DEPARTMENT OF LABOR

Occupational Safety and Health Administration

29 CFR Part 1910

[Docket No. OSHA–2007–0073]

RIN 1218–AC91

Emergency Response Standard

AGENCY: Occupational Safety and Health Administration (OSHA), Labor.

ACTION: Proposed rule; request for comments.

SUMMARY: OSHA is proposing through this notice of proposed rulemaking (NPRM) to issue a new safety and health standard, titled *Emergency Response,* to replace the existing Fire Brigades Standard. The new standard would address a broader scope of emergency responders and would include programmatic elements to protect emergency responders from a variety of occupational hazards. The agency requests comments on all aspects of the proposed rule.

DATES: Comments on this NPRM (including requests for a hearing) and other information must be submitted by May 6, 2024.

Informal public hearing: OSHA will schedule an informal public hearing on the proposed rule if requested during the comment period. If a hearing is requested, the location and date of the hearing, procedures for interested parties to notify the agency of their intention to participate, and procedures for participants to submit their testimony and documentary evidence will be announced in the **Federal Register**.

ADDRESSES:

Written comments: You may submit comments and attachments, identified by Docket No. OSHA–2007–0073, electronically at *https://www.regulations.gov,* which is the Federal e-Rulemaking Portal. Follow the instructions online for making electronic submissions. After accessing ''all documents and comments'' in the docket (Docket No. OSHA–2007–0073), check the ''proposed rule'' box in the column headed ''Document Type,'' find the document posted on the date of publication of this document, and click the ''Comment Now'' link. When uploading multiple attachments to *regulations.gov*, please number all of your attachments because *regulations.gov* will not automatically number the attachments. This will be very useful in identifying all attachments in the preamble. For example, Attachment 1—title of your document, Attachment 2—title of your document, Attachment 3—title of your document. For assistance with commenting and uploading documents, please see the Frequently Asked Questions on *regulations.gov.*

Instructions: All submissions must include the agency's name and the docket number for this rulemaking (Docket No. OSHA–2007–0073). All comments, including any personal information you provide, are placed in the public docket without change and may be made available online at *http://www.regulations.gov.* Therefore, OSHA cautions commenters about submitting information they do not want made available to the public, or submitting materials that contain personal information (either about themselves or others), such as Social Security Numbers and birthdates.

Docket citations: This **Federal Register** document references materials in Docket ID OSHA–2007–0073, which is the docket for this rulemaking. OSHA also references documents in the following dockets which the agency adopts by reference into this rulemaking:

- 2016, National Advisory Committee on Occupational Safety and Health (NACOSH)—Docket ID OSHA–2016–0001; and
- 2015, NACOSH Emergency Responder Preparedness Subcommittee—Docket ID OSHA–2015–0019.

All of these dockets are available for viewing at *https://www.regulations.gov,* the Federal eRulemaking Portal.

Citations to documents: The docket referenced most frequently in this document is the docket for this rulemaking, docket number OSHA–2007–0073, cited as Docket ID OSHA–2007–0073. Documents in the docket get an individual document identification number, for example ''OSHA–2007–0073–0044.'' Because this is the most frequently cited docket, the citation is shortened to indicate only the document number. The example is cited in the NPRM as ''Document ID 0044.''

Citations to documents in other dockets include the full document identification number, cited as, for example ''Document ID OSHA–2015–0019–0014.'' The citation may also include page numbers. The NACOSH subcommittee meetings were transcribed. Citations to the transcripts, and the referenced page(s), are cited as, for example, ''Document ID OSHA–2015–0019–0015, Tr. 53.''

Documents cited in this NPRM are available in the rulemaking docket (Docket ID OSHA–2015–0073) or in the dockets OSHA is adopting in this rulemaking. They are available to read and download by searching the docket number or document ID number at *https://www.regulations.gov.* Each docket index lists all documents in that docket, including public comments, supporting materials, meeting transcripts, and other documents. However, some documents (*e.g.,* copyrighted material) in the dockets are not available to read or download from that website. All documents in the dockets are available for inspection at the OSHA Docket Office. This information can be used to search for a supporting document in the docket at *www.regulations.gov*. Contact the OSHA Docket Office at (202) 693–2350 (TTY number: 877–889–5627) for assistance in locating docket submissions.

Consensus standards: Throughout this NPRM, OSHA makes numerous references to the consensus standards published by the National Fire Protection Association (NFPA). The NFPA standards are available to be viewed without cost at *https://www.nfpa.org/for-professionals/codes-and-standards/list-of-codes-and-standards/free-access.*

FOR FURTHER INFORMATION CONTACT:

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SUPPLEMENTARY INFORMATION:

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I. Executive Summary

A ''100-word summary'' is available on *https://www.regulations.gov.* Elements of emergency responder (firefighters, emergency medical service providers, and technical search and rescuers) health and safety are currently regulated by OSHA primarily under a patchwork of hazard-specific standards, and by state regulations in states with OSHA-approved State plan programs. (While OSHA standards do not apply to volunteers, some volunteers are covered in states with OSHA-approved State plan programs.) All of the OSHA standards referred to above were promulgated decades ago, and none was designed as a comprehensive emergency response standard. Consequently, they do not address the full range of hazards currently facing emergency responders, nor do they reflect major changes in performance specifications for protective clothing and equipment or major improvements in safety and health practices that have already been accepted by the emergency response community and incorporated into industry consensus standards. Notably, the OSHA standards do not align with the Department of Homeland Security's National Incident Management System (NIMS), which guides all levels of government, nongovernmental organizations, and the private sector to work together to prevent, protect against, mitigate, respond to, and recover from emergency incidents.

In the aftermath of the terrorist attacks on September 11, 2001, all government agencies, including OSHA, were directed to strengthen their preparedness to respond to terrorist attacks, major disasters, and other emergencies. In response to this direction, the agency reviewed its standards applicable to the safe conduct of emergency response and disaster recovery activities and identified gaps in the protections for emergency responders and disaster recovery workers. The agency subsequently published a Request for Information (RFI), using the Fire Brigades standard (29 CFR 1910.156) as a baseline for emergency response activities, to determine if it should proceed with updating and expanding the standard.

Responses to the RFI generally supported the need for continued rulemaking; therefore, the agency worked with the National Advisory Committee for Occupational Safety and Health (NACOSH) to assemble a subcommittee of emergency response community representatives to develop draft regulatory language through a process akin to negotiated rulemaking. To ensure a draft standard would incorporate best practices and the latest advances in technology, OSHA invited emergency response stakeholder organizations to provide subject matter experts to consult with and participate on the Subcommittee. The Subcommittee comprised a balanced group of subject matter experts representing labor and management, career and volunteer emergency service management associations, other Federal agencies and State plans, a national consensus standard organization, and general industry skilled support workers. NACOSH unanimously recommended that OSHA proceed with the rulemaking to update its emergency response standard and endorsed the draft regulatory language developed by the Subcommittee.

In accordance with the requirements of the Small Business Regulatory Enforcement Fairness Act (SBREFA), OSHA convened a Small Business Advocacy Review (SBAR) panel in the fall of 2021. The panel, comprising members from the Small Business Administration's (SBA) Office of Advocacy, OSHA, and OMB's Office of Information and Regulatory Affairs, listened to and reported on what Small Entity Representatives (SERs) from entities that would potentially be affected by the proposed rule had to say. OSHA provided SERs with the draft regulatory language developed by the NACOSH subcommittee for their review and comment. The Panel received advice and recommendations from the SERs and reported its findings and recommendations to OSHA. OSHA has taken the SERs' comments and the Panel's findings and recommendations into consideration in the development of the proposed rule.

The proposed rule updates by replacing the existing Fire Brigades standard and would expand the scope of OSHA's standard to include a broad range of hazards emergency responders encounter during emergency response activities and would bring the standard in line with the Federal Emergency Management Agency's (FEMA) National Response Framework and modernize the standard to align with the current industry consensus standards issued by the National Fire Protection Association (NFPA) on the safe conduct of emergency response activities.

As noted in the first paragraph above, and discussed in detail below, OSHA standards do not apply to volunteer emergency responders. However, in States with OSHA-approved State Plans, volunteers may be treated as employees under state law. OSHA has no authority over how individual states regulate volunteers. See section III.B, Pertinent Legal Authority, and section VIII.G, Requirements for States with OSHA-Approved State Plans, for further discussion. Throughout this document, the agency seeks input on alternatives and potential exclusions for economically at-risk small and volunteer organizations that will be shared with State Plans as they determine how to proceed with their subsequent individual state-level rulemaking efforts.

Organizations that provide emergency services vary significantly in size and the type(s) of service(s) they provide. They are often not well suited for ''one-size-fits-all'' prescriptive standards. Accordingly, the proposed rule is a ''performance-based'' standard, which provides flexibility for affected employers to establish the specific criteria that best suits their organization. The proposed rule focuses on the achievement of desired results—improving emergency responder health and safety and reducing injuries and fatalities—while providing flexibility as to the precise methods used to achieve those results. The performance-based nature of the proposed rule is particularly beneficial to small and

volunteer organizations with limited resources.

Additionally, in accordance with Executive Orders 12866 and 13563, the Regulatory Flexibility Act (RFA), and the Unfunded Mandates Reform Act (2 U.S.C. 1501 *et seq.*), OSHA has prepared a Preliminary Economic Analysis (PEA), including an Initial Regulatory Flexibility Analysis, for the replacement of the existing Fire Brigades standard. Supporting materials prepared by OSHA are available in the public docket for this rulemaking, Docket ID OSHA–2007–0073, through *www.regulations.gov.*

II. Background

A. Need for the Standard

I. Fatality and Injury Analysis

On April 17, 2013, while engaged in fire suppression activities at a fertilizer plant in West, Texas, ten firefighters died after approximately 40 to 60 tons of ammonium nitrate unexpectedly detonated. Five civilians, two of whom were providing support for firefighting activities, were also killed, and five firefighters were injured. Victims of the blast included both volunteer and career firefighters, ranging in age from 26 to 52 years, each with 1 to 31 years of firefighting experience. A subsequent investigation into the incident performed by the National Institute for Occupational Safety and Health (NIOSH) revealed numerous contributing factors in the incidents that led to the fatalities, including limited responder knowledge and recognition of the hazards created by ammonium nitrate, inadequate pre-incident emergency response planning for the fertilizer plant, and the fact that response personnel performed fire suppression activities from a location that was within the blast radius of the explosion (NIOSH 2014, Document ID 0331). As part of its investigation report, NIOSH made several recommendations for how fire departments could prevent fatalities and injuries, including the development of a written risk management plan, the conducting of pre-incident planning inspections for the buildings located within a fire department's jurisdiction, the development and implementation of a written incident management system for all emergency incident operations, the mandated use of turnout clothing and other personal protective equipment (PPE) that has been determined to be appropriate for each task, and a minimum standard of training for every firefighter.

Every day, the duties of an emergency responder may require making life and death decisions. The typical workday of an emergency responder could include tasks that range from responding to a minor medical emergency to addressing a more severe incident such as a multi-building fire or assisting in the rescue and helicopter medical evacuation of an injured rock climber trapped on the side of a cliff. In performing their assigned tasks associated with the protection of the public, personal and real property, and the environment, emergency responders face numerous safety and health hazards which may lead to injury, illness, and death. After conducting a review of the fatalities and injuries sustained during regular work activities by emergency response personnel operating within the current regulatory framework, OSHA has determined that existing safety and health standards do not adequately protect the emergency response workforce from these hazards.

As explained in the *Preliminary Economic Analysis,* OSHA estimates that approximately 1,054,611 individuals are exposed on an annual basis to the workplace hazards associated with the emergency response activities falling within the scope of the proposed rule, including public-sector employees in States with OSHA-approved State Plans.[1] Workers performing emergency response activities can be assigned to a wide variety of tasks, including firefighting, medical assistance, and search and rescue. The hazards associated with emergency response activities are not limited to emergency situations; OSHA has also identified safety and health risks present during training exercises and other routine tasks. While some individuals are employed full-time as emergency response workers, a substantial number of personnel are categorized as volunteers. OSHA estimates that, of the 1,054,611 emergency responders anticipated to fall within the scope of the proposed rule, 331,472 will be self-identified as volunteers.

A. Fatalities

To determine the frequency and nature of workplace fatalities for emergency responders, OSHA reviewed the datasets of published summary reports available from a variety of sources, including reports published by the United States Fire Administration (USFA), FEMA, the NFPA, NIOSH, the National Wildfire Coordinating Group (NWCG), the OSHA Information System (OIS), and the Bureau of Labor Statistics (BLS).

Review of the overall rate of reported workplace-related deaths for emergency response personnel contained within these reports revealed substantial variation among reporting agencies (Table VII–A–1). Some organizations reported higher rates of fatal injuries as compared to other, non-emergency response professions, while other organizations reported lower rates of fatal injuries. OSHA also determined that each reporting agency varied significantly in the number of deaths reported annually, the number and date of the years examined, the inclusion or exclusion of certain victims (volunteer, non-firefighter job categories), and their definition of an 'on-duty' fatality. Additionally, although each study provided summary numbers for the causes of death, the extent of the investigations performed to identify the root cause of each fatality varied among reports. Table VII–A–1, below, shows a summary of the reports reviewed by OSHA in consideration of the annual fatality rates for emergency response personnel.

[1] The proposed rule defines two types of emergency response workers: *responders* and *team members.* For purposes of the discussion in this section and the Health Effects of Emergency Response Activities section that follows, both types of workers are referred to as ''emergency responders'' or ''emergency response personnel.''

Table VII-A-1. Annual number of firefighter deaths by reporting agency.

Investigating Entity:	USFA	FEMA	NFPA	NIOSH	NWCG	OSHA (OIS)	BLS
Data Range	1990-2012 (excluding 2001)	2020	2007-2021	2007-2021	2007-2016	2007-2021	2007-2021
Average Number of Fatalities, Annually	105.2	102 (Includes 36 Covid-19 related deaths)	72.4 (Excludes Covid-19 related deaths)	99.3	17 (Wildland firefighter deaths only)	18.2 (Excludes Covid-19 related deaths)	11.3 (Includes only non-firefighter personnel, excludes Covid-19 related deaths)

Source: USFA Annual Fatality Summary Reports, 2007-2021; NFPA Annual Fatality Summary Reports, 2007 – 2021; NIOSH, Fire Fighter Fatality Investigation and Prevention Program - Fire Fighter Fatality Map (2007-2021); U.S. Department of Labor, Bureau of Labor Statistics; OSHA's Occupational Safety and Health Information System (OIS).

From the information in Table VII–A–1, OSHA concluded that a conservative estimate of workplace deaths for emergency response personnel falling within the scope of the proposed rule would include those firefighter deaths reported by NFPA (an average of 72.4 deaths annually, including career and volunteer firefighters), combined with BLS information on the number of non-firefighter emergency responder deaths (an average of 11.3 deaths, annually), which produces an estimate of 83.7 emergency responder deaths annually, on average. The agency believes that the majority of technical search and rescue job activities are performed by firefighters, EMS providers, and law enforcement officers (such as park rangers, conservation officers, and natural resource police), who are cross trained to perform technical search and rescue. As such, OSHA believes that most injuries and fatalities that occur during technical search and rescue activities are attributed to firefighters, EMS personnel, and law enforcement officers in data sources. This assumption is supported by the information available in the OSHA Information System (OIS) database; of the 273 emergency response-related fatalities in the OIS database, 19 occurred while the victim was engaged in non-fire-related technical search and rescue activities. Among these victims, each was identified by the OSHA investigator as employed within one of the job categories of firefighter, EMS provider, or law enforcement, and not as a technical search and rescuer.

Listed below are examples of fatalities from the OIS database that occurred while the rescuer (victim) was engaged in activities that were determined to be technical search and rescue related.

