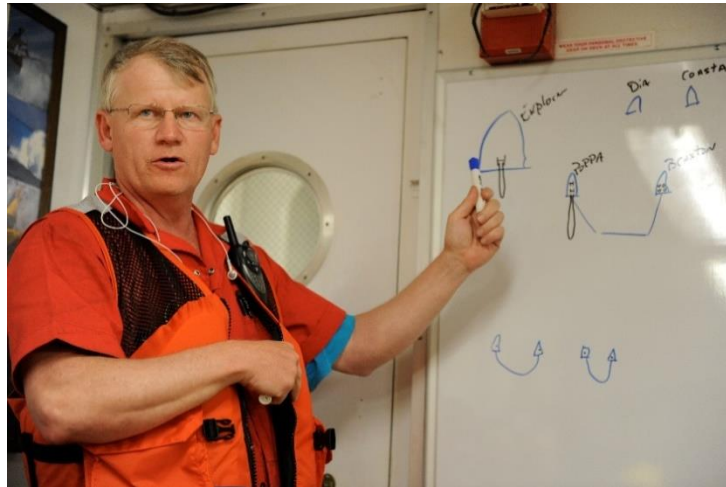
0.1.6 Position Competency Matrix: This matrix provides an overview of the competencies recommended for each of the defined positions. Designated personnel are to have training or experience meeting or exceeding OSHA's Best Practices for Workplace First Aid Training Programs, taking into account the rapid availability of professional medical care and the potential of specific kinds of injuries.

Position Competency Matrix

Position → ----- Competency ↓	Burn Boss	Safety Officer	Vessel Captain	Fire-fighter	Ignition Specialist	Small Boat Operators & Deck Hands	Air Monitoring	Skilled Support Personnel	Aerial Survey Specialist	Observer
Oil Hazards	X	X	X	X	X	X	X	X	X	X
Sensitive Resources	X		X	X	X			X*	X	X*
Risk to Environment	X							X*		X*
Task Force Tactics	X	X	X	X	X	X	X	X*	X	X
Vessel Navigation			X							
Vessel Handling			X							
Small Boat Safety	X	X	X		X*	X	X*	X*		
Spill Control Agent Usage	X	X			X*					
PPE	X	X	X	X	X	X	X	X		X
On-Water Ignition	X	X	X		X					
Ignition on Land/Ice	X	X			X					
Aerial Ignition	X	X			X					
Ops Briefing	X	X	X	X	X	X	X	X	X	X
Boom Deployment	X		X		X	X				
Boom Towing			X			X				
Deck Hand & Small Boats	X		X		X*	X	X*	X*		
Firefighting	X	X	X	X	X	X	X	X*		
First Aid	X*	X*	X*	X*	X*	X*	X*	X*		X*
Air Monitoring	X	X					X			
Aerial Survey	X		X						X	
Worker Exposure	X	X	X	X	X	X	X	X	X	X
Response Critique	X	X	X	X	X	X	X	X	X	X*
Impact to Environment	X						X	X*		
OSHA HAZWOPER	24	24	8 to 24	24	24	8 to 24	24	24	Briefing	Briefing
ICS	ICS-300+	ICS-200+	ICS-200	ICS-200	ICS-100	ICS-100	ICS-100	ICS-100	ICS-100	
Fitness	Light	Moderate	Moderate	Arduous	Arduous	Arduous	Moderate	As Needed	Light	Light

* When this is an assigned task.

API Selection and Training Guidelines for *In Situ* Burning Personnel



U.S. Navy photo by Mass Communication Specialist 2nd Class Justin Stumberg

1 Burn Boss (Operations Supervisor)—Selection and Training Recommendations

1.1 General

1.1.1 Introduction: The burn boss is the person in command of *in situ* burn operations. The burn boss shall have training and/or experience to:

- Analyze the oil spillage proposed for *in situ* burning.
- Plan specific tactical operations for the location where the spilled oil is situated and with the equipment available.
- In open water, situations this person shall:
 - direct efficient vessel, small boat, and boom usage,
 - enforce vessel and small boat safety.
- In environments that are mainly terrestrial, this person shall:
 - direct efficient use of work crews, earthmoving equipment, boom deployment from shore or small boats;
 - enforce fire ground discipline and small boat safety.
- In ice conditions on water, this person shall:
 - direct efficient vessel, small boat, and boom usage,
 - direct burning operations on ice and in ice trenches or around ice on a water body,
 - enforce vessel and small boat safety.
- In all situations, this person shall:
 - ensure appropriate personal protective equipment usage,
 - evaluate burning effectiveness and air quality impacts, and
 - effectively manage personnel directly involved with the burn.

The burn boss is responsible to approve all aspects of *in situ* burn operations but may be assisted by the recommendations of the safety officers, air monitoring specialists, the environmental unit (if one is stood up), vessel captains, and other subject matter experts.

1.1.2 Position Definition: The person in overall command of *in situ* burn operations will be referred to as the burn boss in this guidance. The burn boss is that person responsible for all decisions relating to the management of *in situ* burning conducted in a location isolated from any other spill response operations. For a small spill where *in situ* burning is the only response technique and the source has been secured, this person may be the incident commander in the context of a NIMS incident command system. In a larger spill with multiple response operations, this person may have an incident command system title of a branch director, division supervisor, or a task force leader.

1.1.3 Goal: The goal of this section is to ensure the *in situ* burn boss has the knowledge and skills to perform the following tasks safely.

- (a) Analyze a spilled oil incident in the open water environment to determine the magnitude of the situation in terms of outcomes by completing the following tasks:
 - 1. Collect and interpret hazard and response information from printed resources, technical resources, computer databases, and monitoring equipment.
 - 2. Estimate the potential outcomes of various alternative *in situ* burning techniques within the impacted area at the oil spill incident.
- (b) Plan *in situ* burn operations within the capabilities of available resources by completing the following tasks:
 - 1. Identify the response objectives for the *in situ* burning of spilled oil.
 - 2. Identify the potential tactical options available by response objective.
 - 3. Approve a Site Safety Plan including the level of personal protective equipment required for personnel assignments when implementing a given tactical option.
 - 4. Develop a tactical Incident Action Plan for the operational period.
- (c) Implement *in situ* burn operations by completing the following tasks:
 - 1. Establish an Incident Command System (ICS) organization for the *in situ* burn.
 - 2. Direct assigned resources by allocating tasks and managing on-scene activities.
 - 3. Ensure management overview, technical expertise, and logistical support are sufficient to maintain tactical operations.
 - 4. Provide a focal point for information transfer through the ICS structure.
- (d) Evaluate the progress of the planned response to ensure the response objectives are being met safely, effectively, and efficiently and adjust the burn plan accordingly by evaluating the effectiveness of the control functions.
- (e) Terminate the response by completing the following tasks:
 - 1. Conduct a response debriefing.
 - 2. Conduct an after action critique.
 - 3. Report and document the *in situ* burn operation, including residuals, to the proper authority.