Inspection #343188371—At 8:15 p.m. on May 28, 2018, an employee was working as a firefighter and diver for a big city fire department. A man fell into the South Branch of the Chicago River. The firefighter and a coworker, his diving partner, had been deployed from a helicopter into the river to conduct dive rescue operations. During the attempt, the firefighter surfaced with his partner. Then he subsequently sank to the bottom of the river. At that time, he lost communication with the fire department. Divers from the department's marine unit searched for firefighter. After several minutes, they located the firefighter and pulled him out of the water with his diving equipment intact. Despite resuscitation attempts by paramedics on the scene and at the hospital, he was pronounced dead at 10:02 p.m. that same day.

Inspection #334815610—At approximately 5:00 p.m. on June 21, 2012, during a mountain rescue, an employee was preparing to place rescue victim in a stokes litter to be hoisted on to a helicopter at approximately 13,800 foot level of Emmons Glacier on Mt. Rainier. The helicopter was lowering a litter to the employee. The employee reached up and unhooked the litter when he apparently lost his footing and slid approximately 3,7000 feet down the face of the glacier. The employee was killed.

Inspection #315597187—At approximately 9:45 p.m. on May 23, 2011, Employee #1 and a firefighter crew were standing in the driveway of the fire hall. They had completed a rope rescue-training course using a rope and pulley system, which was hooked to the bucket of a ladder truck. The bucket was 20 ft above the pavement. Employee #1 placed his foot in the loop of the rope and pulled himself up by pulling down on the other end of the rope. When his feet were approximately 4.5 ft above the ground, the two ends of the rope spread apart, so his feet went in one direction and his hands went in the other. This caused his body to be positioned horizontally. He fell backwards to the ground and struck his back and head on the pavement below. Employee #1 sustained head trauma that killed him.

The information in the OIS dataset, while limited, supports OSHA's inclusion of technical search and rescue-related job activities within the scope of the proposed rule. However, as fully discussed in section VII.D. Benefits, the number of fatalities in the OIS dataset is likely a significant underestimation of the total emergency responder fatalities occurring annually in the United States. Moreover, in contrast to firefighters, publicly available injury and fatality data specific to technical search and rescue is difficult to obtain, in part because it may be included with non-technical rescue data, as in this article titled ''Injuries to Search and Rescue Volunteers; A 30-year Study,'' in which there is no differentiation between technical and non-technical rescuers. *https://www.researchgate.net/publication/20566794_Injuries_to_search_and_rescue_volunteers_A_30-year_experience*. Similarly, as noted above, OSHA believes that many

injuries arising from technical search and rescue activities are categorized generally as firefighting or EMS injuries, making them difficult to disaggregate from other firefighter and EMS data.

In addition to the lack of peer-reviewed publications focusing exclusively on technical search and rescue, a review of publicly available information from the professional associations devoted to providing support for technical search and rescue employees on a national level identified no readily available summary reports of technical search and rescue-related accidents, injuries, or fatalities for victims falling within the scope of OSHA's proposed rule. Further examination of available BLS data is infeasible because BLS does not have an occupational code for Technical Search/Rescue.

Despite the limited availability of data specific to technical search and rescue, the hazards posed by these activities are recognized in the industry. The NACOSH subcommittee, comprised of subject matter experts representing labor and management, career and volunteer emergency service management associations, other Federal agencies and State plans, a national consensus standard organization, and general industry skilled support workers, recommended coverage for technical search and rescue activities by including it in its proposed draft standard (Docket ID OSHA–2015–0019–0002, Ex. 5). Similarly, NFPA has standards specific to technical search and rescue; NFPA 1670, Operations and Training for Technical Search and Rescue Activities; and NFPA 1006, Rescue Technician Professional Qualifications.

Based on the available data and industry recognition, OSHA preliminarily concludes that technical search and rescue emergency response activities involve risks to employee safety and health comparable to those in other types of emergency response such as firefighting and EMS. OSHA requests comment on this conclusion and specifically invites additional data and information on the risks posed by technical search and rescue activities.

OSHA believes that the fatalities present in the OSHA OIS dataset are likely a significant underestimation of the fatalities occurring annually within the emergency response community. This is likely because the OIS database contains information about fatality investigations performed by OSHA field investigators, but does not contain information about deaths not reported to OSHA, which includes many volunteer firefighter deaths. The total number of fatalities may also be underestimated as there is no blanket mandatory reporting requirement for emergency responder deaths. This is also likely due in part to varying methodology among reporting organizations for categorizing a heart attack as work-related. The differences observed between the OIS dataset and the NFPA dataset in these two categories of fatalities are summarized in Table VII–A–2. Although the NFPA dataset contained more victims in each of these fatality characteristics, when OSHA compared the manner and cause of deaths in the OIS dataset with those in the NFPA summary reports, observable similarities were present (Table VII–A–2).

Table VII-A-2. Summary comparison of the characteristics of the NFPA and OIS fatality datasets.

Fatality Descriptive Information	Average Number of Annual Fatalities (2007-2021) NFPA Dataset	Average Number of Annual Fatalities (2007-2021) OIS Dataset
Average Annual Fatality Rate (AAFR)-Overall Rate	72.4	18.2
AAFR-Paid Employee	35.1 (48%)	16.3 (90%)
AAFR-Volunteer	37.3 (52%)	1.9 (10%)
Task at Time of Death		
Fire or Emergency Response	42.1 (58%)	11.3 (62%)
Other Emergencies	7.9 (11%)	0.4 (2%)
Training Exercise	8.5 (12%)	2.5 (14%)
On Duty, Other	13.8 (19%)	3.7 (21%)
Cause of Death		
Explosion	2.4 (3%)	0.6 (3%)
Fall	4.5 (6%)	1.9 (10%)
Heat Exhaustion	1 (1%)	0.5 (3%)
Struck By	13.5 (19%)	4.8 (26%)
Workplace Violence	1.7 (2%)	0.1 (1%)
Nature of Death		
Asphyxia	7 (10%)	1.9 (10%)
Burn or Scald	4.8 (7%)	2.6 (14%)
Drowning	1.4 (2%)	0.8 (4%)
Heart Attack	30.9 (43%)	3.8 (20%)
Striking/Crushing/Collision	23.2 (32%)	4.8 (26%)

Source: NFPA Annual Fatality Summary Reports, 2007 – 2021.
NOTE: Because of rounding and data exclusion of nonclassifiable responses, data may not sum to the totals
Source: OSHA's Occupational Safety and Health Information System (OIS).

For example, both datasets show that a majority of emergency responder deaths occurred while the responder was responding to emergencies or fighting fires (58% for NFPA, 62% for OIS). A substantial number of fatalities also occurred while engaged in training activities (12% and 14% for the NFPA and OIS datasets, respectively). The leading cause of death for both the NFPA (19%) and the OIS (26%) datasets was being struck by an object, and a similar percentage of deaths fell into the striking/crushing/collision category (32% in the NFPA dataset, 26% in the OIS dataset). Important distinctions between the NFPA and OIS datasets include both scope and level of detail. Specifically, NFPA reports are limited to deaths occurring among firefighters. The OIS dataset includes deaths of all emergency response personnel determined to fall within the scope of the proposed rule, including other, non-firefighter individuals. Additionally, the NFPA dataset contains little to no information regarding identified workplace hazards associated with the reported deaths, while the OIS dataset includes summary information for contributory hazards, as identified by the standards cited by the OSHA investigator and the information contained in each accident's summary abstract. For these reasons, while OSHA determined that the overall number of firefighter deaths annually is more accurately reflected by the NFPA annual summary reports, OSHA determined that the descriptive information available in the OIS dataset regarding task at time of death, cause of death, and workplace hazards identified by the OSHA inspector while investigating an individual's death is a representative sample of the characteristics of emergency response fatalities across the larger dataset. OSHA reviewed all 273 fatalities in the OIS dataset to identify the causes of death and any contributory safety or health hazards. Table VII–A–3 shows a summary of the reported cause of death and the assigned task at the time of death for each of the fatalities in the OIS dataset.

A review of the available literature identifying common causes of death for emergency responders supports OSHA's analysis of the fatalities available in the OIS dataset. From this review, OSHA determined that some of the most common safety and health hazards encountered by emergency responders include vehicle collisions; falls from heights to lower levels due to structural or building collapses; being struck by, caught in between, or crushed by vehicles; falling objects or debris; burns; and entrapments (FEMA, 2022, Document ID 0341; NWCG, 2017,

Document ID 0265; NFPA, 2022, Document ID 0122).

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Table VII-A-3. Summary of nature and cause of deaths in OIS fatality analysis.

Assigned Task ---------- Cause of Death	Emergency Response-Not Fire	Emergency Response-Fire	Rescue	Training Exercise	On Duty-Other	Off Duty	Total Deaths
Asphyxia	-	28	-	-	-	-	**28**
Burn/ Scald	-	38	-	1	-	-	**39**
Cancer	-	-	-	-	1	-	**1**
Chemical Exposure	-	-	-	-	1	-	**1**
Cut/ Laceration	-	-	-	-	1	-	**1**
Drowning	-	-	5	5	2	-	**12**
Explosion	1	6	-	-	2	-	**9**
Fall	2	11	2	6	7	-	**28**
Heart Attack	3	15	-	15	14	8	**55**
Heat Exhaustion	-	3	-	4	-	-	**7**
Natural Causes	-	-	-	1	1	-	**2**
Stroke	-	1	-	-	-	-	**1**
Smoke Exposure	-	1	-	-	-	-	**1**
Striking/ Crushing/ Collision	6	17	-	2	9	-	**34**
Struck By	6	23	-	1	8	-	**38**
Suicide	-	-	-	-	1	-	**1**
Unknown	-	6	-	3	4	-	**13**
Violence	1	1	-	-	-	-	**2**
Total	**19**	**150**	**7**	**38**	**51**	**8**	**273**

Source: OSHA's Occupational Safety and Health Information System (OIS).

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Among these 273 fatalities, hazards identified by OSHA investigators as present on-site at the time of death included hazards involving the incorrect use of PPE and other equipment, inadequate vehicle preparedness and operation, lack of effective implementation of standard operating procedures in various emergency scenarios, failure to adhere to practices for Immediately Dangerous to Life and Health (IDLH) situations, failure to meet medical evaluation requirements, failure to meet minimum training requirements, lack of or ineffective implementation of an Emergency Response Plan (ERP), and the lack of an effective Risk Management Plan (RMP). These hazards were identified by reviews of the citations issued at the time of the inspection and of the summary abstracts for each investigation. A summary of the number of hazards found at each of the OIS fatalities can be found in Table VII–A–4, below.

Table VII-A-4. A summary of hazards identified by OSHA during fatality investigations.

Identified Safety Deficiencies Leading to Workplace Hazards	Number of Fatalities
Correct Use of PPE and Other Equipment	59 (21.6%)
Vehicle Preparedness and Operation	29 (10.6%)
Standard Operating Procedures-Creation and Adherence	47 (17.2%)
IDLH Practices-Creation and Adherence	18 (6.6%)
Medical Evaluation	18 (6.6%)
Minimum Training Requirements	41 (15.0%)
ERP- Creation and Adherence	56 (20.5%)
RMP- Creation and Adherence	43 (15.8%)

Source: OSHA's Occupational Safety and Health Information System (OIS).

From these 273 fatalities, OSHA identified 212 (77.7%) in which at least one of the safety hazards addressed by the proposed rule was determined to be present at the time of the emergency responder's death.

Heart attacks were identified in both the NFPA (43%) and OIS (20%) datasets as one of the most commonly occurring means by which an emergency responder will die while at work. Among the 212 fatalities in the OIS dataset determined to have at least one of the safety hazards addressed by the proposed rule present in the workplace at the time of death, eight were classified as heart attack fatalities, approximately 15% of the total number of heart attacks observed in the dataset. Cardiovascular health and the reduction of heart attacks is further discussed in the *Health Effects of Emergency Response Activities* section, below.

B. Nonfatal Injuries

OSHA reviewed the available literature to examine the extent and nature of workplace injuries occurring among emergency response personnel. From this review, OSHA determined that, overall, emergency responders are at higher risk of injury than the general population. Workplace hazards identified in the literature as leading to injury among emergency response personnel include exposure to toxic chemicals, falls, environmental hypoxia, exposure to excessive noise, over-exertion due to lifting heavy objects, wearing heavy protective equipment, repetitive motion, and other similar activities (Gentzler, 2010, Document ID 0337; Neitzel et. al, 2013, Document ID 0333; Neitzel et. al, 2016, Document ID 0338; Campbell, 2017, Document ID 0342). Estimations of the increased risk as compared to all private industries varied by the type of emergency service provided, ranging from 1.7 times for private ambulance service workers to 4 times for EMS responders (Reichard, 2017, Document ID 0339; Reichard et al, 2018, Document ID 0335). For the purposes of this analysis, OSHA focused on lost-time injuries; expected lost-time injuries for the hazards identified above include fractures, sprains, internal bodily trauma, dislocations, chemical burns, and chemical pneumonia.

OSHA determined that the most common cause of injury among emergency medical services providers was overexertion or strain. Multiple studies identified overexertion or strain as the leading causes of injury, with reported proportions of injury ranging from 23% to 60% and body motion injuries (*e.g.,* lifting, carrying, or transferring a patient and/or equipment) commonly serving as the leading event (Campbell, 2017, Document ID 0342; Campbell and Hall, 2022, Document ID 0336; Campbell and Molis, 2020, Document ID 0343; Butry et al., 2019, Document ID 0334; Reichard et al., 2018, Document ID 0335; Dworsky et al., 2021, Document ID 0332). In addition to reviewing the available literature, OSHA conducted an analysis of the injury statistics available from the BLS for the EMT and Paramedic categories of emergency response professions, from the years 2007 through 2020. In total, 107,720 non-fatal incidents requiring days away from work were reported, an average of 7,694 injuries annually. In addition to the common sources of injury as identified by the literature review, the BLS injury statistics revealed further causes of frequent injury among emergency response professionals, summarized in Table VII–A–5, below.

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Table VII-A-5. Non-Fatal Injuries to EMTs and Paramedics, All Ownerships, 2007-2020.

Event or Exposure	Number of Injuries	Percent of Total Injuries	Average Annual Injuries
Contact with objects	10,570	9.8	755
Falls, slips, trips	14,700	13.6	1,050
Overexertion and bodily reaction	57,790	53.6	4,128
Exposure to harmful substance or environment	7,010	6.5	501
Transportation incidents	7,540	7.0	539
Fires and explosions	260	0.2	19
Violence and other injuries by persons or animals	4,720	4.4	337
Other	4,640	4.3	331
Total Injuries	**107,720**	**100.0**	**7,694**

Source: Bureau of Labor Statistics, U.S. Department of Labor, Survey of Occupational Injuries and Illnesses in cooperation with participating State agencies. *https://data.bls.gov/gqt/ProfileData*.
Number of nonfatal occupational injuries and illnesses involving days away from work (1) by selected worker and case characteristics and occupation, All U.S., private industry, 2007 – 2020.
NOTE: Because of rounding and data exclusion of nonclassifiable responses, data may not sum to the totals.

To determine the number of injuries occurring annually among firefighters, OSHA reviewed the annual NFPA injury summary reports from 2007 to 2020 (Docket Nos. 0362–0376). These reports show that, on average, 67,964 injuries occurred among firefighters annually, with an average of 14,172 of those classified as a lost time injury, 21% of total injuries (see Table VII–A–6).

Table VII-A-6. A Summary of Non-Fatal Injuries to Firefighters, 2007-2020.