FOR SPECIFIC REQUIREMENTS FOR EACH COMPETENCY LISTED BELOW, SEE THE CORRESPONDING NUMBERED SUBSECTION OF THE COMPETENCIES DETAIL SECTION (I.E., 11.X.X.X)

1.2 Competencies—Analyzing the Situation

1.2.1 Oil Hazards Control

- [1.2.1.1](#) Identify hazards to *in situ* burn oil spill responders.
- [1.2.1.2](#) Approve acceptable levels of exposure to spilled oil constituents, any spill control agents used, and combustion emissions.
- [1.2.1.3](#) Predict the behavior of spilled oil in varying conditions for all operational environments.
- [1.2.1.4](#) Identify conditions conducive to successful *in situ* burning of spilled oil.
- [1.2.1.5](#) Analyze ice conditions and forecasts that may affect oil spill response (when the situation involves ice conditions on water).

1.2.2 Identification and Protection of Sensitive Resources

- [1.2.2.1](#) Identify sensitive resources in the area of *in situ* burn operations.
- [1.2.2.2](#) Predict the impact of *in situ* burning on the sensitive resources identified.
- [1.2.2.3](#) Develop protection strategies for sensitive resources.

1.2.3 Anticipate Potential Environmental Impacts of *In Situ* Burning of Oil

- [1.2.3.1](#) Identify airborne impacts.
- [1.2.3.2](#) Identify surface water impacts.
- [1.2.3.3](#) Identify subsurface water impacts.
- [1.2.3.4](#) Identify soil impacts.

1.3 Competencies—Planning the *In Situ* Burn Response

1.3.1 Task Force Tactics

- [1.3.1.1](#) Identify and decide on tactical options for *in situ* burning.
- [1.3.1.2](#) Specify minimum equipment capabilities and quantities for the applicable operating environments.
- [1.3.1.3](#) Develop a timeline for daily *in situ* burn operations.
- [1.3.1.4](#) Approve protective actions to ensure the health and safety of response personnel.

1.3.2–1.3.3 NA

1.3.4 Small Boat Handling and Safety During *In Situ* Burning of Oil (when used)

- [1.3.4.1](#) Awareness of small boat safety issues.
- [1.3.4.2](#) Small boat seaworthiness, stability, and safety.
- [1.3.4.3](#) Small boat transfer practices.

1.3.5 Spill Control Agent Usage During *In Situ* Burning of Oil (when used)

- [1.3.5.1](#) Be able to identify conditions where the use of spill control agents would significantly enhance the effectiveness of *in situ* burning.
- [1.3.5.2](#) Understand the legal requirements for using spill control agents.
- [1.3.5.3](#) Understand the environmental conditions when spill control agents can be effectively used.
- [1.3.5.4](#) Evaluate the hazards and application techniques relating to safe use of spill control agents.

1.3.6 Responder Personal Protective Equipment During *In Situ* Burning of Oil

- [1.3.6.1](#) Understand and approve the use of general personal safety equipment and procedures considering the recommendations of the safety officer.
- [1.3.6.2](#) Approve and direct the use of commercial personal floatation devices during *in situ* burn operations on or near water.
- [1.3.6.3](#) Approve and direct the use of personal protective equipment for fire, oil, and chemical hazards during *in situ* burn operations.
- [1.3.6.4](#) Prevent cross-contamination from personal protective equipment during *in situ* burn operations.

1.3.7 On-Water Ignition of *In Situ* Burning of Spilled Oil (when used)

- [1.3.7.1](#) Be able to select and direct deployment of appropriate ignition systems.
- [1.3.7.2](#) Evaluate spilled oil weathering and emulsification as that affects ignitability.
- [1.3.7.3](#) Inspection and evaluation of the condition of fire boom for further use.



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1.3.8 Ignition of *In Situ* Spilled Oil on Land or Solid Ice (when used)

- [1.3.8.1](#) Be able to select and direct deployment of appropriate ignition systems.
- [1.3.8.2](#) Evaluate spilled oil distribution to optimize ignition sequencing.
- [1.3.8.3](#) Inspection and evaluation of the condition of burn areas for further action.

1.3.9 Aerial Ignition of *In Situ* Burning of Spilled Oil (when used)

- [1.3.9.1](#) Be able to describe and specify the necessary airframe, ignition system equipment, personnel qualifications, safety features, aviation management, and ground support needed for helitorch operations or other appropriate aerial ignition system.
- [1.3.9.2](#) Develop and brief to pilots and air crew a detailed firing plan and communications protocol.
- [1.3.9.3](#) Be able to direct pilots as to ignition locations, timing, and firing sequences in accordance with *ad hoc* instructions or a detailed ignition plan.

1.4 Competencies—Implementing a Planned *In Situ* Burn Response

1.4.1 Operational Period Briefing

- [1.4.1.1](#) Ensure that a pre-operations work plan and safety briefing is delivered to all personnel involved in the *in situ* burn response.

1.4.2 Fire Boom and Containment Boom Deployment and Recovery (when used)

- [1.4.2.1](#) Evaluate and select fire boom and containment boom for *in situ* burning.
- [1.4.2.2](#) Specify vessel speed and power characteristics for positioning fire boom.
- [1.4.2.3](#) Approve the installation of towing bridle components for towed boom.
- [1.4.2.4](#) Direct deployment of fire and containment boom on open waters.
- [1.4.2.5](#) Direct the installation of mooring lines and anchors for boom deployed from shore.
- [1.4.2.6](#) Direct recovery and cleaning or disposal of oiled boom and towing bridle components.

1.4.3 NA

1.4.4 Deck Hand and Small Boat Operations

- [1.4.4.1](#) Small boat operations.
- [1.4.4.2](#) Small boat handling.
- [1.4.4.3](#) Small boat emergencies.

1.4.5 Fire Suppression During *In Situ* Burning of Oil

- [1.4.5.1](#) Direct tactical operations that result in self-extinguishment of burning oil on the water.
- [1.4.5.2](#) Direct firefighting on boom towing vessels, small boats, and support vessels.
- [1.4.5.3](#) Ensure that conditions during burns on land support effective fire control and smoke management.
- [1.4.5.4](#) Design firebreaks to limit the spread of burning oil to controllable areas.
- [1.4.5.5](#) Position equipment and crews to ensure that burning does not extend beyond the planned burn area.
- [1.4.5.6](#) Ensure that escape pathways on land are identified and maintained for all personnel.