Year of Record	Total Number of Injuries	Total Number of Lost Time Injuries	Lost Time Injuries as a Percent of Total Injuries
2007	80,100	16,350	20.4%
2008	79,700	15,250	19.1%
2009	78,150	15,150	19.4%
2010	71,875	15,000	20.9%
2011	70,090	13,650	19.5%
2012	69,400	14,350	20.7%
2013	65,880	10,000	15.2%
2014	63,350	10,700	16.9%
2015	68,085	11,500	16.9%
2016	62,085	19,050	30.7%
2017	58,835	10,155	17.3%
2018	58,250	15,500	26.6%
2019	60,825	17,575	28.9%
2020*	64,875	13,590	28.9%
Annual Average	**67,964**	**14,172**	**21.0%**

Source: NFPA Annual Fatality Summary Reports, 2007 – 2021.
NOTE: Because of rounding and data exclusion of nonclassifiable responses, data may not sum to the totals.
*2020 lost-time number is derived from the 15-year average.

Review of the reported tasks that injured firefighters were engaged in at the time of injury revealed persistent trends, both among the injury task categories, and when compared to the task categories of the fatality victims (Table VII–A–7). Specifically, each year, the work associated with firefighting activities results in an average of 42.4% of all injuries, while non-fire emergency tasks result in 20.4% of all injuries. The activities associated with responding to or returning from an emergency result in an average of 6.6% of annual injuries. Training activities result in 11.6% of all firefighter injuries, and duties not associated with emergencies, emergency response, or training result in, on average, 19% of injuries. Examples of injuries in this last category could include things like a responder slipping on an icy walkway at the fire station, dropping an old tire on their foot while doing a changeout at the fire station, having their foot run over while directing a fire truck back into the station after a fire, and sliding down the fire pole and landing poorly, spraining an ankle. The proportion of total injuries for each assigned job category was similar to the proportions observed in each of the fatality categories (see Table VII–A–2).

Table VII-A-7. Assigned Task of Firefighter at the Time of Their Injury.

Year of Record	Fireground Operations	Non-Fire Emergencies	Responding to or Returning from an Emergency	Training	Other Duties
2007	47.9%	19.3%	6.2%	9.7%	17.1%
2008	45.9%	19.8%	6.2%	10.2%	17.9%
2009	41.2%	19.8%	6.4%	10.2%	22.5%
2010	45.5%	18.6%	6.1%	10.1%	19.7%
2011	43.5%	21.3%	5.5%	10.7%	19.0%
2012	45.4%	18.4%	6.0%	10.3%	19.9%
2013	45.2%	19.0%	6.1%	11.8%	17.9%
2014	42.6%	23.0%	6.6%	10.9%	16.9%
2015	42.8%	21.0%	5.6%	11.1%	19.5%
2016	39.2%	20.6%	8.4%	13.7%	18.2%
2017	41.6%	20.8%	7.7%	14.2%	15.6%
2018	39.4%	20.0%	7.1%	14.0%	19.4%
2019	39.2%	23.3%	6.7%	13.4%	17.4%
2020	34.6%	21.0%	7.7%	11.6%	25.1%
Annual Average	**42.4%**	**20.4%**	**6.6%**	**11.6%**	**19.0%**

Source: NFPA Annual Fatality Summary Reports, 2007 – 2021.
NOTE: Because of rounding and data exclusion of nonclassifiable responses, data may not sum to the totals.

The most common source of injury among firefighters was overexertion or strain (27.0% of injuries, on average). While overexertion was also the leading source of injury among emergency response personnel not classified as firefighters, the proportion of these injuries varied significantly among the professional categories, 27.0% of firefighter injuries compared to 53.6% of injuries for non-firefighter personnel. Other significant causes of injury among firefighters included fall, jump, slip injuries (22.8% of injuries, on average) exposure to fire products (11.5% of injuries, on average), contact with objects (10.8%), and being struck by a moving object (6.0%). (see Table VII–A–8).

Table VII-A-8. Nature of Firefighter Injury.

Year of Record	Fall, Jump, Slip	Overexertion, Strain	Contact with object	Struck by an object	Extreme weather	Exposure to fire products	Exposure to chemicals or radiation	Other
2007	27.3%	24.4%	11.9%	8.8%	2.4%	8.8%	1.0%	15.4%
2008	23.5%	23.1%	13.0%	4.9%	2.9%	12.7%	2.8%	16.9%
2009	22.7%	25.2%	11.4%	5.8%	2.4%	12.9%	5.0%	14.6%
2010	22.5%	25.7%	12.4%	6.9%	4.7%	9.0%	0.9%	18.0%
2011	21.0%	28.4%	11.7%	5.7%	3.7%	8.0%	2.3%	19.1%
2012	23.2%	27.5%	10.9%	5.5%	3.4%	9.7%	1.8%	17.9%
2013	22.7%	26.5%	12.0%	4.7%	3.8%	10.4%	2.2%	17.8%
2014	29.0%	25.0%	11.0%	6.0%	3.0%	9.0%	3.0%	14.0%
2015	27.2%	27.2%	7.4%	9.0%	1.8%	8.2%	2.6%	16.4%
2016	21.0%	27.1%	9.7%	5.9%	3.1%	13.6%	3.7%	16.4%
2017	20.0%	29.0%	11.0%	6.0%	3.0%	11.0%	4.0%	16.0%
2018	18.0%	29.0%	10.0%	5.0%	3.0%	17.0%	2.0%	16.0%
2019	20.0%	29.0%	9.0%	5.0%	3.0%	15.0%	5.0%	14.0%
2020	21.0%	31.0%	10.0%	5.0%	3.0%	15.0%	3.0%	16.0%
Annual Average	**22.8%**	**27.0%**	**10.8%**	**6.0%**	**3.1%**	**11.5%**	**2.8%**	**16.3%**

Source: NFPA Annual Fatality Summary Reports, 2007 – 2021.

NOTE: Because of rounding and data exclusion of nonclassifiable responses, data may not sum to the totals.

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II. Health Effects of Emergency Response Activities

In addition to the traumatic injuries discussed above, emergency response activities are associated with exposure to hazards that can cause both chronic physical health and adverse psychological health effects for responders, including but not limited to adverse cardiovascular and respiratory effects, cancers, post-traumatic stress disorder (PTSD), and suicide. Exposure to combustion products is a major factor behind physical illnesses associated with emergency response activities; however, factors such as exposure to infectious diseases, heat, physical exertion, physical stress reactions to alarms and sirens, shift work, and other exposures also play a role. Psychological health effects have been attributed to exposure to trauma, stressful situations, and threats to life and health, including due to workplace violence.

This section presents a summary of OSHA's review of the health effects literature for emergency response activities, including the workplace exposures that contribute to these health effects, and the agency's preliminary conclusions based on that review. OSHA's full analysis is contained in the background document entitled ''Emergency Response Health Effects Literature Review,'' which has been placed in the rulemaking docket (Document ID 0361).

OSHA conducted a literature search to collect relevant information, studies, reports, and materials related to the occupational safety and health of emergency responders such as firefighters, search and rescue personnel, and emergency medical service providers. OSHA sought literature that evaluated workplace exposures and health effects for emergency responders including:

- Exposures to combustion products, other contaminants and substances, and infectious diseases
- Acute and chronic health conditions (*e.g.,* cancer, cardiovascular disease, respiratory disease)
- Behavioral health issues (*e.g.,* mental health, substance use disorders, suicide)
- Workplace violence

OSHA searched the National Library of Medicine (NLM) (*https://pubmed.ncbi.nlm.nih.gov/*) and (*https://www2a.cdc.gov/nioshtic-2/advsearch2.asp*) in 2020 and again in 2022. The search was date limited to 2010 and included several occupational and risk key words to target relevant search results. OSHA obtained and reviewed the full text of relevant articles. OSHA also searched several key organizations' websites for relevant reports and information. This section summarizes the results of this search.

A. Exposures

Emergency responders are exposed to a variety of health hazards in the workplace. OSHA focused its literature review on three areas: combustion products, other contaminants and substances, and infectious diseases. The combustion products review covers substances released during fires. The other contaminants and substances review examines specific situations where emergency responders were exposed to harmful chemicals (*e.g.,* vinyl chloride, phosphine, opioids) while responding to emergency situations in the field or when participating in training exercises that involved simulated smoke. It also includes studies that assessed contaminants inside firehouses and substances off-gassing from emergency

response gear. The infectious diseases review summarizes research on a variety of diseases, including hepatitis B, *Clostridiodes difficile,* Methicillin-resistant *Staphylococcus aureus* (MRSA), and COVID–19.

Many of the studies identified under these three topics focused solely on examining the likelihood or the extent of exposures among emergency responder populations. In some cases, the studies also provided information about the health effects observed among exposed groups. More detailed information about health effects is presented in section 2, Acute and Chronic Health Conditions and section 3, Behavioral Health.

(i) Combustion Products

Combustion products, many of which are considered respiratory hazards, are released when materials burn. The combustion product studies identified during OSHA's literature review addressed firefighters, including both structural and wildland firefighters. Firefighters may be exposed to a wide variety of combustion products, even when wearing protective gear, and exposures can occur during a broad range of activities. Emergency responders can be exposed to combustion products during live training exercises as well as when responding to actual events; while performing exterior operations and during interior fire attack operations; during the early phase of operations as they delay donning self-contained breathing apparatus to conserve vital air supply, through leaks while wearing respiratory protection, or during post-fire clean-up activities. Emergency responders can also be exposed to combustion products through off-gassing from contaminated protective clothing and equipment or while cleaning such items after fire operations. (Geer Wallace et al., 2019a, Document ID 0204; Poutasse et al., 2020, Document ID 0259; Fent et al., 2010, Document ID 0213; Fent et al., 2022, Document ID 0207; Levasseur et al., 2022, Document ID 0253).

The literature provides evidence of firefighters being exposed to a variety of different combustion products, including carbon monoxide (McCleery et al., 2011, Document ID 0281; Semmens et al., 2021, Document ID 0291; Navarro et al., 2021a, Document ID 0252; Reinhardt and Broyles, 2019, Document ID 0278); particulate matter (Baxter et al., 2010, Document ID 0179; Horn et al., 2017, Document ID 0243); dioxins (Shaw et al., 2013, Document ID 0218); radionuclides (Carvalho et al., 2014, Document ID 0180); and a variety of volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs), including polycyclic aromatic hydrocarbons (PAHs) (Hwang et al., 2021, Document ID 0155; Hwang et al., 2022, Document ID 0156; Pleil et al., 2014, Document ID 0158; Rossbach et al., 2020, Document ID 0289; Fent et al. 2013, Document ID 0206; Fent et al., 2022, Document ID 0207; Alharbi et al., 2021, Document ID 0171; Kirk et al., 2021, Document ID 0240; Cherry et al., 2019, Document ID 0188; Poutasse et al., 2020, Document ID 0259; Adetona et al., 2015, Document ID 0167). A 2022 report by the National Academies, ''The Chemistry of Fires at the Wildland-Urban Interface'', provides additional detailed information on fire emissions from a variety of household components, vehicles, and biomass (NASEM 2022, Document ID 0395). These studies show that firefighters can be exposed to combustion products through inhalation and dermal routes during both live fires and training exercises. It is difficult to provide estimates of how many firefighters are exposed and at what level because of the variables involved in firefighting. For example, the number of firefighters exposed varies depending on the size of the fire, with fewer firefighters exposed in response to a car fire than at a large industrial fire. The quantity and type of combustion products that firefighters are exposed to also varies depending on what is burning. Since fires are generally not planned events, the instrumentation that would be required to quantify firefighter exposures is not present at most fires. The frequency of firefighter exposures can also vary greatly, from very few exposures annually in rural areas to many exposures annually in metropolitan areas. Nonetheless, the literature is clear that firefighters are exposed to combustion products at harmful levels.

The specific types and concentration of combustion products released during a fire vary depending on which types of materials are burning and whether the fire is a wildfire, residential fire, industrial fire, or vehicle fire. It is not uncommon for residential fires to involve hazardous materials stored in paint cabinets, workshops, or garages; or buildings that still contain lead paint or asbestos. As a result, emergency responders' exposures to combustion products vary broadly (Alharbi et al., 2021, Document ID 0171; Kirk et al., 2021, Document ID 0240; Fent et al., 2010, Document ID 0213). For example, one study reported that residential fires release more VOCs than industrial fires but lower levels of inorganic gases (Alharbi et al., 2021, Document ID 0171). Another study, which involved controlled fires in a simulated house structure, showed that hydrogen cyanide was detected at concentrations exceeding occupational exposure limits, and at times, at levels regarded as immediately dangerous to life and health (Horn et al., 2017, Document ID 0243). A training exercise focused on vehicle fires suggested that firefighters might encounter acute overexposures to formaldehyde, carbon monoxide, and isocyanates (Fent et al., 2010, Document ID 0213).

Multiple studies found that firefighters are exposed to VOCs, especially PAH compounds, through the dermal and inhalation routes; the studies conducted personal air sampling on the exterior of firefighter gear and compared urinary metabolites from before and after firefighter trainings. For firefighters wearing self-contained breathing apparatus (SCBA), the dermal route appears to be the main route of exposure (Hwang et al., 2021, Document ID 0155; Hwang et al. 2022, Document ID 0156; Pleil et al., 2014, Document ID 0158; Rossbach et al., 2020, Document ID 0289; Fent et al., 2022, Document ID 0207). Firefighter PAH levels were correlated with estimated exposures (based on combustion products identified in environmental samples), length of exposure, and number of fire suppressions (Cherry et al., 2019, Document ID 0188; Cherry et al., 2021, Document ID 0192; Poutasse et al., 2020, Document ID 0259). Also, elevated VOC and PAH levels were associated with certain job positions, including overhaul, attack, search, and outside ventilation positions (Baxter et al., 2014, Document ID 0157; Geer Wallace et al., 2019b, Document ID 0202). Some studies examined ways to reduce VOC and PAH exposures, including enhanced skin hygiene. One study found that the transitional attack method (which involves applying water to the fire from outside of a structure through windows or openings) could lower firefighters' exposures to PAHs compared to the interior attack method (which involves entering the structure for water application) (Fent et al., 2020, Document ID 0205).

Many of the articles identified in the combustion product literature review focused on wildland firefighters, who have much longer fire suppression shifts (8 to 13 hours) compared to structural firefighters (typically 30 minutes) and are more likely to be exposed to combustion products through inhalation since they often wear no respiratory protection or sometimes only a bandana or an N95 respirator rather than an

SCBA like structural firefighters do (Hwang et al., 2022, Document ID 0156; Navarro, 2021, Document ID 0257). It is important to note that an N95 respirator or bandana can only filter out particulate matter and cannot reduce or prevent exposure to toxic gasses and vapors from combustion products. Among wildland firefighters, certain job tasks were associated with higher exposures to different combustion products: for particulate matter, mop-up, direct suppression, and holding tasks had the highest exposures; for carbon monoxide, direct suppression, fireline construction, and holding job tasks had the highest exposures (Navarro, 2021, Document ID 0257; Reinhardt and Broyles, 2019, Document ID 0278). Prescribed burns were found to produce higher exposures of particulate matter and carbon monoxide than wildfires. Time spent on the fireline increased carbon monoxide exposure, and VOC levels were highest for Type 1 crews, which typically have the most experienced firefighters performing the most complex tasks (Navarro et al., 2021a, Document ID 0252). Simultaneous carbon monoxide and noise exposure from chain saws and woodchippers have been found to result in greater hearing loss than if carbon monoxide was not a co-exposure in wildland fire fighters (Ramsey et al. 2019, Document ID 0256). Additionally, wildland firefighters are at risk of radionuclide exposure due to incineration of vegetation that contains naturally occurring radionuclides (Carvalho et al., 2014, Document ID 0180). Studies about wildland firefighters identified multiple negative health effects due to exposures to combustion products, including decline in lung function, oxidative and inflammatory stress response, and increased cardiovascular health effects and mortality (Navarro, 2021, Document ID 0257; Ferguson et al., 2016, Document ID 0197; Main et al., 2019, Document ID 0258; Adetona et al., 2013, Document ID 0165; Wu et al., 2019, Document ID 0318; Navarro et al., 2019, Document ID 0247).