1.4.6 Medical Emergency/First Aid During *In Situ* Burn Operations (see [0.1.5.2](#))

- [1.4.6.1](#) In consultation with the safety officers, ensure that workers are designated and capable of performing first aid for co-workers.
- [1.4.6.2](#) Designate medical support facilities to send casualties to when injuries need treatment or evaluation beyond the first aid level of care.

1.5 Competencies—Evaluating Progress of an *In Situ* Burn Response

1.5.1 Airborne Hazards Monitoring

- [1.5.1.1](#) Approve the hazards to monitor, action levels, and corrective action options.
- [1.5.1.2](#) Approve the selection of monitoring equipment.
- [1.5.1.3](#) Approve a Quality Assurance Project Plan (QAPP) for airborne hazard monitoring.
- [1.5.1.4](#) NA

1.5.2 Aerial Surveillance of *In Situ* Burning Progress (when used)

- [1.5.2.1](#) Direct aerial surveillance to observe, interpret, and communicate the location and circumstances of oil that may be amenable to *in situ* burning.
- [1.5.2.2](#) Coordinate oil collection tactics with boats using aerial surveillance (when boats are used).
- [1.5.2.3](#) Direct the documentation of spilled oil collection and burn efficiency.
- [1.5.2.4](#) Direct the deployment and collection of data from unmanned observation platforms such as unmanned aerial vehicles, drones, and tethered balloons (when used).

1.6 Competencies—Terminating the *In Situ* Burning Response**1.6.1 Worker Exposure Briefing and Recordkeeping**

- [1.6.1.1](#) Conduct worker exposure briefings.
- [1.6.1.2](#) Ensure that Site Safety Plan documentation is complete.
- [1.6.1.3](#) Ensure that any injuries or workers developing signs and symptoms indicating possible overexposures or health hazards receive appropriate medical evaluation and treatment.

1.6.2 Response Effectiveness Analysis and Critique

- [1.6.2.1](#) Perform analysis of response actions.
- [1.6.2.2](#) Provide a common operating picture to the following operational period.
- [1.6.2.3](#) Evaluate the effectiveness of spilled oil removal by *in situ* burning operations.
- [1.6.2.4](#) Conduct a critique of the response involving all members of the operation.

1.6.3 Documenting Environmental Impacts of *In Situ* Burning of Oil

- [1.6.3.1](#) Record environmental impacts evidenced by air monitoring data, oil removal effectiveness data, and observations/data on impacts to sensitive resources.
- [1.6.3.2](#) Understanding the nature, mass, and extent of unrecovered burn residue.

1.7 Training and Physical Fitness**1.7.1 OSHA HAZWOPER Training**

- [1.7.1.1](#) 24 hours of *in situ* burn focused HAZWOPER initial emergency response training.

1.7.2 Incident Command System (ICS) Training

- [1.7.2.1](#) ICS-100 Introduction to the Incident Command System.
- [1.7.2.2](#) ICS-200 ICS for Single Resources and Initial Action Incidents.
- [1.7.2.3](#) ICS-300 Intermediate ICS for Expanding Incidents.
- [1.7.2.4](#) Advanced position specific training (ICS-410) is suggested for complex burns.

1.7.3 Physical and Mental Fitness

- [1.7.3.1](#) Personnel should have the capability for LIGHT physical activity. See Subsection [11.7.3.1](#).
- [1.7.3.2](#) Personnel should be able to work consecutive 12–14 hour days under physical and emotional stress for sustained periods.
- [1.7.3.3](#) Medical surveillance requirements of the jurisdiction should be met. See Subsection [11.7.3.3](#).

1.7.4 NA



Elastec photo by Donnie Wilson

2 Safety Officers—Selection and Training Recommendations

2.1 General

2.1.1 Introduction: The safety officer for an *in situ* burn operation of spilled oil shall have training and/or experience to:

- Analyze the personnel safety hazards related to *in situ* burning.
- In the open water environment, this person shall:
 - understand the safety consequences of specific tactical operations proposed for the location where the spilled oil is situated; and
 - with the equipment to be used, ensure safe vessel, boat, and boom usage, as well as enforcing small boat safety.
- In environments that are mainly terrestrial, this person shall:
 - analyze safe use of work crews and earthmoving equipment,
 - assess fireground personnel placement,
 - assess safe boom deployment from shore or small boats,
 - enforce fire ground discipline, and
 - small boat safety.
- In ice conditions on water, this person shall:
 - analyze safe vessel, small boat, and boom usage,
 - burning operations on ice and in ice trenches or around ice on a water body,
 - enforce vessel and small boat safety.
- In all situations, this person shall:
 - ensure appropriate and personnel protective equipment usage,
 - evaluate air quality impacts for workers, and
 - effectively assist the *in situ* burn boss.

2.1.2 Position Definition: The safety officer of the *in situ* burn operation is that person who works within an incident command system to ensure that recognized safe practices are followed by all involved personnel throughout the conduct of the *in situ* burn. This safety officer will be called upon to provide technical advice or assistance regarding safety issues to the *in situ* burn boss and to the overall incident safety officer at an oil spill involving response activities in addition to *in situ* burning.

2.1.3 Goal: The goal of this section is to ensure the *in situ* burn safety officer has the knowledge and skills to perform the following tasks safely and to document the procedures in a written Site Safety Plan, or in a larger incident to the *in situ* burn annex to the overall Site Safety Plan.

- (a) Analyze a spilled oil incident in the open water environment to determine the magnitude of the problem in terms of safety by completing the following tasks:
 - 1. Collect and interpret hazard and response information from other responders, printed resources, technical resources, computer databases, and monitoring equipment.
 - 2. Estimate the safety hazards for workers within the impacted area at the oil spill incident.
- (b) Assist in planning *in situ* burn operations within the capabilities of available vessels and/or vehicles, personnel, containment & fire boom, personal protective equipment, and support equipment by completing the following tasks:
 - 1. Identify the safety precautions for potential action options involving the *in situ* burning of spilled oil. If assigned, prepare an *in situ* burn annex to Site Safety Plan and otherwise review it and recommend any changes to the burn boss.
 - 2. Provide recommendations regarding safety considerations attendant to tactical options.
 - 3. Recommend the level of personal protective equipment required for personnel assignments when implementing a given tactical option.
 - 4. Assist in the development of the tactical action burn plan by providing recommendations regarding worker safety.
 - 5. Recommend appropriate decontamination procedures.
 - 6. Ensure appropriate emergency medical services are provided.
- (c) Ensure the safe implementation of *in situ* burn operations by completing the following tasks:
 - 1. Perform the duties of a safety officer in an incident command system (ICS) organization for the *in situ* burn.
 - 2. Identify safety considerations for personnel performing the response functions identified in the burn plan.
 - 3. Conduct safety briefings for personnel performing the response functions identified in the burn plan.
 - 4. Assist in the implementation and enforcement of safety considerations.
 - 5. Maintain communications within the incident command structure during the incident.
 - 6. Monitor status reports of activities in the area of operation.
 - 7. Evaluate the monitoring of airborne emissions and exposure of workers, the public, and environmental receptors.
- (d) Evaluate the progress of the planned response to ensure the response objectives are being met safely by completing the following tasks:
 - 1. Identify deviations from safety considerations and any dangerous situations.
 - 2. Alter, suspend, or terminate any activities that are judged to be unsafe.

(e) Assist in terminating the response by completing the following tasks:

1. Perform the reporting, documentation, and follow-up required by or assigned to the *in situ* burn safety officer.
2. Assist in the debriefing of *in situ* burn personnel. Assist in the after action critique.

FOR SPECIFIC REQUIREMENTS FOR EACH COMPETENCY LISTED BELOW, SEE THE CORRESPONDING NUMBERED SUBSECTION OF THE COMPETENCIES DETAIL SECTION (I.E., 11.X.X.X)

2.2 Competencies—Analyzing the Situation

2.2.1 Oil Hazards Control

- [2.2.1.1](#) Identify hazards to *in situ* burn oil spill responders.
- [2.2.1.2](#) Determine and recommend acceptable levels of exposure to spilled oil constituents, any spill control agents used, and combustion emissions.
- [2.2.1.3](#) Predict the behavior of spilled oil in varying conditions.
- [2.2.1.4](#) Identify conditions conducive to successful *in situ* burning of spilled oil.
- [2.2.1.5](#) Analyze ice conditions and forecasts that may affect oil spill response (when the situation involves ice conditions on water).

2.2.2–2.2.3 NA

2.3 Competencies—Planning the *In Situ* Burn Response

2.3.1 Task Force Tactics

- [2.3.1.1](#) Identify and evaluate tactical options for *in situ* burning.
- [2.3.1.2](#) Evaluate the safety considerations of equipment capabilities and quantities for the applicable operating environments.
- [2.3.1.3](#) Review the timeline for daily *in situ* burn operations.
- [2.3.1.4](#) Determine and recommend protective actions to ensure the health and safety of response personnel including the environment, oil, fire, and combustion products.

2.3.2–2.3.3 NA

2.3.4 Small Boat Handling and Safety During *In Situ* Burning of Oil (when used)

- [2.3.4.1](#) Awareness of small boat safety issues.
- [2.3.4.2](#) Small boat seaworthiness, stability, and safety.
- [2.3.4.3](#) Safe small boat transfer practices.

2.3.5 Spill Control Agent Usage During *In Situ* Burning of Oil (when used)

- [2.3.5.1](#) Be able to identify safety concerns when spill control agents are proposed to assist with *in situ* burning.
- 2.3.5.2 NA
- [2.3.5.3](#) Understand the environmental conditions when spill control agents can be safely used.
- [2.3.5.4](#) Evaluate the hazards and application techniques relating to safe use of spill control agents.

2.3.6 Responder Personal Protective Equipment During *In Situ* Burning of Oil

- [2.3.6.1](#) Ensure the use of general personal safety equipment and procedures.
- [2.3.6.2](#) Ensure the use of commercial personal floatation devices during *in situ* burn operations.
- [2.3.6.3](#) Ensure the use of personal protective equipment for fire, oil, and chemical hazards during *in situ* burn operations.
- [2.3.6.4](#) Prevent cross-contamination from personal protective equipment during *in situ* burn operations.

2.3.7 On-Water Ignition of *In Situ* Burning of Spilled Oil (when used)

- [2.3.7.1](#) Assess the safety of selection and deployment of appropriate ignition systems.
- 2.3.7.2 NA
- 2.3.7.3 NA

2.3.8 Ignition of *In Situ* Spilled Oil on Land or Solid Ice (when used)

- [2.3.8.1](#) Assess the safety of selection and deployment of appropriate ignition systems.
- [2.3.8.2](#) Evaluate spilled oil distribution as that affects the safety of ignition sequence options.
- 2.3.8.3 NA

2.3.9 Aerial Ignition of *In Situ* Burning of Spilled Oil (when used)

- 2.3.9.1 NA
- [2.3.9.2](#) Evaluate for safety concerns the site-specific firing plan and communications protocol with pilots and air crew.
- 2.3.9.3 NA

2.4 Competencies—Implementing a Planned *In Situ* Burn Response**2.4.1 Operational Period Briefing**

- [2.4.1.1](#) Assist the burn boss in ensuring the delivery of a pre-operations work plan and safety briefing to all personnel involved in the *in situ* burn response, including preparation and distribution of the Site Safety Plan.

2.4.2–2.4.4 NA

2.4.5 Fire Suppression During *In Situ* Burning of Oil

- [2.4.5.1](#) Evaluate safety implications of tactical operations that result in self-extinguishment.
- [2.4.5.2](#) Ensure appropriate equipment for firefighting on boom towing vessels, small boats, and support vessels.
- [2.4.5.3](#) Ensure that conditions during burns on land support safe fire control and smoke management.
- [2.4.5.4](#) Evaluate the design of firebreaks to limit the spread of burning oil to controllable areas.
- [2.4.5.5](#) Ensure safe positioning of equipment and crews to ensure that burning does not extend beyond the planned burn area.
- [2.4.5.6](#) Ensure that escape pathways on land are identified and maintained for all personnel.

2.4.6 Medical Emergency/First Aid During *In Situ* Burn Operations (see [0.1.5.2](#))

- [2.4.6.1](#) Advise the burn boss on designating workers who are to be capable of performing first aid.
- [2.4.6.2](#) Identify and recommend medical support facilities to send casualties to when injuries need treatment or evaluation beyond the first aid level of care.

2.5 Competencies—Evaluating Progress of an *In Situ* Burn Response**2.5.1 Airborne Hazards Monitoring**

- [2.5.1.1](#) Determine and recommend appropriate hazards to monitor, action levels, and corrective action options.
- 2.5.1.2–2.5.1.4 NA

2.5.2 NA

2.6 Competencies—Terminating the *In Situ* Burning Response**2.6.1 Worker Exposure Briefing and Recordkeeping**

- [2.6.1.1](#) Conduct worker exposure briefings for the burn boss.
- [2.6.1.2](#) Assist the burn boss in ensuring that *in situ* burn portion of the Site Safety Plan documentation is complete.
- [2.6.1.3](#) Ensure that any injuries or workers developing signs and symptoms indicating possible overexposures or health hazards receive appropriate medical evaluation and treatment.