Based on the evidence described above, OSHA has preliminarily determined that emergency responders, specifically both structural and wildland firefighters performing firefighting activities, are exposed to combustion products. These combustion products contain components that are known to cause cardiovascular and pulmonary illness and to be carcinogenic to humans. OSHA therefore preliminarily finds justification to promulgate a standard which requires protective equipment and practices to limit exposure to combustion products. In addition, since exposure cannot be completely eliminated due to the nature of firefighting activities, OSHA has preliminarily determined that medical surveillance is necessary for these responders to detect and respond to health conditions as soon as possible in order to mitigate the long-term health impact of such exposures on emergency responders.

(ii) Other Contaminants and Substances

In addition to the combustion products reviewed in section A.(i), emergency responders may be exposed to varied, unpredictable, and often unknown contaminants and substances while performing their duties. (Hall et al., 2018, Document ID 0220; Melnikova et al., 2018, Document ID 0246). Overall, OSHA's literature review found evidence of adverse health effects among emergency responders who encountered contaminants and other potentially harmful substances on the job, with the most injuries seen among firefighters. As an example of the sources of these contaminants, in 2022 the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration recorded 23,178 highway incidents involving hazardous materials (hazmat) and 355 railway spill hazmat incidents. Additionally, the U.S. Chemical Safety Board reported 102 reportable chemical release events in 2022. Studies also show that emergency responders can be exposed to hazardous substances through equipment contamination and inside their workplaces even when they are not responding to emergencies.

Studies show that emergency responders are exposed to a variety of chemicals in the field, including vinyl chloride, phosphine, ammonia, and hydrochloric acid (Hall et al., 2018, Document ID 0220; Melnikova et al., 2018, Document ID 0246; Brinker et al., 2013, Document ID 0177; Brinker et al., 2015, Document ID 0175). Examples of emergency response activities that can involve such exposures include attending to drug overdose victims (Chiu et al., 2018a, Document ID 0191; Chiu et al., 2018b, Document ID 0182; Chiu et al., 2018c, Document ID 0186), putting out a fire at a chemical manufacturing facility (Eisenberg et al., 2019, Document ID 0203), working with chainsaws that released carbon monoxide and generate wood dust (Ramsey et al., 2019, Document ID 0256), and participating in training that exposed them to a variety of chemicals and potential irritants in simulated smoke such as mineral oil, diethylene glycol, aldehydes, PAHs, VOCs, and carbonaceous particles (Fent et al., 2013, Document ID 0206). The literature review also captured studies that examined diesel exhaust particulate matter and PAH concentrations inside firehouses (Sparer et al., 2018, Document ID 0292; Baxter et al., 2014, Document ID 0157), as well as contaminants associated with firefighting gear, including residual combustion products that adhere to the gear, and substances used to make the gear, such as organophosphorus flame retardants, per-and polyfluoroalkyl substances (PFAS) chemicals, and plasticizers (Alexander and Baxter, 2014, Document ID 0164; Banks et al., 2021b, Document ID 0168; Fent et al., 2018, Document ID 0210; Kirk and Logan, 2015, Document ID 0232; and Muensterman et al., 2022, Document ID 0282).

Respiratory effects (*e.g.,* cough, asthma-like symptoms) were the most frequently reported symptoms among the emergency responders who were assessed (Melnikova et al., 2018, Document ID 0246; Chiu et al., 2018a, Document ID 0191, Chiu et al., 2018c, Document ID 0186; Fent et al., 2013, Document ID 0206; Eisenberg et al., 2019, Document ID 0203; Brinker et al., 2013, Document ID 0177; Brinker et al., 2015, Document ID 0175). Melnikova et al. (2018, Document ID 0246) examined 566 acute chemical exposures among 1,460 emergency responders and found that respiratory system problems were the most common adverse health effect, constituting 56.3 percent of all adverse effects. Other adverse health effects included trauma (11.3 percent), eye irritation (10.5 percent), headache (9.9 percent), and dizziness/other non-head-related central nervous system symptoms (9.9 percent). The chemicals most likely to cause adverse health effects were respiratory irritants, including ammonia (12.4 percent); unspecified, illegal methamphetamine-related chemicals (7.4 percent); carbon monoxide (6.2 percent); propane (6.0 percent); and hydrochloric acid (4.8 percent). Given the prominence of respiratory symptoms in responders exposed to these chemicals, several articles emphasized the importance of wearing respiratory PPE to protect emergency responders from negative health effects (Hall et al., 2018, Document ID 0220; Chiu et al., 2018a, Document ID 0191; Chiu et al., 2018c, Document ID 0186).

A few NIOSH Health Hazard Evaluations (HHEs) investigated health impacts among emergency responders who assisted drug overdose victims. In

a 2018 opioid-related exposure, eight of nine emergency responders reported adverse health effects that were consistent with drug exposure: weakness, confusion, palpitations, lightheadedness, headache, nausea, numbness, double vision, chest discomfort, and stomach discomfort (Chiu et al., 2018a, Document ID 0191; Chiu et al., 2018c, Document ID 0186). Overall, wearing appropriate PPE during responses to drug overdoses was deemed important, especially for preventing eye and mouth exposure.

Multiple studies identified contaminants inside fire stations and on firefighting gear and equipment that firefighters may be exposed to. In studies that examined separate rooms within fire stations, truck bays had the highest contaminant concentrations (Sparer et al., 2018, Document ID 0292; Baxter et al., 2014, Document ID 0157). Banks et al. (2021b, Document ID 0168) found that off-gassing of SVOCs from uniforms stored in private vehicles could be a source of dermal or inhalation exposure for firefighters. Therefore, laundering of firefighters' protective gear (Kirk and Logan, 2015, Document ID 0232), field decontamination, and dermal wipes (Fent et al., 2018, Document ID 0210) were recommended methods to prevent exposures. PFAS (Muensterman et al., 2022, Document ID 0282) and di(2-ethylhexyl)phthalate (Alexander and Baxter, 2014, Document ID 0164) were highlighted as contaminants that need further research due to their presence in and/or persistence on firefighter gear.

Based on the evidence described above, OSHA has preliminarily determined that in the course of their duties, firefighters, emergency medical service providers and technical rescuers are exposed to hazardous substances in the workplace. OSHA therefore preliminarily finds justification to promulgate a standard which requires protective equipment and practices to limit exposure to hazardous substances. In addition, since exposure cannot be completely eliminated due to the nature of emergency response activities, OSHA has preliminarily determined that medical surveillance is also necessary for these responders to detect and respond to health conditions as soon as possible in order to mitigate long-term health impacts.

(iii) Infectious Diseases

When responding to community needs, emergency responders come in direct contact with people who have infectious diseases. OSHA's literature review identified multiple infectious diseases that firefighters, technical rescue responders, and emergency medical service providers are exposed to, including hepatitis B, *Clostridiodes difficile,* Methicillin-resistant *Staphylococcus aureus* (MRSA), and COVID–19. The studies covered a range of topics, such as the incidence rate or prevalence of infectious disease among emergency responders, the likelihood of emergency equipment being contaminated, and the impact of other variables (*e.g.,* wildfire smoke, social vulnerability index) on emergency responders' occupational risks.

Generally, bloodborne diseases (*e.g.,* hepatitis B, hepatitis C, and human immunodeficiency virus) pose low risk to emergency responders, whereas infectious diseases spread through airborne pathways (*e.g.,* meningococcal meningitis, severe acute respiratory syndrome (SARS), influenza, and tuberculosis) and direct contact transmission (*e.g.,* MRSA) pose higher risk (Thomas et al., 2017, Document ID 0307). However, EMS providers' exposure to infectious diseases declined between 1993 and 2011 and remains generally low except during pandemics (Thomas et al., 2017, Document ID 0307).

MRSA and *Staphylococcus aureus* prevalence was generally high among emergency responders. Miramonti et al. (2012, Document ID 0274) found that EMTs and paramedics have a significantly higher nasal colonization rate of MRSA compared to the general population (4.5% vs. 0.084%). Elie-Turenne et al., (2010, Document ID 0195) found that paramedics had the highest rate of *Staphylococcus aureus* nasal colonization (57.7%), but the lowest rate of MRSA compared to other health care professionals (*i.e.,* nurses, clerical workers, and physicians). The authors suggested that the lower relative rate of MRSA may be due to paramedics spending more time in the field compared to other health care professionals. However, two studies examining the contamination of environmental surfaces that emergency responders contact found MRSA in fire stations (Sexton and Reynolds, 2010, Document ID 0284) and *Clostridiodes difficile* on EMS monitoring equipment (Gibson et al., 2021, Document ID 0199).

COVID–19 can serve as a proxy for both epidemic and pandemic exposures for emergency responders. Inconsistent results were found for COVID–19 prevalence among emergency responders. Two studies that examined seroprevalence rates found that first responders had a higher risk of contracting COVID–19 than other health care professionals (Sami et al., 2021, Document ID 0290; Zhang et al., 2022, Document ID 0319). In contrast, other studies found that the prevalence of COVID–19 was not elevated in first responders compared to the general public (Shukla et al., 2020, Document ID 0285; Vieira et al., 2021, Document ID 0302) or to other medical professionals (Akinbami et al., 2020, Document ID 0170; MacDonald et al., 2021, Document ID 0251). Some of these studies suggested that increased PPE usage and the strict infection control measures that emergency responders instituted during the COVID–19 pandemic helped prevent elevated rates among this population (Akinbami et al., 2020, Document ID 0170; Zhang et al., 2022, Document ID 0319; Newberry et al., 2021, Document ID 0261; Vieira et al., 2021, Document ID 0302). Additionally, two studies showed that vaccination may mitigate occupational risks (Grunau et al., 2022, Document ID 0211; Caban-Martinez et al., 2022, Document ID 0178). Other variables also affected first responders' occupational risk of contracting COVID–19 or developing severe COVID–19. Sami et al. (2021, Document ID 0290) and Akinbami et al. (2020, Document ID 0170) both found that community levels of COVID–19 correlated with seroprevalence rates of SARS-CoV–2 in first responders. Moreover, emergency responders who resided in more socially vulnerable response areas (gauged using the CDC's Social Vulnerability Index) were found to have increased exposure to COVID–19 (Haas et al., 2021, Document ID 0230). Additionally, increased levels of wildfire smoke inhalation may increase occupational risk for developing severe COVID–19 among wildland firefighters (Navarro et al., 2021b, Document ID 0279).

Based on the above, OSHA has preliminarily determined that emergency responders are exposed to infectious diseases in the course of their work. Exposures occur due to contact with victims of emergencies (*e.g.,* traumatic injuries) and the treatment and transport of emergency medical patients suffering from either traumatic injuries or illness (*e.g.,* viral meningitis). Infectious agents can contaminate emergency response vehicles and response equipment; protective clothing and equipment; or station uniforms and be brought back to communal quarters such as a fire stations or wildfire basecamps. OSHA therefore preliminarily finds justification to promulgate a standard which requires protective equipment and practices to address exposures to infectious disease.

B. Acute and Chronic Health Conditions

OSHA has identified evidence suggesting that the hazardous exposures

that emergency responders encounter, as described above, put them at elevated risk for certain acute and chronic health conditions. OSHA's literature review on acute and chronic health conditions among emergency responders covered cancer, cardiovascular disease, and respiratory disease.

(i) Cancer

Emergency responders, particularly firefighters, are exposed to known and suspected carcinogens when performing their work (see Sections A.(i) and A.(ii) above), which places them at a 12–19% greater risk of dying from cancer (Muegge et al., 2018, Document ID 0269; Daniels et al., 2014, Document ID 0187; Pinkerton et al., 2020, Document ID 0245) and a 9% greater risk of developing cancer (Daniels et al., 2014, Document ID 0187) than the general population. Studies show that firefighters are at higher risk for multiple cancers compared to the general U.S. population. In fact, the International Association for Research on Cancer (IARC) has concluded that occupational exposure as a firefighter is itself carcinogenic to humans (Group 1) (Demers et al. 2022, Document ID 0194; IARC 2023, Document ID 0236; NASEM 2022, Document ID 0395).

Researchers found that, compared to the general population, male firefighters are at increased risk for melanoma and prostate cancer (Lee et al., 2020, Document ID 0250; Tsai et al., 2015, Document ID 0311); testicular cancer, thyroid cancer, late-stage colon cancer (Lee et al., 2020, Document ID 0250); multiple myeloma, acute myeloid leukemia, esophageal cancer, kidney cancer, and brain cancer (Tsai et al., 2015, Document ID 0311). Researchers found that female firefighters are at increased risk compared to the general population for brain cancer and thyroid cancer (Lee et al., 2020, Document ID 0250) and increased risk of death from bladder cancer (Daniels et al., 2014, Document ID 0187; Pinkerton et al., 2020, Document ID 0245).

For males and females combined, researchers found that firefighters are at increased risk compared to the general population for all-cancer mortality (Muegge et al., 2018, Document ID 0269; Daniels et al., 2014, Document ID 0187; Pinkerton et al., 2020, Document ID 0245); all-cancer incidence (Daniels et al., 2014, Document ID 0187); buccal cavity and pharynx cancer mortality (Muegge et al., 2018, Document ID 0269; Pinkerton et al., 2020, Document ID 0245); other parts of the buccal cavity cancer mortality, pancreatic cancer mortality, kidney cancer mortality, connective tissues cancer mortality, brain and other parts of the nervous system cancer mortality (Muegge et al., 2018, Document ID 0269); digestive cancer incidence and mortality (Daniels et al., 2014, Document ID 0187); respiratory cancer incidence and mortality (Daniels et al., 2014, Document ID 0187); malignant mesothelioma incidence and mortality (Daniels et al., 2014, Document ID 0187; Pinkerton et al., 2020, Document ID 0245); non-Hodgkins lymphoma mortality; esophageal cancer mortality; intestine cancer mortality; rectal cancer mortality; lung cancer mortality; biliary, liver, and gall bladder cancer; and other digestive cancer mortality (Pinkerton et al., 2020, Document ID 0245). Systematic reviews and meta-analyses corroborate many of these results (IARC, 2023, Document ID 0236; Jalilian et al., 2019, Document ID 0233; Sritharan et al., 2017, Document ID 0299; LeMasters et al., 2006, Document ID 0268; Demers et al., 2022, Document ID 0194). Additionally, researchers have studied whether dose-response relationships exist between firefighting exposures and developing cancer. In these dose-response studies, researchers found associations between increased firefighting exposures and increased lung cancer incidence and mortality (Daniels et al., 2015, Document ID 0184; Pinkerton et al., 2020, Document ID 0245) and leukemia mortality (Daniels et al., 2015, Document ID 0184). In a risk assessment, Navarro et al. (2019, Document ID 0247) found that wildland firefighters were at an 8 to 43 percent increased risk of lung cancer mortality.

All 50 states have adopted some form of firefighter cancer legislation that provides benefits to firefighters who develop or die from cancer. In 80% of those, the cancers are presumed to have been the result of firefighting duties. It is also noteworthy that Congress recently passed the Fiscal Year 2023 National Defense Authorization Act *(https://www.dol.gov/agencies/owcp/FECA/NDAA2023*). Section 5305 of this Act, titled ''Fairness for Federal Firefighters,'' determined that certain conditions, including various cancers, will be presumed to be work-related for Federal employees who perform fire protection activities and modified the Federal Employees' Compensation Act (FECA) accordingly.

OSHA has preliminarily determined that the exposures discussed in sections A.(i) and A.(ii) lead emergency responders who perform firefighting duties to have an increased risk of developing cancer. OSHA therefore preliminarily finds justification to promulgate a standard which requires protective equipment and practices to limit exposure to known and suspected carcinogens. In addition, since exposure cannot be completely eliminated due to the nature of emergency response activities, OSHA has preliminarily determined that medical surveillance is necessary for these responders to detect and respond to health conditions as soon as possible in order to mitigate long-term health impacts.