2.6.2 Response Effectiveness Analysis and Critique

- [2.6.2.1](#) Perform analysis of the safety of response actions taken during the operational period and provide that to the burn boss and analysts.
- 2.6.2.2–2.6.2.3 NA
- [2.6.2.4](#) Assist in conducting a critique of the response involving all members of the operation.

2.6.3 NA

2.7 Training and Physical Fitness

2.7.1 OSHA HAZWOPER Training

[2.7.1.1](#) 24 hours of *in situ* burn focused HAZWOPER initial emergency response training.

2.7.2 Incident Command System (ICS) Training

[2.7.2.1](#) ICS-100 Introduction to the Incident Command System.

[2.7.2.2](#) ICS-200 ICS for Single Resources and Initial Action Incidents.

2.7.2.3 NA

2.7.2.4 Advanced position specific training (ICS-410) is suggested for complex burns.

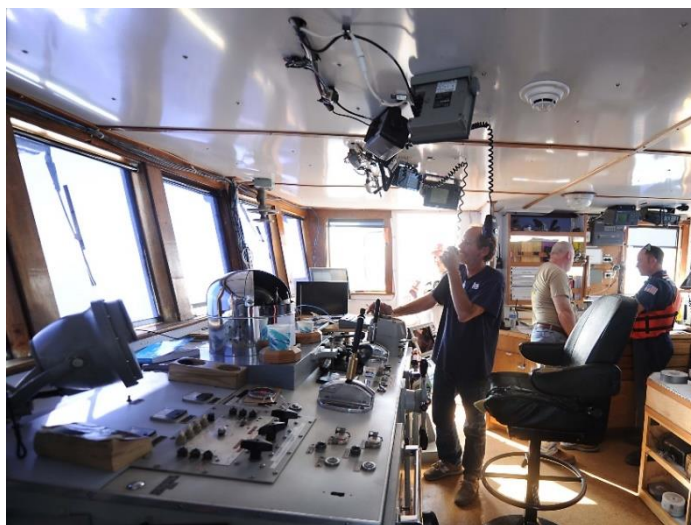
2.7.3 Physical and Mental Fitness

[2.7.3.1](#) Personnel should have the capability for MODERATE physical activity. See Subsection [11.7.3.1](#).

[2.7.3.2](#) Personnel should be able to work consecutive 12–14 hour days under physical and emotional stress for sustained periods.

[2.7.3.3](#) Medical surveillance requirements of the jurisdiction should be met. See Subsection [11.7.3.3](#).

2.7.4 NA



U.S. Navy photo by Mass Communication Specialist 2nd Class Justin Stumberg

3 Vessel Captains—Selection and Training Recommendations

3.1 General

3.1.1 Introduction: A vessel captain should have the training and experience to navigate and maneuver a vessel to deploy, position, and tow boom in coordination with other tow vessels or provide support vessel capabilities for command, air monitoring, operational surveillance, on-ice operations, and/or small boat operations relating the *in situ* burn operations. This person shall meet all the relevant competencies of this subsection. This person shall receive any additional training to meet certification requirements of the International Maritime Organization, and the maritime and coastguard agencies of relevant jurisdictions. See Definitions (pp. 76–81) for definitions of vessels and small boats as used in this guidance.

3.1.2 Position Definition: A vessel captain is in overall charge of an individual vessel and has the final authority for the safety and navigation of the vessel. This person navigates and steers, or directs the steering of vessels during *in situ* burning operations for spilled oil. This person supervises the loading, unloading, operating signal devices, and the repair of defective equipment. This person directs the crew to deploy and recover oil spill containment and fire boom. This person coordinates boom positioning with other cooperating vessel captains in accordance with the directives of the *in situ* burn boss.

3.1.3 Goal: The goal of this section is to ensure a vessel captain engaged in an *in situ* burn operation has the knowledge and skills to perform the following tasks safely:

- (a) Analyze a spilled oil incident in the open water environment (including ice conditions) to determine the capabilities of the vessel being used to complete the following tasks:
 - 1. Collect and interpret forecasted weather and forecasted sea state. Read and understand hazard and response information from the Incident Action Plan and Site Safety Plan.
 - 2. Review the tasks which the vessel is expected to be assigned to determine whether the vessel has the necessary seaworthiness, stability, maneuverability, engine power, speed characteristics, crew makeup, crew capacity, deck space, cargo capacity, crane/hoist capability, and towing capacity for *in situ* burn operations in accordance with the written tactical plan for use within the impacted area at the oil spill incident.
- (b) Plan operations of the vessel to perform its role in the *in situ* burn plan within the competencies of available personnel, and the capacity of available containment and fire boom, personal protective equipment, and support equipment by completing the following tasks:
 - 1. Understand the response objectives for the *in situ* burning of spilled oil.
 - 2. Identify how the vessel can participate in the potential tactical options to achieve the response objectives.

3. Review the level of flotation equipment required for personnel assignments on the vessel or associated small boats when implementing a given tactical option.
 4. Understand the tactical action plan for the operational period and prepare for vessel participation, including safety considerations, consistent with the capability of the vessel, assigned personnel, associated small boats, containment and fire boom, personal protective equipment, and support equipment.
- (c) Implement *in situ* burn operations by completing the following tasks:
1. Perform the duties of a vessel captain acting within an incident command system (ICS) organization for the *in situ* burn.
 2. Direct assigned resources by allocating tasks and managing on-vessel activities.
 3. Ensure that supervision, technical expertise, and logistical support are sufficient to maintain tactical operations on the vessel.
 4. Provide a focal point for information transfer between the vessel and the overall ICS structure of the *in situ* burn.
- (d) Evaluate the progress of the planned response to ensure the response objectives are being met safely, effectively, and efficiently and notify the burn boss of information that is suggestive of a need to adjust the burn plan.
- (e) Terminate the response by completing the following tasks:
1. Participate in a response debriefing.
 2. Participate in an after action critique.
 3. Provide reports and documentation of vessel operations as directed.

FOR SPECIFIC REQUIREMENTS FOR EACH COMPETENCY LISTED BELOW, SEE THE CORRESPONDING NUMBERED SUBSECTION OF THE COMPETENCIES DETAIL SECTION (I.E., 11.X.X.X)

3.2 Competencies—Analyzing the Situation

3.2.1 Oil Hazards Control

- [3.2.1.1](#) Understand hazards to *in situ* burn oil spill responders.
- [3.2.1.2](#) Prevent unacceptable levels of exposure to spilled oil constituents, any spill control agents used, and combustion emissions.
- [3.2.1.3](#) Understand the behavior of spilled oil in varying conditions.
- [3.2.1.4](#) Understand conditions conducive to successful *in situ* burning of spilled oil.
- [3.2.1.5](#) Understand ice conditions that may affect oil spill response.

3.2.2 Identification and Protection of Sensitive Resources

- [3.2.2.1](#) Be aware of sensitive resources in the area of *in situ* burn operations.
- [3.2.2.2](#) Understand the impact of *in situ* burning on the sensitive resources identified.
- [3.2.2.3](#) Implement protection strategies for sensitive resources.

3.2.3 NA

3.3 Competencies—Planning the *In Situ* Burn Response

3.3.1 Task Force Tactics

- [3.3.1.1](#) Perform tactical options as directed for *in situ* burning.
- [3.3.1.2](#) Understand minimum vessel and equipment capabilities.
- [3.3.1.3](#) Understand the timeline for daily *in situ* burn operations.
- [3.3.1.4](#) Follow protective actions to ensure the health and safety of response personnel.

3.3.2 Vessel Navigation

- [3.3.2.1](#) Be able to navigate a vessel to reach the intended destination safely and efficiently.
- [3.3.2.2](#) Understanding and obeying navigational Rules of the Road.

3.3.3 Vessel Handling During *In Situ* Burning of Oil

[3.3.3.1](#) Proficiency in maneuvering a vessel alongside and underway.

3.3.4 Small Boat Handling and Safety During *In Situ* Burning of Oil

[3.3.4.1](#) Awareness of small boat safety issues.

[3.3.4.2](#) Small boat seaworthiness, stability, and safety.

[3.3.4.3](#) Small boat transfer practices.

3.3.5 NA**3.3.6 Responder Personal Protective Equipment During *In Situ* Burning of Oil**

[3.3.6.1](#) Understand and use general personal safety equipment and procedures.

[3.3.6.2](#) Understand and use commercial personal floatation devices during *in situ* burn operations.

[3.3.6.3](#) Use personal protective equipment for fire, oil, and chemical hazards during *in situ* burn operations. (This only applies if the vessel captain directly supervises deck hands and small boat operators working with oiled boom. Otherwise this requirement is not considered necessary for this position.)

[3.3.6.4](#) Prevent cross-contamination from personal protective equipment during *in situ* burn operations. (This only applies if the vessel captain directly supervises deck hands and small boat operators working with oiled boom. Otherwise this requirement is not considered necessary for this position.)

3.3.7 On-Water Ignition of *In Situ* Burning of Spilled Oil (when used)

[3.3.7.1](#) Understand the selection and deployment of appropriate ignition systems.

[3.3.7.2](#) Understand spilled oil weathering and emulsification as that affects ignitability.

[3.3.7.3](#) Inspect and evaluate the condition of fire boom for further use.

3.3.8–3.3.9 NA**3.4 Competencies—Implementing a Planned *In Situ* Burn Response****3.4.1 Operational Period Briefing**

[3.4.1.1](#) Understand the importance of the pre-operations work plan and safety briefing at the start of each operational period.

3.4.2 Fire Boom and Containment Boom Deployment and Recovery

[3.4.2.1](#) Advise on vessel capability for use to deploy or recover boom.

[3.4.2.2](#) Maintain vessel speed and power characteristics for positioning fire boom.

[3.4.2.3](#) Direct the installation of towing bridle components for towed boom.

[3.4.2.4](#) Deploy fire and containment boom on open waters.

[3.4.2.5](#) NA

[3.4.2.6](#) Recover and clean or dispose of oiled boom and towing bridle components. (Applies when the vessel captain directly supervises deck hands and small boat operators.)

3.4.3 Fire Boom and Containment Boom Positioning

[3.4.3.1](#) Maintain relative towing speeds for effective concentration of oil using booms.

[3.4.3.2](#) Maneuver vessels to position boom to concentrate oil for *in situ* burning.

[3.4.3.3](#) Adjust boom configuration to changing conditions.

3.4.4 Deck Hand and Small Boat Operations

[3.4.4.1](#) Small boat operations.

[3.4.4.2](#) Small boat handling.

[3.4.4.3](#) Small boat emergencies.

3.4.5 Fire Suppression During *In Situ* Burning of Oil

[3.4.5.1](#) Perform tactical operations that result in self-extinguishment of burning oil on the water.

[3.4.5.2](#) Perform firefighting on boom positioning vessels, small boats, and support vessels.

[3.4.5.3–3.4.5.6](#) NA

3.4.6 Medical Emergency/First Aid During *In Situ* Burn Operations (when the job assignment includes medical first aid responsibility—see [0.1.5.2](#))

[3.4.6.1](#) Capable of performing first aid for co-workers.

3.4.6.2 NA

3.5 Competencies—Evaluating Progress of an *In Situ* Burn Response

3.5.1 NA

3.5.2 Aerial Surveillance of *In Situ* Burning Progress (when used)

3.5.2.1 NA

[3.5.2.2](#) Coordinate oil collection tactics with aerial surveillance specialists.

3.5.2.3–3.5.2.4 NA

3.6 Competencies—Terminating the *In Situ* Burning Response

3.6.1 Worker Exposure Briefing and Recordkeeping

[3.6.1.1](#) Worker exposure briefings.

[3.6.1.2](#) Assist with Site Safety Plan documentation as requested.

[3.6.1.3](#) Worker injuries and symptoms of exposure.

3.6.2 Response Effectiveness Analysis and Critique

3.6.2.1–3.6.2.3 NA

[3.6.2.4](#) Critique of the response involving all members of the operation.

3.6.3 NA

3.7 Training and Physical Fitness

3.7.1 OSHA HAZWOPER Training

[3.7.1.1](#) *In situ* burn focused HAZWOPER training:

- at least 8 hours of initial emergency response training when duties ONLY involve defensive response such as booming or boat operations at a safe distance, or
- at least 24 hours of response operations training when duties involve active response such as booming or boat operations at the source of the spill or ANY work close to volatile fuel or flammable/combustible liquids.

3.7.2 Incident Command System (ICS) Training

[3.7.2.1](#) ICS-100 Introduction to the Incident Command System.

[3.7.2.2](#) ICS-200 ICS for Single Resources and Initial Action Incidents. (This may be omitted if not a supervisor.)