(ii) Cardiovascular Disease

Emergency responders, especially firefighters, may be called on to engage in physically strenuous activities while wearing heavy, insulated, and restrictive PPE ensembles that pose physiological burden, exacerbate heat stress hazards, and raise core temperatures to dangerous levels (Horn et al., 2013, Document ID 0219; West et al., 2020, Document ID 0314). In combination, these factors strain the body's cardiovascular system and increase the risk of sudden cardiac events (Soteriades et al., 2011, Document ID 0121).

Many studies assessed cardiovascular disease prevalence among firefighters. They revealed that cardiac events are the leading cause of on-duty death among U.S. structural and wildland firefighters, with cardiovascular disease causing 45 to 50 percent of on-duty firefighter deaths each year (Smith et al., 2016, Document ID 0120; Soteriades et al., 2011, Document ID 0121; NWCG, 2017, Document ID 0265; NASEM 2022, Document ID 0396). Navarro et al. (2019, Document ID 0247) estimated that wildland firefighters had an increased cardiovascular disease mortality of 16 to 30 percent compared to the general population. Soteriades et al. (2011, Document ID 0121) reported that firefighting causes considerable cardiovascular strain, which may trigger a sudden cardiac event. However, Muegge et al. (2018, Document ID 0269), in a study that reviewed death certificates in Indiana, found that the odds of dying from cardiovascular disease overall were no different between current and retired firefighters and non-firefighters, possibly due to the healthy worker effect. OSHA does not view this study as determinative of the cardiovascular risks facing firefighters; rather it must be viewed in the larger context of the weight of evidence discussed here on the association between emergency response work and cardiovascular events. Several studies identified factors and activities in firefighter populations that are associated with increased risks for cardiovascular disease and mortality. Factors that resulted in increased risks of cardiac fatalities included volunteer

status and stress or overexertion (Sen et al., 2016, Document ID 0300); participation in fire suppression activities (Smith et al., 2019, Document ID 0303); and hypertension, a history of cardiovascular disease, and smoking (Yang et al., 2013, Document ID 0309). Martin et al. (2019, Document ID 0271) found that 68 percent of the firefighters in one study population had two or more cardiovascular risk factors. Obesity (Smith et al., 2022, Document ID 0294; Khaya et al., 2021, Document ID 0242), reduced cardiorespiratory fitness (Smith et al., 2022, Document ID 0294), metabolic syndrome or abnormal metabolic syndrome components (Li et al., 2017, Document ID 0260), and elevated blood pressures and/or hypertension (Lan et al., 2021, Document ID 0226; Bond et al., 2022, Document ID 0176; Khaja et al., 2021, Document ID 0242) were highly prevalent among firefighters and could serve as markers for cardiac dysfunction. Observed elevated blood pressures and/or hypertension among firefighters was attributed to increased psychological stress (Lan et al., 2021, Document ID 0226; Bond et al., 2022, Document ID 0176; Khaja et al., 2021, Document ID 0242) and increased frequency of work shifts (Choi et al., 2016, Document ID 0181).

A few studies examined methods that improved cardiovascular health. Horn et al. (2013, Document ID 0219) and Mani et al. (2013, Document ID 0270) measured cardiovascular responses during specific workplace tasks and activities and found that systolic blood pressures were significantly lower during rest periods. Cash et al. (2021, Document ID 0190) found that firefighters who slept for recommended durations (seven to nine hours) nearly doubled their likelihood of having ideal cardiovascular health. OSHA has preliminarily determined that emergency response activities can produce physiological and psychological strain that is sufficient to trigger a cardiovascular event up to and including sudden cardiac death. In addition, elevated core body temperature, disrupted sleep patterns, noise from alarms and sirens, circadian rhythm disruptions, overexertion, and stress associated with emergency response occupations can contribute to the development of cardiovascular disease. OSHA therefore preliminarily finds justification to promulgate a standard which requires medical screening and prevention programming for these responders. OSHA seeks additional information and data on how emergency response activities contribute to cardiovascular disease.

(iii) Respiratory Diseases and Other Respiratory Effects

Emergency responders, especially firefighters, can encounter a wide variety of airborne respiratory hazards on the job, including gases, fumes, and particulates. In addition, many emergency responders are regularly exposed to diesel exhaust particulates in the course of their jobs, both responding to emergency incidents and while in ESO facilities where vehicle engines are started and run, such as in fire stations (Sparer et al., 2018, Document ID 0292; Couch et al. 2016, Document ID 0324). Emergency response equipment is commonly powered by diesel fuel, a known respiratory irritant and carcinogen. Unless adequate protective measures are taken, these exposures can impair pulmonary function and may cause respiratory diseases such as chronic obstructive pulmonary disease (COPD), bronchitis, and asthma (Barbosa et al., 2022, Document ID 0173). OSHA reviewed several studies on pulmonary function in firefighter populations. The studies identified respiratory protection as crucial for preventing lung function decline in responders.

First, as explained above, several evaluations, reports, and studies that looked at emergency responder exposures to a variety of hazardous chemicals indicated that respiratory effects (*e.g.,* cough, asthma-like symptoms) were the most frequently reported symptoms among the emergency responders who were assessed (Melnikova et al., 2018, Document ID 0246; Chiu et al., 2018a, Document ID 0191; Chiu et al., 2018c, Document ID 0186; Fent et al., 2013, Document ID 0206; Eisenberg et al., 2019, Document ID 0203; Brinker et al., 2013, Document ID 0177; Brinker et al., 2015, Document ID 0175). Melnikova et al. (2018, Document ID 0246) examined 566 acute chemical exposures among 1,460 emergency responders and found that respiratory system problems were the most common adverse health effect, constituting 56.3 percent of all adverse effects.

Studies also show that firefighters experience declines in lung function after acute exposure events such as the World Trade Center disaster response and wildland firefighting activities. Two studies, both of which were reviews, reported accelerated pulmonary function declines after the World Trade Center disaster (Slattery et al., 2018, Document ID 0301; Rajnoveanu et al., 2022, Document ID 0273). A meta-analysis of 32 articles identified small but statistically significant short-term declines in lung function in response to occupational exposure to wildland fires (Groot et al., 2019, Document ID 0212). Rajnoveanu et al. (2022, Document ID 0273) included studies reporting cross-season declines in wildland firefighter lung function. Similarly, biomarker levels for oxidative stress were marginally higher following exposure to wildland fire smoke in Wu et al. (2019, Document ID 0318), suggesting that wildland fire smoke exposure can cause mild pulmonary responses. Another study found that forced expiratory volume in one second (FEV_1) levels decreased (but non-significantly) after wildland firefighting shifts and that cross-shift FEV_1 declines were more pronounced in firefighters who were exposed to higher levels of wood smoke (Gaughan et al., 2014, Document ID 0198). The more general relationship between emergency responder exposure to smoke and other harmful substances and lung function decline is less clear. For example, COPD diagnosis among firefighters was not significantly increased as compared to the general population in the majority of the 43 studies assessed in the Rajnoveanu et al. (2022, Document ID 0273) meta-analysis. Similarly, lung function was not significantly different among firefighters in a meta-analysis of 24 studies (Barbosa et al., 2022, Document ID 0173). Researchers have suggested that this could be explained by a number of factors, including the ''healthy worker effect'' and the fact that many emergency responders wear respiratory protection on the job (Rajnoveanu et al., 2022, Document ID 0273; McCluskey et al., 2014, Document ID 0262). OSHA welcomes comments and evidence about emergency responders' relative risk for COPD and other respiratory diseases.

OSHA has preliminarily determined that emergency responders are exposed to combustion products and diesel exhaust that have been shown to acutely affect lung function and may lead to chronic lung conditions. OSHA therefore preliminarily finds justification to promulgate a standard which requires protective equipment and practices to limit exposure to these substances. In addition, since exposure cannot be completely eliminated due to the nature of emergency response activities, OSHA has preliminarily determined that a baseline spirometry measurement and repeated measurement as deemed medically appropriate is necessary for these responders to detect and respond to

lung-related health conditions as soon as possible in order to mitigate long-term health impacts.

C. Behavioral Health

The intense and stressful (both physically and mentally) situations that emergency responders encounter on the job place them at risk for a range of behavioral health impacts. OSHA's review of the literature on behavioral health among emergency responders covered general mental health issues, substance use disorders, and suicide.

(i) General Mental Health

Emergency responders are exposed to traumatic, emotionally charged events, and they may work long shifts, hold multiple jobs, and get inadequate rest (Alexander and Klein, 2001, Document ID 0166; Patterson et al., 2012, Document ID 0266; Weaver et al., 2015, Document ID 0298). Lack of sleep, long working hours, working in isolated locations, and repeated exposure to stressful scenarios are all risk factors for developing mental health problems (Carey et al., 2011, Document ID 0183; Kshtriya et al., 2020, Document ID 0231; Donnelly, 2012, Document ID 0201; Cash et al., 2020, Document ID 0193). OSHA's literature review on mental health focused on depression, anxiety, stress, post-traumatic stress symptoms, PTSD, and burnout.

Compared with the general population, emergency responders have elevated rates of depression (Petrie et al., 2018, Document ID 0275; SAMHSA, 2018, Document ID 0286; Jahnke et al., 2012, Document ID 0235), stress (SAMHSA, 2018, Document ID 0286), PTSD (Jones et al., 2018, Document ID 0229; Petrie et al., 2018, Document ID 0275; SAMHSA, 2018, Document ID 0286), anxiety (Petrie et al., 2018, Document ID 0275), and poor sleep (Cash et al., 2020, Document ID 0193). Some articles found significant relationships between emergency response activities and PTSD, emotion regulation difficulties, and thwarted belongingness (Leonard and Vujanovic, 2021, Document ID 0255); alcohol use disorder, PTSD, trauma load, depression, and anxiety (Lebeaut et al., 2021, Document ID 0244; Lebeaut et al., 2020, Document ID 0276; Zegel et al., 2021, Document ID 0320); tinnitus and occupational stress (Odes et al., 2023, Document ID 0267); and stress and burnout on diminished safety behaviors (Smith et al., 2020, Document ID 0306).

Multiple articles described healthy coping strategies and techniques that improve mental health outcomes. These included: exercise, having a strong interpersonal network, leadership support (DeMoulin et al., 2022, Document ID 0196), and finding mental fulfillment and enjoyment from the day's challenges and recovery activities (Hruska and Barduhn, 2021, Document ID 0223). Obstacles to improving mental health included: lack of resources (DeMoulin et al., 2022, Document ID 0196), an absence of medical professionals who understand situations unique to emergency responder occupations (DeMoulin et al., 2022, Document ID 0196), occupational stressors (Hruska and Barduhn, 2021, Document ID 0223), social conflict (Hruska and Barduhn, 2021, Document ID 0223), and stigmatization (DeMoulin et al., 2022, Document ID 0196).

Based on this review, OSHA has preliminarily determined that emergency responders are exposed to traumatic events and psychological stress that place them at increased risk of mental health issues such as PTSD, depression, anxiety, and burnout. OSHA therefore preliminarily finds justification to promulgate a standard which requires behavioral health screening and prevention programming for these responders.

(ii) Suicide

According to the Firefighter Behavioral Health Alliance (FBHA), at least 1,399 suicides occurred between 2011 and 2022 among firefighters, emergency responders, and communication specialists (*i.e.,* emergency response dispatchers). The actual number may well be higher, as many suicides are not reported or appropriately identified as work-related (FBHA, 2023). OSHA found evidence that emergency responders are at higher risk for suicidal ideation, plans, and attempts. One literature review (Stanley et al., 2016, Document ID 0310) and several studies (Abbott et al., 2015, Document ID 0169; Stanley et al., 2015, Document ID 0312; Tiesman et al., 2015, Document ID 0295; Vigil et al., 2019, Document ID 0296; Vigil et al., 2021, Document ID 0297) reported approximately three and a half times higher rates of suicide ideation and suicide attempts and approximately five times higher rates of suicide plans among emergency responders when compared to the general public. Stanley et al. (2017b, Document ID 0305) found that volunteer firefighters reported elevated levels of suicide plans and attempts compared to career firefighters. Hom et al. (2018, Document ID 0323) concluded that women firefighters exposed to suicide during their careers (either in professional or personal settings) are themselves at increased suicide risk. Stanley et al. (2017a, Document ID 0304) reported higher rates of suicidal ideation, suicide plans, and non-suicidal self-injury among women firefighters compared to the general U.S. population. Problematic alcohol use (Gallyer et al., 2018, Document ID 0209), occupational stress (Stanley et al., 2018, Document ID 0316), PTSD (Bing-Canar et al., 2019, Document ID 0174; Boffa et al., 2017, Document ID 0189; Martin et al., 2017, Document ID 0254; Stanley et al., 2019, Document ID 0308; Pennington et al., 2021, Document ID 0263), depression (Martin et al., 2017, Document ID 0254), and past physical and sexual abuse (Hom et al., 2017, Document ID 0217) were contributors to suicide risk over the course of the responder's career.

The issue of suicide in the emergency response community has become so prevalent that in 2022, Congress passed and President Biden signed into law, House Resolution 6943, the Public Safety Officer Support Act, which added death by suicide to the causes of death that are eligible for benefits under the U.S. Department of Justice, Bureau of Justice Assistance's Public Safety Officers Benefits Program (PSOB).

OSHA has preliminarily determined that the traumatic events and psychological stress that emergency responders are exposed to places them at increased risk for death by suicide. OSHA therefore preliminarily finds justification to promulgate a standard which requires behavioral health resources for these responders.

(iii) Substance Use Disorders

Studies suggest that repeated exposure to traumatic situations can lead to mental health strain and post-traumatic stress (Murphy et al., 1999, Document ID 0280) coupled with substance use disorders (Hruska et al., 2011, Document ID 0227) and resorting to substance use as a coping mechanism (Vujanovic et al., 2011, Document ID 0317). During its literature review, OSHA sought articles that examined whether emergency responders have elevated rates of substance use. OSHA identified multiple articles that focused on alcohol consumption among emergency responders, two that addressed tobacco use, and one that spoke about substance use disorders more broadly during the COVID–19 pandemic.

Overall, there is evidence that emergency responders are at increased risk for problematic alcohol consumption. Several studies observed a high prevalence of increased alcohol use and at-risk drinking episodes for both male and female firefighters (Carey et al., 2011, Document ID 0183; Gallyer

et al., 2018, Document ID 0209; Haddock et al., 2012, Document ID 0214, Haddock et al., 2015, Document ID 0215, Haddock et al., 2017, Document ID 0218; Meyer et al., 2012, Document ID 0272). A few studies indicated higher rates of alcohol consumption during the first few years of fire fighter/EMS service (Haddock et al., 2015, Document ID 0215; Piazza-Gardner et al., 2014, Document ID 0248; Gulliver et al., 2019, Document ID 0216) compared with fire fighters/EMS personnel with more years of service. There is also some evidence that firefighters use alcohol as a coping mechanism (Haddock et al., 2017, Document ID 0218; Rogers et al., 2020, Document ID 0287; Tomaka et al., 2017, Document ID 0293).

Literature on tobacco use among emergency responders was limited. Poston et al. (2012, Document ID 0277) indicated that smoking rates among firefighters have generally declined, whereas smokeless tobacco use has increased. Smoking regulations were cited as the primary reason for declining smoking rates, but other common reasons included fire service culture changes, impacts of smoking on job performance, and smoking costs. Jitnarin et al. (2019, Document ID 0224) found that age-adjusted smoking prevalence was lower among female firefighters (1.9 percent) than the prevalence observed for male firefighters (13.2 percent) and for adult women in the U.S. (13.5 percent). As for smokeless tobacco, age-adjusted use in female firefighters (0.5 percent) was comparable with U.S. adult women (0.3 percent), but well below rates observed for male firefighters (10.5 percent).