3.7.2.3 NA

3.7.3 Physical and Mental Fitness

[3.7.3.1](#) Personnel should have the capability for MODERATE physical activity. See Subsection [11.7.3.1](#).

[3.7.3.2](#) Personnel should be able to work consecutive 12–14 hour days under physical and emotional stress for sustained periods, while complying with any watch-standing limits required by law.

[3.7.3.3](#) Medical surveillance requirements of the jurisdiction should be met. See Subsection [11.7.3.3](#).

3.7.4 NA



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4 Fire Suppression Specialists—Selection and Training Recommendations

4.1 General

4.1.1 Introduction: A fire suppression specialist should have the training and experience to prevent an *in situ* burn operation from exceeding burn parameters, i.e., excessive smoke plume or causing wildland fires in non-target burn areas, and be able to protect or fight fire that threatens non-target areas including vulnerable crops, structures, or infrastructure. This person shall meet all the relevant competencies of this subsection. This person shall receive any additional training to meet certification requirements for wildland firefighting and/or industrial firefighting.

4.1.2 Position Definition: A fire suppression specialist is a firefighter with specific training or experience to safely and effectively function within an incident command system at an *in situ* burn operation. This person constructs firebreaks and, if necessary, extinguishes fire in non-target areas during an *in situ* burning operation for spilled oil. This person uses manual tools, operates fire apparatus, and drives firefighting support vehicles. This person may operate earthmoving equipment if they have sufficient training and experience.

4.1.3 Goal: The goal of this section is to ensure a fire suppression specialist who is engaged in an *in situ* burn operation has the knowledge and skills to perform the following tasks safely:

- (a) Analyze a spilled oil incident in the inland environment to determine the capabilities needed to contain fire to the target areas by completing the following tasks:
 - 1. Collect and interpret forecasted weather, forecasted wildfire potential, and forecasted stream flood levels. Read and understand hazard and response information from the Incident Action Plan and Site Safety Plan.
 - 2. Review the tasks to which the fire suppression specialist is expected to be assigned, to determine whether the vehicles and equipment available are sufficient.
- (b) Understand planned operations to ensure they reflect the competencies of available personnel and the capacity of available containment and fire boom, personal protective equipment, and support equipment by completing the following tasks:
 - 1. Be aware of the response objectives for the *in situ* burning of spilled oil.
 - 2. Identify how the fire suppression personnel are expected to participate in achieving the response objectives.
 - 3. Understand the level of personal protective equipment required for personnel assignments when implementing a given tactical option.

4. Review the tactical action plan for the operational period, including safety considerations, consistent with the local emergency response plan and the organization's standard operating procedures and within the capability of available equipment, personnel, small boats, containment and fire boom, personal protective equipment, and support equipment.
- (c) Implement *in situ* burn operations by completing the following tasks:
 1. Perform the duties of a fire suppression specialist acting within an incident command system (ICS) organization for the *in situ* burn.
 2. Direct assigned resources by allocating tasks, managing, and performing fire suppression activities as assigned.
 3. Assist supervisors, technical experts, and logistical support in maintaining tactical operations.
 4. Participate in information transfer through the ICS structure.
- (d) Assess the progress of the planned response to ensure the response objectives are being met safely, effectively, and efficiently and notify the chain of command of information that is suggestive of a need to adjust the burn plan.
- (e) Terminate the response by completing the following tasks:
 1. Participate in a response debriefing.
 2. Participate in an after action critique.

FOR SPECIFIC REQUIREMENTS FOR EACH COMPETENCY LISTED BELOW, SEE THE CORRESPONDING NUMBERED SUBSECTION OF THE COMPETENCIES DETAIL SECTION (I.E., 11.X.X.X)

4.2 Competencies—Analyzing the Situation

4.2.1 Oil Hazards Control

- [4.2.1.1](#) Understand hazards to *in situ* burn oil spill responders.
- [4.2.1.2](#) Understand acceptable levels of exposure to spilled oil constituents, any spill control agents used, and combustion emissions.
- [4.2.1.3](#) Understand the behavior of spilled oil on land, rivers, streams, and small lakes.
- [4.2.1.4](#) Understand conditions conducive to successful *in situ* burning of spilled oil on land, rivers, streams, and small lakes.
- 4.2.1.5 NA

4.2.2 Identification and Protection of Sensitive Resources

- [4.2.2.1](#) Be aware of sensitive resources in the area of *in situ* burn operations.
- [4.2.2.2](#) Understand the impact of *in situ* burning on the sensitive resources identified.
- [4.2.2.3](#) Implement protection strategies for sensitive resources.

4.2.3 NA

4.3 Competencies—Planning the *In Situ* Burn Response

4.3.1 *In Situ* Burn Tactics on Land, Rivers, Streams, and Small Lakes

- [4.3.1.1](#) Implement tactical options for fire suppression associated with *in situ* burning in inland areas, including fields, desert, prairie, wetlands, savannahs, forest, streams, ponds, and lakes.
- [4.3.1.2](#) Understand minimum equipment capabilities and quantities for fire suppression associated with operations on land.
- [4.3.1.3](#) Understand the timeline for daily *in situ* burn operations.
- [4.3.1.4](#) Follow protective actions to ensure the health and safety of response personnel.

4.3.2–4.3.5 NA

4.3.6 Responder Personal Protective Equipment During *In Situ* Burning of Oil

- [4.3.6.1](#) Understand and use general personal safety equipment and procedures.
- [4.3.6.2](#) Understand and use personal floatation devices during *in situ* burn operations on or near water (when appropriate).

[4.3.6.3](#) Use personal protective equipment for fire, oil, and chemical hazards during *in situ* burn operations.

[4.3.6.4](#) Prevent cross-contamination from personal protective equipment during *in situ* burn operations.

4.3.7–4.3.9 NA

4.4 Competencies—Implementing a Planned *In Situ* Burn Response

4.4.1 Operational Period Briefing

[4.4.1.1](#) Understand the importance of the pre-operations work plan and safety briefing at the start of each operational period.

4.4.2–4.4.4 NA

4.4.5 Fire Suppression During *In Situ* Burning of Oil

4.4.5.1–4.4.5.2 NA

[4.4.5.3](#) Be aware of conditions needed for effective fire control and smoke management.

[4.4.5.4](#) Construct firebreaks to limit the spread of burning oil to controllable areas.

[4.4.5.5](#) Prevent fire from extending beyond the planned burn area.

[4.4.5.6](#) Assist in maintaining escape pathways for all personnel.

4.4.6 Medical Emergency/First Aid During *In Situ* Burn Operations (when the job assignment includes medical first aid responsibility—see [0.1.5.2](#))

[4.4.6.1](#) Capable of performing first aid for co-workers.