OSHA did not identify any published research that addresses the prevalence of opioid use among emergency responders. An online article (Jahnke, 2020, Document ID 0237) confirmed the absence of published research, stating ''there is no available published research on the rates of opioid use among first responder groups, so quantifying the risk is not possible.'' That author did note, however, that ''it is important to recognize that first responders are at a high risk for opioid use disorder for several reasons,'' which were identified as high risk of injury, risky health behavior, exposure to stressors, behavioral health concerns, and sleep issues.

OSHA has preliminarily determined that the traumatic events and psychological stress that emergency responders are exposed to places them at increased risk of substance abuse. OSHA therefore preliminarily finds justification to promulgate a standard which requires behavioral health resources for these responders.

D. Exposure to Violence

At times, emergency responders encounter belligerent behaviors because the people they are trying to help, their family members, or nearby bystanders are not receptive to assistance. This can lead to conflict and may result in emergency responders being subjected to verbal aggression and/or physical violence, which can be a contributing factor to mental health problems or cause injuries. Additionally, emergency responders are sometimes called to respond to situations that have a law enforcement aspect that has not been fully resolved or contained by police (*e.g.,* active shooter situations). Exposure to violence incidents can result in both observable traumatic injuries as well as significant mental health impacts. OSHA found multiple studies that document workplace violence against emergency responders. Only one study addressed emergency responders who were injured from violent interactions. Taylor et al. found that male and female paramedics were at increased likelihood of patient-initiated violent injury compared to male and female firefighters (Taylor et al., 2016, Document ID 0313). In the Murray et al. 2020 review (Document ID 0249), the authors found violence to be the leading cause of stress and that stress was the most frequent injury reported by EMS survey respondents. Violence exposure was found to be associated with increased levels of stress, fear, and anxiety in EMS responders. The review found that exposures to workplace violence, especially cumulative exposures, in concert with other job stressors, were associated with adverse mental health outcomes such as anxiety, depression, and PTSD. Most other studies did not indicate whether the violence actually led to adverse health effects, such as mental health issues or physical injuries. The studies provide insight on the types of violence occurring among emergency response populations and the prevalence between different groups (*e.g.,* men versus women).

Estimates of the proportion of emergency responders who reported experiencing at least one type of violence on the job ranged from 57 to 93 percent (Gormley et al., 2016, Document ID 0208; Murray et al., 2020, Document ID 0249). Survey-based results in Gormley et al. (2016, Document ID 0208) found that verbal aggression was the most common form experienced (67.0 percent), but physical violence was reported by 43.6 percent of respondents. These findings fell in line with the review-based results (from 104 studies) provided in Murray et al. (2020, Document ID 0249), which indicated that 21 to 88 percent of emergency responders reported experiencing verbal aggression and 23 to 90 percent reported experiencing physical violence. Additionally, multiple studies assessed risks for occupational violence among different types of emergency responders. Paramedics were found to be at significantly higher risk for occupational violence compared to both firefighters (Taylor et al., 2016, Document ID 0313; Murray et al., 2020, Document ID 0249) and emergency medical technicians (Gormley et al., 2016, Document ID 0208; NAEMT, 2019, Document ID 0264). In general, responders who provided more direct patient care were at a higher risk for violence (Murray et al., 2020, Document ID 0249).

Three studies investigated differences in workplace violence risks between male and female emergency responders, with mixed results. NAEMT (2019, Document ID 0264) found that percentages of reported physical and verbal assaults among National Association of Emergency Medical Technicians members were higher for males than females. In contrast, Taylor et al. (2016, Document ID 0313) found that female responders had increased odds (though not statistically significant) of suffering patient-initiated violent injuries compared to male responders, and Gormley et al. (2016) reported increased odds of experiencing physical violence among female personnel compared to male personnel. The studies do not break down violence exposure by race or ethnicity.

OSHA has preliminarily determined that emergency responders are exposed to verbal aggression and physical violence at their workplaces that may lead both to physical injury and to adverse behavioral health outcomes.

B. Events Leading to the Proposed Rule

The existing 29 CFR 1910.156, Fire Brigades standard was promulgated in 1980 (45 FR 60656 (Sept. 12, 1980)). In the time since, there have been significant improvements in PPE and the guidance provided by national consensus standards. In the aftermath of the terrorist attacks on September 11, 2001, all government agencies, including OSHA, were directed to strengthen their preparedness to respond to terrorist attacks, major disasters, and other emergencies. In response to this direction, the agency reviewed its standards applicable to the safe conduct of emergency response and

identified gaps in the protections for emergency responders. The agency determined that it should proceed in the process for potentially updating its standard for Fire Brigades and consider including other emergency responders.

In 2007, OSHA published a 41-question Request for Information (RFI) for the public to evaluate what action, if any, the agency should take to further address emergency response and preparedness (72 FR 51735 (Sept. 11, 2007)). The RFI encouraged commenters to provide input covering the scope of emergency response operations, personal protective clothing and equipment, training and qualifications, medical evaluation and health monitoring, safety, and economic impacts related to potential regulatory action. The agency received 85 responses largely in support of updating the existing rule.

On July 30 and 31, 2014, OSHA hosted stakeholder meetings that attracted 49 participants and approximately the same number of observers (Document ID 0087). Participants represented a broad range of emergency responders as well as allied stakeholders such as State plan representatives, skilled support workers, and law enforcement. Broad support for a comprehensive standard was evident in both days of stakeholder meetings. Participants favored OSHA proceeding with comprehensive rulemaking that covered a broad scope of emergency preparedness and response workers rather than the agency's historical perspective covering industrial fire brigades.

In September 2015, OSHA convened a NACOSH subcommittee to develop recommendations, including regulatory text for a proposed rule, for NACOSH to consider (Docket ID OSHA–2015–0019–0001). To assist the Subcommittee, OSHA provided draft regulatory language for the purpose of initiating and facilitating discussion (Docket ID OSHA–2015–0019–0002, Ex. 5). The Subcommittee participants were subject matter experts from major stakeholder entities that represented a broad range of emergency response experts, who provided balance and a diversity of views. The Subcommittee was co-chaired by two NACOSH members, a labor representative, and a management representative.

The Subcommittee met for 12 days in six in-person meetings and held numerous sub-group teleconferences from September 9, 2015, to September 9, 2016 (Docket ID OSHA–2015–0019). The members heard and discussed reports from the subgroups, and deliberated on various issues, as they developed their recommendations and proposed regulatory text. The Subcommittee completed its recommendations for a proposed rule and transmitted the documents to the full NACOSH in October 2016 (Docket ID OSHA–2015–0019–0035).

NACOSH met on December 14, 2016, and after hearing some public support for the project and deliberating over the draft document developed by the Subcommittee, voted unanimously to recommend to the Secretary of Labor that OSHA proceed with rulemaking using the draft language as the basis for developing a proposed rule.

On October 4, 2021, OSHA convened a SBAR Panel for a potential Emergency Response draft proposed standard (Document ID 0094). OSHA convened this panel under section 609(b) of the RFA, 5 U.S.C. 601 *et seq.,* as amended by SBREFA. 5 U.S.C. 609(b).

The panel included representatives from OSHA, the Office of Advocacy within the SBA, and the Office of Information and Regulatory Affairs of the Office of Management and Budget. SERs made oral and written comments on the draft regulatory framework and submitted them to the panel. The Panel received advice and recommendations from the SERs and reported its findings and recommendations to OSHA. OSHA has taken SERs' comments and the Panel's findings and recommendations into consideration in the development of the proposed rule.

The SBREFA Panel issued a report on December 2, 2021, which included the SERs' comments. SERs expressed concerns about the impact of the proposed rule on small and volunteer fire departments. Their comments addressed potential costs associated with compliance with the proposed rule's medical screening, physical fitness, and training requirements. In addition, many SERs were concerned with OSHA's extensive use of NFPA consensus standards in the development of the draft regulation. They were concerned about the costs associated with compliance with the proposed rule if OSHA incorporated by reference certain NFPA standards (Document ID 0115).

I. Preliminary Determination of Significant Risk and Material Impairment

As explained in section III, *Pertinent Legal Authority,* the OSH Act and Supreme Court precedent require OSHA to determine, prior to issuing a safety or health standard, that employees are being subjected to a significant risk of serious injury or material impairment of health or functional capacity by the hazards being targeted. OSHA has reviewed the evidence currently in the record, including the data and scientific studies discussed above; the comments received in response to the 2007 Emergency Response RFI, from SERs during the SBREFA process, and from NACOSH; and industry consensus as evidenced in the various NFPA consensus standards, and preliminarily determined that emergency response activities place team members and responders at significant risk of personal injury, several acute and chronic health conditions, and death.

As identified above, the documented serious injuries suffered by emergency responders are numerous, including fractures, sprains, internal bodily trauma, dislocations, chemical burns, and chemical pneumonia. There can also be little doubt that the morbidity and mortality risks posed by cancer, cardiovascular disease, and lung disease represent material impairments of health and functional capacity. In addition, the adverse mental health outcomes resulting from emergency response activities, including substance use disorder, PTSD, depression, anxiety, burnout, and suicidality, can significantly impair responders' quality of life and limit their ability to function in daily life, can cause or exacerbate other physical conditions, and, in the worst cases, can lead to death. Accordingly, OSHA preliminarily finds these behavioral health effects represent a serious impairment of health.

C. National Consensus Standards

In development of the proposed rule, OSHA extensively examined numerous relevant consensus standards. The NFPA standards are available to be viewed without cost at *https://www.nfpa.org/for-professionals/codes-and-standards/list-of-codes-and-standards/free-access.* ANSI/ISEA standards are available for purchase at *https://webstore.ansi.org.* Many of the provisions in the proposed rule are based on or consistent with provisions in these standards. Additionally, OSHA is proposing to incorporate by reference (IBR) several consensus standards.[2]

In certain provisions of the proposed rule, OSHA would require compliance with the relevant portions of the NFPA and ANSI/ISEA standards incorporated by reference. In certain other provisions, OSHA is proposing to require

[2] In addition to revising 29 CFR 1910.6, Incorporation by Reference, to include the consensus standards incorporated in this proposal, OSHA is also taking this opportunity to make a number of non-substantive revisions to align § 1910.6 with updated **Federal Register** requirements.

Workplace Emergency Response Employers (WEREs) and Emergency Service Organizations (ESOs) to provide protections at least equivalent to various aspects of some of the NFPA standards listed below, such as training job performance requirements being equivalent to those in the consensus standard. In the latter case, compliance with the NFPA standard would satisfy the requirement, but the ESOs and WEREs retain flexibility to utilize alternative measures, so long as those measures provide equivalent protection. Below is a list and description of the national consensus standards that OSHA is proposing to IBR in whole or in part.

NFPA 1001, Standard for Structural Fire Fighter Professional Qualifications, 2019 ed. (Document ID 0138)—This standard contains the minimum job performance requirements including the requisite knowledge and skills to perform structural firefighting duties for career and volunteer fire fighters through two progressive levels of qualification.

NFPA 1002, Standard for Fire Apparatus Driver/Operator Professional Qualifications, 2017 ed. (Document ID 0140)—This standard contains the minimum job performance requirements including the requisite knowledge and skills to drive and operate fire apparatus for career and volunteer fire fighters and fire brigade personnel. The standard differentiates requirements based on the type of apparatus driven such as pumper, aerial, aerial with tiller, water tender, and others.

NFPA 1005, Standard for Professional Qualifications for Marine Fire Fighting for Land-Based Fire Fighters, 2019 ed. (Document ID 0136)—This standard contains the minimum job performance requirements including the requisite knowledge and skills to perform marine fire fighting for land-based fire fighters.

NFPA 1006, Standard for Technical Rescue Personnel Professional Qualifications, 2021 ed. (Document ID 0149)—This standard contains the minimum job performance requirements including the requisite knowledge and skills to perform technical rescue operations for twenty different rescue scenarios for fire service and other emergency responders who perform these operations.

NFPA 1021, Standard for Fire Officer Professional Qualifications, 2020 ed. (Document ID 0144)—This standard contains the minimum job performance requirements including the requisite knowledge and skills to perform fire officer duties through four progressive levels of qualification.

NFPA 1081, Standard for Facility Fire Brigade Member Professional Qualifications, 2018 ed. (Document ID 0134)—This standard contains the minimum job performance requirements including the requisite knowledge and skills to perform fire brigade operations from incipient facility fire brigade member through fire brigade leader, and also fire brigade training coordinator, and support member.

NFPA 1140, Standard for Wildland Fire Protection, 2022 ed. (Document ID 0153)—This standard contains requirements for wildland fire management as well as the job performance requirements including the requisite knowledge and skills to perform wildland fire positions. Included in the standard are requirements for fighting wildland/urban interface fires.

NFPA 1407, Standard for Training Fire Service Rapid Intervention Crews, 2020 ed. (Document ID 0143)—This standard contains requirements for training fire service personnel to safely perform rapid intervention operations to rescue firefighters who become lost, injured, trapped, incapacitated, or disoriented at an emergency scene or during training operations.

NFPA 1582, Standard on Comprehensive Occupational Medical Program for Fire Departments, 2022 ed. (Document ID 0118)—This standard contains provisions for an occupational medical program that is designed to reduce risks and provide for the health, safety, and effectiveness of fire fighters while performing emergency operations.

NFPA 1910, Standard for the Inspection, Maintenance, Refurbishment, Testing, and Retirement of In-Service Emergency Vehicles and Marine Firefighting Vessels, 2024 ed. (Document ID 0151)—This standard contains requirements for establishing an inspection, maintenance, refurbishment, retirement, and testing program for emergency service vehicles and marine firefighting vessels and provides the minimum job performance requirements including the requisite knowledge and skills for emergency vehicle technicians.

NFPA 1951, Standard on Protective Ensembles for Technical Rescue Incidents, 2020 ed. (Document ID 0347)—This standard specifies the minimum design, performance, testing, and certification requirements for utility technical rescue, rescue and recovery technical rescue, and chemical, biological, radiological, and nuclear (CBRN) technical rescue protective ensembles including garments, helmets, gloves, footwear, interface, and eye and face protection.

NFPA 1952, Standard on Surface Water Operations Protective Clothing and Equipment, 2021 ed. (Document ID 0348)—This standard specifies the minimum design, performance, testing, and certification requirements for protective clothing and equipment items, including full body suits, helmets, gloves, footwear, and personal flotation devices designed to provide limited protection from physical, environmental, thermal, and certain common chemical and biological hazards for emergency services personnel during surface water, swift water, tidal water, surf, and ice operations.

NFPA 1953, Standard on Protective Ensembles for Contaminated Water Diving, 2021 ed. (Document ID 0349)—This standard specifies the minimum design, performance, testing, and certification requirements for protective clothing and protective equipment used during operations in contaminated water dive operations.

NFPA 1971, Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting, 2018 ed. (Document ID 0350)—This standard specifies the minimum design, performance, testing, and certification requirements for structural and proximity firefighting protective ensembles and ensemble elements.

NFPA 1977, Standard on Protective Clothing and Equipment for Wildland Fire Fighting and Urban Interface Fire Fighting, 2022 ed. (Document ID 0351)—This standard specifies the minimum design, performance, testing, and certification requirements for items of wildland fire fighting and wildland-urban interface firefighting protective clothing and equipment including protective garments, helmets, gloves, footwear, goggles, chain saw protectors, and load-carrying equipment.

NFPA 1981, Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services, 2019 ed. (Document ID 0139)—This standard contains requirements for the design, performance, testing, and certification of new SCBA used by emergency service personnel.

NFPA 1982, Standard on Personal Alert Safety Systems (PASS), 2018 ed. (Document ID 0352)—This standard specifies the minimum requirements for the design, performance, testing, and certification for all personal alert safety systems (PASS) for emergency services personnel.

NFPA 1984, Standards on Respirators for Wildland Fire-Fighting Operations and Wildland Urban Interface Operations, 2022 ed. (Document ID

0353)—This standard specifies the minimum design, performance, testing, and certification requirements for respirators to provide protection from inhalation hazards for personnel conducting wildland firefighting operations for use in non-immediately dangerous to life or health (IDLH) wildland environments during wildland firefighting operations and/or wildland urban interface operations.

NFPA 1986, Standard on Respiratory Protection Equipment for Tactical and Technical Operations, 2023 ed. (Document ID 0354)—This standard specifies the minimum requirements for the design, performance, testing, and certification of new compressed breathing air open-circuit SCBA and compressed breathing air combination open-circuit SCBA and supplied air respirators and replacement parts, components, and accessories for the respirators for use by emergency services personnel in non-firefighting operations where the atmosphere is categorized as IDLH.

NFPA 1987, Standard on Combination Unit Respirator Systems for Tactical and Technical Operations, 2023 ed. (Document ID 0355)—This standard specifies the minimum requirements for the design, performance, testing, and certification of new combination unit respirator systems and for the replacement parts, components, and accessories for such respirators for emergency services personnel in non-firefighting operations and in atmospheres that are categorized as entry into and escape from IDLH atmospheres in open-circuit SCBA mode and entry into non-IDLH and escape from IDLH and non-IDLH atmospheres when in air-purifying respirator (APR) mode or powered air-purifying respirator (PAPR) mode.

NFPA 1990, Standard for Protective Ensembles for Hazardous Materials and CBRN Operations, 2022 ed. (Document ID 0356)—This standard specifies the minimum design, performance, testing, documentation, and certification requirements for new ensembles and new ensemble elements that are used by emergency responders during hazardous materials emergencies and CBRN (chemical, biological, radiological and nuclear) terrorism incidents.

NFPA 1999, Standard on Protective Clothing and Ensembles for Emergency Medical Operations, 2018 ed. (Document ID 0357)—This standard specifies the minimum design, performance, testing, documentation, and certification requirements for new single-use and new multiple-use emergency medical operations protective clothing including garments, helmets, gloves, footwear, and face protection devices used by emergency medical responders prior to arrival at medical care facilities and used by medical first receivers at medical care facilities during emergency medical operations. The standard also applies to health care workers providing medical and supportive care; however these workers are not covered by the proposed rule.

ANSI/ISEA 207, American National Standard for High-Visibility Public Safety Vests, 2011 ed. (Document ID 0358)—This standard specifies performance requirements for high-visibility vests for use by public safety workers which are intended to provide conspicuity of the user in hazardous situations under any light conditions by day and under illumination by vehicle headlights in the dark. Performance requirements are included for color, retroreflection, and minimum areas, as well as the suggested configuration of highly visible materials used in the construction of high-visibility public safety vests. Test methods are provided in the standard to ensure that a minimum level of visibility is maintained when items are subjected to ongoing care procedures.

The following NFPA standards, although not being formally incorporated into the proposed standard, were extensively examined and many of the provisions in the proposed rule are based on or are consistent with provisions in them:

NFPA 10, Standard for Portable Fire Extinguishers, 2022 ed. (Document ID 0345)—This standard contains requirements for the selection, installation, inspection, maintenance, recharging, and testing of portable fire extinguishers and Class D extinguishing agents.

NFPA 600, Standard on Facility Fire Brigades, 2020 ed. (Document ID 0133)—This standard contains requirements for organizing, operating, training, and equipping facility fire brigades for response to fires in industrial, commercial, institutional, and similar properties; and for the occupational safety and health of brigade members while performing their duties.

NFPA 1201, Standard for Providing Fire and Emergency Services to the Public, 2020 ed. (Document ID 0141)—This standard contains requirements on the structure and operations of fire emergency service organizations that provide a wide range of services to the community. The standard serves as guidance for organizations that provide services to protect lives, property, infrastructure, and the environment from the effects of hazards.

NFPA 1451, Standard for a Fire and Emergency Service Vehicle Operations Training Program, 2018 ed. (Document ID 0137)—This standard contains the requirements for a fire and emergency service vehicle operations training program including the knowledge and skills required of safety, training, maintenance, and administrative officers assigned to develop and implement the program.

NFPA 1500, Standard on Fire Department Occupational Safety, Health, and Wellness Program, 2021 ed. (Document ID 0135)—This standard contains requirements for occupational safety, health, and wellness programs for fire departments.

NFPA 1521, Standard for Fire Department Safety Officer Professional Qualifications, 2020 ed. (Document ID 0147)—This standard contains job performance requirements for the assignment of a health and safety officer and an incident safety officer for a fire department to ensure responders holding these positions are qualified for the jobs.

NFPA 1561, Standard on Emergency Services Incident Management System and Command Safety, 2020 ed. (Document ID 0145)—This standard contains requirements for the development and implementation of an incident management system that is intended to be used by emergency services and apply to operations conducted at the scene of all types of emergency incidents. The standard is intended to integrate with systems that apply to multiple agencies and large-scale incidents.

NFPA 1581, Standard on Fire Department Infection Control Program, 2022 ed. (Document ID 0148)—This standard contains requirements for a fire department infection control program that includes infection control in the fire station, in fire apparatus, at incident scenes, and any other routine or emergency operations.

NFPA 1660, Standard for Emergency, Continuity, and Crisis Management: Preparedness, Response, and Recovery, 2024 ed. (Document ID 0359)—This standard establishes a common set of criteria for emergency management and business continuity programs; mass evacuations, sheltering, and re-entry programs; and development of pre-incident plans for personnel responding to emergencies.

NFPA 1700, Guide for Structural Fire Fighting, 2021 ed. (Document ID 0150)—This guide addresses research in fire dynamics that have led to alterations in fire behavior models that

have been taught in the fire service for decades and that support changes needed in structural fire-fighting strategy, tactics, and tasks.

NFPA 1710, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments, 2020 ed. (Document ID 0146)—This standard contains requirements for the organization and deployment of fire suppression operations, emergency medical operations, and special operations to the served community by career fire departments. The standard also contains system requirements for health and safety, incident management, training, communications, and pre-incident planning.

NFPA 1720, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments, 2020 ed. (Document ID 0142)—This standard contains requirements for the organization and deployment of fire suppression operations, emergency medical operations, and special operations to the served community by volunteer and combination fire departments. The standard also contains system requirements for health and safety, incident management, training, communications, and pre-incident planning.

NFPA 1851, Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting, 2020 ed. (Document ID 0346)—This standard contains requirements for the selection, care, and maintenance structural and proximity fire fighter protective ensembles and the individual ensemble elements that include garments, helmets, gloves, footwear, and interface components.

NFPA 2500, Standard for Operations and Training for Technical Search and Rescue Incidents and Life Safety Rope and Equipment for Emergency Services, 2022 ed. (Document ID 0152)—This standard contains requirements for conducting operations at a wide range of technical search and rescue incidents; for the design, performance, testing, and certification of life safety rope and other search and rescue equipment; and for the selection, care, and maintenance of rope and search and rescue equipment for emergency services.

As noted in the SBAR Panel Report, during the teleconferences and in written public comments several SERs expressed concern with the potential expense of time and money in having to comply with the provisions in NFPA standards (Document ID 0115, pp. 16–17/370; 18/370; 21/370; 33/370; 57–58/370). In Question II. C, OSHA is seeking input on the potential impacts of incorporating by reference of various NFPA standards, and how equivalency or consistency could be achieved if the NFPA standards were not incorporated by reference. NFPA makes their standards available to be viewed without cost at *https://www.nfpa.org/Codes-and-Standards/All-Codes-and-Standards/Free-access* or for purchase at *https://catalog.nfpa.org/Codes-and-Standards-C3322.aspx.*

The agency is aware that the NFPA is currently in the process of combining many of their standards into larger consolidated standards (see *https://www.nfpa.org/Codes-and-Standards/Resources/Standards-in-action/Emergency-Response-and-Responder-Safety-Project*). OSHA will review the consolidated standards during development of a potential final rule. The referenced standards that will be affected by the consolidation project are the following:

NFPA 1001, NFPA 1002, NFPA 1003, and NFPA 1005 will become NFPA 1010, Standard for Firefighter, Fire Apparatus Driver/Operator, Airport Firefighter, and Marine Firefighting for Land-Based Firefighters Professional Qualifications, scheduled for 2024.

NFPA 1021 and other standards will become NFPA 1020, Standard for Fire Officer and Emergency Services Instructor Professional Qualifications, scheduled for 2025.

NFPA 1407, NFPA 1451 and other standards will become NFPA 1400, Standard on Fire Service Training, scheduled for 2026.

NFPA 1581, NFPA 1582 and other standards will become NFPA 1580, Standard for Emergency Responder Occupational Health and Wellness, scheduled for 2025.

NFPA 1201, NFPA 1710, NFPA 1720, and other standards will become NFPA 1750, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Providing Fire and Emergency Services to the Public, scheduled for 2026.

NFPA 1981, NFPA 1982 and other standards will become NFPA 1970, Standard on Protective Ensembles for Structural and Proximity Firefighting, Work Apparel and Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services, and Personal Alert Safety Systems (PASS), scheduled for 2024.

NFPA 1951, NFPA 1977, and NFPA 1999 will become NFPA 1950, Standard on Protective Clothing, Ensembles, and Equipment for Technical Rescue Incidents, Emergency Medical Operations, and Wildland Firefighting, and Urban Interface Firefighting, scheduled for 2025.

NFPA 1952 and NFPA 1953 will become NFPA 1955, Standard on Surface Water Operations Protective Clothing and Equipment and Protective Ensembles for Contaminated Water Diving, scheduled for 2025.

NFPA 1984 and NFPA 1989 will become NFPA 1985, Standard on Breathing Air Quality for Emergency Services Respiratory Protection and Respirators for Wildland Firefighting and Wildland Urban Interface Operations, scheduled for 2026.

III. Pertinent Legal Authority

A. Introduction

The purpose of the Occupational Safety and Health Act, 29 U.S.C. 651 *et seq.* (''the Act'' or ''the OSH Act''), is ''to assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources'' (29 U.S.C. 651(b)). To achieve this goal, Congress authorized the Secretary of Labor (''the Secretary'') ''to set mandatory occupational safety and health standards applicable to businesses affecting interstate commerce'' (29 U.S.C. 651(b)(3); see also 29 U.S.C. 654(a) (requiring employers to comply with OSHA standards)). Section 6(b) of the Act authorizes the promulgation, modification or revocation of occupational safety or health standards pursuant to detailed notice and comment procedures (29 U.S.C. 655(b)).

B. Coverage

I. Volunteers

The OSH Act requires ''[e]ach employer'' to ''comply with occupational safety and health standards promulgated under this Act'' (29 U.S.C. 654(a)(2)). The term ''employer'' is defined as ''a person engaged in a business affecting commerce who has *employees,* but does not include the United States (not including the United States Postal Service) or any State or political subdivision of a State'' (29 U.S.C. 652(5) (emphasis added)). This proposed standard would cover some emergency service organizations (ESOs) whose responders may be referred to as volunteers rather than employees. However, whether an emergency response worker is an employee, and

therefore whether the standard would apply to that worker's ESO, does not depend on the label assigned by the ESO. The following discussion lays out the relevant legal principles governing employment status under the OSH Act. For a more detailed discussion of how OSHA expects these principles to apply in the context of this proposed standard, see the Summary and Explanation for paragraph (a), Scope, under the heading *Coverage for Volunteers.*

The Act defines an ''employee'' as ''an employee of an employer who is employed in a business of his employer which affects commerce'' (29 U.S.C. 652(6)). Because this definition is circular, courts apply the test for employee status enunciated in *Nationwide Mut. Ins. Co.* v. *Darden,* 503 U.S. 318, 322–23 (1992) (see *Quinlan* v. *Secretary, U.S. Dep't of Labor,* 812 F.3d 832, 836 (11th Cir. 2016); *Slingluff* v. *Occupational Safety and Health Review Comm'n,* 425 F.3d 861, 867–68 (10th Cir. 2005)). In *Darden* the Supreme Court set forth the following test for employee status: ''In determining whether a hired party is an employee under the general common law of agency, we consider the hiring party's right to control the manner and means by which the product is accomplished'' (Id. at 323) (internal quotation marks omitted). The Court went on to list a number of factors which relate to the right to control (Id.).

The *Darden* Court's use of the phrase ''hired party'' indicates that an essential prerequisite for employee status is that the worker receive some form of compensation for services performed (see also *N.L.R.B.* v. *Town & Country Elec., Inc.,* 516 U.S. 85, 90 (1995) (''The ordinary dictionary definition of 'employee' includes any 'person who works for another *in return for financial or other compensation.'* American Heritage Dictionary 604 (3d ed. 1992).'') (emphasis added). Accordingly, seven Federal courts of appeals have adopted the so-called threshold remuneration test (*Acosta* v. *Cathedral Buffet, Inc.,* 887 F.3d 761, 766–67 (6th Cir. 2018); *Juino* v. *Livingston Parish Fire Dist. No. 5,* 717 F.3d 431, 435–40 (5th Cir. 2013); *Pietras* v. *Bd. of Fire Comm'rs of Farmingville Fire Dist.,* 180 F.3d 468 (2d Cir. 1999) (firefighter regarded as employee despite being called a volunteer because of benefits received); *McGuinness* v. *Univ. of N.M. Sch. of Med.,* 170 F.3d 974, 979 (10th Cir. 1998); *Llampallas* v. *Mini–Circuits Lab, Inc.,* 163 F.3d 1236, 1243–44 (11th Cir. 1998); *Haavistola* v. *Cmty. Fire Co. of Rising Sun, Inc.,* 6 F.3d 211, 220–21 (4th Cir. 1993); *Graves* v. *Women's Prof'l Rodeo Ass'n, Inc.,* 907 F.2d 71, 73 (8th Cir. 1990)). Only one Federal court of appeals does not require a showing of compensation to find employee status (*Fichman* v. *Media Center,* 512 F.3d 1157, 110 (9th Cir. 2008)).

Remuneration may be direct remuneration, *i.e.,* salary or wages, or significant indirect benefits that are not incidental to the service performed, *i.e.,* job-related benefits (*Juino,* 717 F.3d at 437; *Pietras,* 180 F.3d at 473; *Haavistola,* 6 F.3d at 221–22). For example, significant indirect benefits may consist of a retirement pension, life insurance, death benefits, disability insurance, and some medical benefits (*Pietras,* 180 F.3d at 471). Similarly, the provision of food, clothing, shelter, and other in-kind benefits may be significant remuneration (see *Tony and Susan Alamo Foundation* v. *Secretary of Labor,* 471 U.S. 290, 292, 299–303 (interpreting ''employee'' under the Fair Labor Standards Act); but see *Fichman,* 512 F.3d at 1160 (travel reimbursements and food at board meetings insufficient to render board member of nonprofit organization an employee under related test for determining employee status of directors)). Minor incidental benefits do not suffice to meet the threshold remuneration test (see *Juino,* 717 F.3d at 339–440 (receipt of $78 for 39 service calls, life insurance, uniform, badge, and emergency/first responders training do not suffice)).

In addition to these principles, volunteer emergency responders may be deemed employees under State law in States with occupational safety and health plans approved by OSHA under section 18 of the Act (29 U.S.C. 667). See the Summary and Explanation of paragraph (a), Scope, for further discussion on this issue.

II. Private-Sector Coverage

With the exception of the United States Postal Service, occupational safety and health standards issued under section 6 of the OSH Act apply only to private-sector employers.[3] They do not apply to any ''State or a political subdivision of a State'' [4] (29 U.S.C. 652(5)). Accordingly, this proposed standard would not apply to any State or local government entities determined to be a political subdivision of a State. Note, however, that States with OSHA-approved State Plans pursuant to section 18 of the OSH Act, 29 U.S.C. 667, would be required to treat public-sector employees the same as they do private-sector employees when adopting and enforcing a standard at least as effective as any final standard which may result from this rulemaking. This issue is discussed separately in section VIII.G, *Requirements for States with OSHA Approved State Plans.*

Under OSHA's regulations, an entity is a ''State or political subdivision of a State'' if (1) it has been ''created directly by the State, so as to constitute a department or administrative arm of the government,'' or (2) it is ''administered by individuals who are controlled by public officials and responsible to such officials or to the general electorate'' (29 CFR 1975.5(b); *cf. N.L.R.B.* v. *Natural Gas Util. Dist. of Hawkins County, Tenn.,* 402 U.S. 600 (1971)). Any such entity shall be deemed outside the Act's definition of employer, and, consequently, not subject to the Act as an employer (29 CFR 1975.5(b)).