4.4.6.2 NA

4.5 Competencies—Evaluating Progress of an *In Situ* Burn Response

4.5.1–4.5.2 NA

4.6 Competencies—Terminating the *In Situ* Burning Response

4.6.1 Worker Exposure Briefing and Record

[4.6.1.1](#) Worker exposure briefings.

[4.6.1.2](#) Contribute to Site Safety Plan documentation as requested.

[4.6.1.3](#) Worker injuries and symptoms of exposure.

4.6.2 Response Effectiveness Analysis and Critique

4.6.2.1–4.6.2.3 NA

[4.6.2.4](#) Critique of the response involving all members of the operation.

4.6.3 NA

4.7 Training and Physical Fitness

4.7.1 OSHA HAZWOPER Training

[4.7.1.1](#) 24 hours of *in situ* burn focused HAZWOPER initial emergency response training.

4.7.2 Incident Command System (ICS) Training

[4.7.2.1](#) ICS-100 Introduction to the Incident Command System.

[4.7.2.2](#) ICS-200 ICS for Single Resources and Initial Action Incidents. This may be omitted if the worker is not a supervisor.

4.7.2.3 NA

4.7.3 Physical and Mental Fitness

[4.7.3.1](#) Personnel should have the capability for ARDUOUS physical activity. See Subsection [11.7.3.1](#).

[4.7.3.2](#) Personnel should be able to work consecutive 12–14 hour days under physical and emotional stress for sustained periods, while complying with work/rest periods and wearing duration limits for personal protective equipment set to protect against heat stress or hypothermia.

[4.7.3.3](#) Medical surveillance requirements of the jurisdiction should be met. See Subsection [11.7.3.3](#).

4.7.4 NA



U.S. Navy photo by Mass Communication Specialist 2nd Class Justin Stumberg

5 Ignition and Spill Control Agent Specialists—Selection and Training Recommendations

5.1 General

5.1.1 Introduction: An ignition and spill control agent specialist should have training or experience to safely ignite *in situ* burns as directed by the burn boss. Also this person may apply chemical agents to concentrate oil for *in situ* burning (chemical herding) or to treat emulsified oil chemically to reduce the emulsion and thereby enhance the potential for ignition success. This person should meet all appropriate competencies of this section.

5.1.2 Position Definition: An ignition and spill control agent specialist for *in situ* burning of spilled oil response has the knowledge and experience to deploy hand-held ignition systems to initiate an *in situ* burn and, with appropriate approvals, to deploy spill control agents such as herding agents to contain and concentrate spilled oil or emulsion breakers to assist in ignition and enhance the efficiency of an *in situ* burn. This person may operate from small boats for spills on water, but would usually not be the steersman or small boat operator. This person may operate from aircraft, but usually would direct pilots from the ground.

5.1.3 Goal: The goal of this section is to ensure the *in situ* burn ignition control specialist has the knowledge and skills to perform the following tasks safely.

- (a) Analyze a spilled oil incident to determine the safety implications for tasks assigned to an ignition control specialist by completing the following tasks:
 1. Collect and interpret forecasted weather, forecasted wildfire potential, and forecasted stream flood levels. Read and understand hazard and response information from the Incident Action Plan and Site Safety Plan.
 2. Estimate the potential safety implications and level of effort involved with tasks that an ignition control specialist can be expected to be assigned within the impacted area at the oil spill incident.
- (b) Plan *in situ* burn ignition control specialist tasks within the capabilities of available vehicles, vessels, small boats, personnel, containment & fire boom, personal protective equipment, and support equipment by completing the following tasks:
 1. Understand the response objectives for the *in situ* burning of spilled oil.
 2. Understand how an ignition control specialist will participate in the tactical plan to achieve the response objectives.
 3. Understand the level of personal protective equipment required for ignition of oil or spill control

agent application, when implementing a given tactical option.

4. Understand the tactical action plan for the operational period, including safety considerations, consistent with the capability of available vehicles, vessels, small boats, personnel, boom, personal protective equipment, and support equipment.

(c) Implement *in situ* burn ignition operations by completing the following tasks:

1. Perform assigned duties within the supervisory organization as part of an incident command system (ICS) for the *in situ* burn.
2. Use assigned resources by preparing and ensuring the safety of ignition system components, including practicing the deployment of ignition systems in a non-oiled location with the same wind and wave characteristics if on water or the same weather and topographic conditions as the target ignition location if on land.
3. Monitor safety conditions and that technical expertise and logistical support are sufficient to maintain tactical operations for ignition activities.
4. Provide frequent status reports as directed through the ICS communications structure.

(d) Implement spill control agent application in support of *in situ* burn ignition operations on water when assigned to do so by completing the following tasks:

1. Perform assigned duties within the supervisory organization as part of an incident command system (ICS) for the *in situ* burn.
2. Use assigned resources to prepare and ensure the safety of spill control agent application equipment in a non-oiled location with the same wind and wave characteristics as the target ignition location.
3. Monitor that safety conditions, technical expertise, and logistical support are sufficient to maintain tactical operations for spill control agent application.
4. Provide frequent status reports as directed through the ICS communications structure.

(e) Evaluate the progress of the burn ignition to ensure it is being safely, effectively, and efficiently done and to communicate through the chain of command information that is suggestive of a need to adjust the burn plan.

(f) Terminate the response by completing the following tasks:

1. Participate in a response debriefing.
2. Participate in an after action critique.

FOR SPECIFIC REQUIREMENTS FOR EACH COMPETENCY LISTED BELOW, SEE THE CORRESPONDING NUMBERED SUBSECTION OF THE COMPETENCIES DETAIL SECTION (I.E., 11.X.X.X)

5.2 Competencies—Analyzing the Situation

5.2.1 Oil Hazards Control

[5.2.1.1](#) Understand hazards to *in situ* burn oil spill responders.

[5.2.1.2](#) Understand acceptable levels of exposure to spilled oil constituents, any spill control agents used, and land combustion emissions.

[5.2.1.3](#) Understand the behavior of spilled oil in varying conditions.

[5.2.1.4](#) Understand conditions conducive to successful *in situ* burning of spilled oil.

[5.2.1.5](#) Understand ice conditions that may affect oil spill response (when the situation involves ice conditions on water).

5.2.2 Identification and Protection of Sensitive Resources

[5.2.2.1](#) Be aware of sensitive resources in the area of *in situ* burn operations.

[5.2.2.2](#) Understand the impact of *in situ* burning on the sensitive resources identified.

[5.2.2.3](#) Implement protection strategies for sensitive resources.