Paragraph (c) of 29 CFR 1975.5 lists a number of factors used to determine whether one or both of these tests has been met. One important factor under the second test is whether the individuals who administer the entity are appointed by a public official or elected by the general electorate. Other issues relate to the terms and conditions of the appointment, to the identity of the person who may dismiss such individuals, and to the procedures for dismissal. For example, in *StarTran, Inc.* v. *Occupational Safety and Health Review Comm'n,* 608 F.3d 312 (5th Cir. 2010), the court held that a nonprofit corporation established by a transit district to supply bus drivers and mechanics was a political subdivision under the second test because all the members of StarTran's board were appointed and subject to removal by the transit district. In contrast, in *Brock* v. *Chicago Zoological Society,* 820 F.2d 909 (7th Cir. 1987), only one member of the Society's thirty-five member board of trustees was a public official; the other board members were chosen by 240 governing members, only four of whom were public officials. Thus, the

[3] Pursuant to section 19 of the OSH Act (29 U.S.C. 668) and Executive Order 12196, Federal agency occupational safety and health programs are established by each agency head and must be consistent with the standards promulgated under section 6 of the Act. Accordingly, Federal agencies must comply with all applicable section 6 standards unless an alternative standard is approved by the Secretary (see 29 CFR 1960.16 and 1960.17).

[4] Under the Act the term ''State'' includes a State of the United States, the District of Columbia, Puerto Rico, the Virgin Islands, American Samoa, and Guam (29 U.S.C. 652(7)). The Commonwealth of the Northern Mariana Islands is also a State because the covenant establishing the Commonwealth provides that generally applicable Federal laws which apply to Guam also apply to the Commonwealth as they do to Guam. Article V, section 502(a), *Covenant to Establish a Commonwealth of the Northern Mariana Islands in Political Union with the United States of America.* Public Law 94–24, 90 Stat. 263 (Mar. 24, 1976). Thus, because Guam is a State under the OSH Act so is the Commonwealth.

court found that the Society was not a political subdivision within the meaning of the OSH Act, despite its contract with a local forest preserve district, a governmental entity. Similarly, in *Tricil Resources* v. *Brock,* 842 F.2d 141 (6th Cir. 1988), a private for-profit corporation which had a contract with a city and none of whose board members were appointed or subject to removal by the city was not a political subdivision within the meaning of the Act. Thus, as a general rule, if a majority of the board of directors of an entity are not subject to selection or removal by public officials or the general electorate, the entity for that reason fails the second test for being a political subdivision (see *StarTran,* 608 F.3d at 323). OSHA will consider these factors in determining whether the proposed standard applies to a particular entity.

C. General Requirements for Occupational Safety and Health Standards

A safety or health standard is a standard which requires conditions, or the adoption or use of one or more practices, means, methods, operations, or processes ''reasonably necessary or appropriate'' to provide safe or healthful employment and places of employment (29 U.S.C. 652(8)). A standard is reasonably necessary or appropriate within the meaning of section 652(8) when a significant risk of material harm exists in the workplace and the standard would substantially reduce or eliminate that workplace risk (see *Indus. Union Dep't, AFL–CIO* v. *Am. Petroleum Inst.,* 448 U.S. 607 (1980) (''*Benzene*'')).

The Supreme Court in *Benzene* clarified that ''[i]t is the agency's responsibility to determine, in the first instance, what it considers to be a 'significant' risk'' (*Benzene,* 448 U.S. at 655). The Court declined to ''express any opinion on the . . . difficult question of what factual determinations would warrant a conclusion that significant risks are present which make promulgation of a new standard reasonably necessary or appropriate'' (Id. at 659). The Court stated, however, that the substantial evidence standard applicable to OSHA's significant risk determination (see 29 U.S.C. 655(b)(f)) does not require the agency ''to support its finding that a significant risk exists with anything approaching scientific certainty'' (*Benzene,* 448 U.S. at 656). Rather, OSHA may rely on ''a body of reputable scientific thought'' to which ''conservative assumptions in interpreting the data'' may be applied, ''risking error on the side of overprotection'' (Id.). The D.C. Circuit has further explained that OSHA may thus act with a pronounced bias towards worker safety in making its risk determinations (*Bldg & Constr. Trades Dep't* v. *Brock,* 838 F.2d 1258, 1266 (D.C. Cir. 1988) (''*Asbestos II*'')).

The Supreme Court further recognized that the determination of what constitutes ''significant risk'' is ''not a mathematical straitjacket'' and will be ''based largely on policy considerations'' (*Benzene,* 448 U.S. at 655 & n.62). The Court gave the following example: ''If . . . the odds are one in a billion that a person will die from cancer by taking a drink of chlorinated water, the risk clearly could not be considered significant. On the other hand, if the odds are one in a thousand that regular inhalation of gasoline vapors that are 2% benzene will be fatal, a reasonable person might well consider the risk significant[.]'' (Id. at 655).

In addition to the requirement that each standard address a significant risk, standards must also be technologically feasible (see *UAW* v. *OSHA,* 37 F.3d 665, 668 (D.C. Cir. 1994)). A standard is technologically feasible when the protective measures it requires already exist, when available technology can bring the protective measures into existence, or when that technology is reasonably likely to develop (see *Am. Iron and Steel Inst.* v. *OSHA,* 939 F.2d 975, 980 (D.C. Cir. 1991)).

Finally, a standard must be economically feasible (see *Forging Indus. Ass'n* v. *Secretary of Labor,* 773 F.2d 1436, 1453 (4th Cir. 1985)). A standard is economically feasible if industry can absorb or pass on the costs of compliance without threatening its long-term profitability or competitive structure (see *American Textile Mfrs. Inst., Inc.,* 452 U.S. 490, 530 n. 55 (''*Cotton Dust*'')). Each of these requirements is discussed further below.

D. Special Considerations for Health Standards

The proposed standard deals in part with the exposure of firefighters, emergency medical service providers, and technical rescuers to toxic substances. Section 6(b)(5) of the Act provides that in promulgating standards dealing with ''toxic materials or harmful physical agents,'' the Secretary ''shall set the standard which most adequately assures, to the extent feasible, on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity even if such employee has regular exposure to the hazard dealt with by such standard for the period of his working life'' (29 U.S.C. 655(b)(5)). Thus, ''[w]hen Congress passed the [OSH] Act in 1970, it chose to place pre-eminent value on assuring employees a safe and healthful working environment, limited only by the feasibility of achieving such an environment'' (*Cotton Dust,* 452 U.S. at 541). ''OSHA is not required to state with scientific certainty or precision the exact point at which each type of [harm] becomes a material impairment'' (*AFL–CIO* v. *OSHA,* 965 F.2d 962, 975 (11th Cir. 1992)). Courts have also noted that OSHA should consider all forms and degrees of material impairment—not just death or serious physical harm (*AFL–CIO,* 965 F.2d at 975).

In acting to protect workers from health hazards the Secretary is authorized to require employers to offer medical examinations. Section 6(b)(7) of the Act provides that ''where appropriate, any such standard shall prescribe the type and frequency of medical examinations or other tests which shall be made available, by the employer or at his cost, to employees exposed to such hazards in order to most effectively determine whether the health of such employees is adversely affected by such exposure'' (29 U.S.C. 655(b)(7)).

E. Significant Risk

As explained above, OSHA's workplace safety and health standards must address a significant risk of material harm that exists in the workplace (see *Indus. Union Dep't, AFL–CIO* v. *Am. Petroleum Inst.,* 448 U.S. 607 (1980) (''*Benzene*'')). The agency's risk assessments are based on the best available evidence, and its final conclusions are made only after considering all information in the rulemaking record. Reviewing courts have upheld the Secretary's significant risk determinations where supported by substantial evidence and ''a reasoned explanation for his policy assumptions and conclusions'' (*Asbestos II,* 838 F.2d at 1266).

Once OSHA makes its significant risk finding, the standard it promulgates must be ''reasonably necessary or appropriate'' to reduce or eliminate that risk. In choosing among regulatory alternatives, however, ''[t]he determination that [one standard] is appropriate, as opposed to a marginally [more or less protective] standard, is a technical decision entrusted to the expertise of the agency'' (*Nat'l Mining Ass'n* v. *Mine Safety and Health Admin.,* 116 F.3d 520, 528 (D.C. Cir. 1997) (analyzing a Mine Safety and Health Administration standard under the *Benzene* significant risk standard)). In making its choice, OSHA may

incorporate a margin of safety even if it theoretically regulates below the lower limit of significant risk (*Nat'l Mining Ass'n,* 116 F.3d at 528 (citing *American Petroleum Inst.* v. *Costle,* 665 F.2d 1176, 1186 (D.C. Cir. 1982))).

F. Best Available Evidence

Section 6(b)(5) of the Act requires OSHA to set standards ''on the basis of the best available evidence'' and to consider the ''latest available scientific data in the field'' (29 U.S.C. 655(b)(5)). As noted above, the Supreme Court has explained that OSHA must look to ''a body of reputable scientific thought'' in making its material harm and significant risk determinations, while noting that a reviewing court must ''give OSHA some leeway where its findings must be made on the frontiers of scientific knowledge'' (*Benzene,* 448 U.S. at 656). In upholding the vinyl chloride standard, the Second Circuit stated: ''[T]he ultimate facts here in dispute are 'on the frontiers of scientific knowledge,' and, though the factual finger points, it does not conclude. Under the command of OSHA, it remains the duty of the Secretary to act to protect the workingman, and to act even in circumstances where existing methodology or research is deficient'' (*Society of the Plastics Industry, Inc.* v. *OSHA,* 509 F.2d 1301, 1308 (2d Cir. 1975) (quoting *Indus. Union Dep't, AFL–CIO* v. *Hodgson,* 499 F.2d 467, 474 (D.C. Cir. 1974) (''*Asbestos I*'')). Similarly, the D.C. Circuit has stated that when there is disputed scientific evidence in the record, OSHA must review the evidence on both sides and ''reasonably resolve'' the dispute (*Pub. Citizen Health Research Grp.* v. *Tyson,* 796 F.2d 1479, 1500 (D.C. Cir. 1986)).

G. Feasibility

The statutory mandate to consider the feasibility of the standard encompasses both technological and economic feasibility; these analyses have been done primarily on an industry-by-industry basis (*Lead I,* 647 F.2d at 1264, 1301). The agency has also used application groups, defined by common tasks, as the structure for its feasibility analyses (*Pub. Citizen Health Research Grp.* v. *OSHA,* 557 F.3d 165, 177–79 (3d Cir. 2009)). The Supreme Court has broadly defined feasible as ''capable of being done'' (*Cotton Dust,* 452 U.S. at 509–10).

I. Technological Feasibility

A standard is technologically feasible if the protective measures it requires already exist, can be brought into existence with available technology, or can be created with technology that can reasonably be expected to be developed (*Lead I,* 647 F.2d at 1272; *Amer. Iron & Steel Inst.* v. *OSHA,* 939 F.2d 975, 980 (D.C. Cir. 1991) (''*Lead II*'')). Courts have also interpreted technological feasibility to mean that a typical firm in each affected industry or application group will reasonably be able to implement the requirements of the standard in most operations most of the time (see *Public Citizen* v. *OSHA,* 557 F.3d 165, 170–71 (3d Cir. 2009); *Lead I,* 647 F.2d at 1272; *Lead II,* 939 F.2d at 990)). OSHA's standards may be ''technology forcing,'' *i.e.,* where the agency gives an industry a reasonable amount of time to develop new technologies, OSHA is not bound by the ''technological status quo'' (*Lead I,* 647 F.2d at 1264).

II. Economic Feasibility

In addition to technological feasibility, OSHA is required to demonstrate that its standards are economically feasible. A reviewing court will examine the cost of compliance with an OSHA standard ''in relation to the financial health and profitability of the industry and the likely effect of such costs on unit consumer prices'' (*Lead I,* 647 F.2d at 1265 (omitting citation)). As articulated by the D.C. Circuit in *Lead I,* ''OSHA must construct a reasonable estimate of compliance costs and demonstrate a reasonable likelihood that these costs will not threaten the existence or competitive structure of an industry, even if it does portend disaster for some marginal firms'' (647 F.2d at 1272). A reasonable estimate entails assessing ''the likely range of costs and the likely effects of those costs on the industry'' (*Lead I,* 647 F.2d at 1266). OSHA standards satisfy the economic feasibility criterion even if they impose significant costs on regulated industries so long as they do not cause massive economic dislocations within a particular industry or imperil the very existence of the industry (*Lead II,* 939 F.2d at 980; see also *Lead I,* 647 F.2d at 1272; *Asbestos I,* 499 F.2d. at 478).

IV. Issues and Questions

OSHA is providing this issues and questions section to solicit stakeholder input on various issues associated with the proposed rule. While OSHA invites stakeholders to comment on all aspects of this proposal, this section identifies specific areas of interest to the agency. OSHA is including certain issues and questions in this section to assist stakeholders as they review the proposal and consider the comments they plan to submit. However, to fully understand the questions, and to provide substantive input and feedback in response to them, the agency suggests commenters review the other sections of the preamble that address these issues in detail. Some issues and options that have cost implications are discussed more thoroughly in the *Preliminary Economic Analysis and Initial Regulatory Flexibility Analysis* (Section VII.).

It should be noted that the proposed regulatory text provided at the end of this document would completely replace the existing regulatory text for 29 CFR 1910.156, Fire Brigades. Comments addressing more than one section or paragraph should include all relevant references. Submitting comments in an organized manner with clear reference to the issue(s) raised will enable the agency and all participants to better understand the issues the commenter addressed and how they addressed them. Some commenters may confine their interest (and comments) to the issues that specifically affect them; correspondingly they will benefit from being able to quickly identify comments on these issues in others' submissions. While the agency welcomes relevant comments on any aspect of this proposal, OSHA is interested in responses, supported by evidence and explanations, to the following issues and questions, and to other issues and questions raised in this document.

A. Scope

OSHA recognizes that many emergency responders, particularly firefighters, emergency medical service providers, and technical search and rescuers, are referred to as ''volunteers.'' The OSH Act applies to employers, as defined in 29 U.S.C. 652(5), who have employees, 29 U.S.C. 652(6), and does not cover true volunteers. However, some workers labeled as volunteers may actually be considered employees under Federal law because they receive a certain level of compensation, which may include the direct payment of money or other types of remuneration (see *Pertinent Legal Authority,* section III of this preamble). Therefore, any emergency responders who are referred to as volunteers but receive ''significant remuneration'' within the meaning of Federal law would be included within the scope of this proposed rule as employees. OSHA believes that volunteer emergency responders rarely receive compensation substantial enough to render them employees under this ''significant remuneration'' legal test and thus OSHA does not expect that many emergency responders will fall into this category. Additionally, OSHA notes that this rulemaking will not in any way alter the existing legal

requirements under Federal law on this issue. Accordingly, all volunteer emergency responders who are currently excluded from coverage under the OSH Act should expect that they will continue to be excluded from the scope of this rulemaking.

B. State Plans

OSHA also recognizes that among the States with OSHA-approved State Plans there is variability as to whether volunteer emergency responders are classified as employees under state law. Regardless of state law, should there be any ''volunteers'' who receive ''significant remuneration'' such that they would be considered employees under Federal law (see Section III. *Pertinent Legal Authority,* B. Coverage), State Plans would be required to cover those employees as part of their obligation to promulgate a standard that is ''at least as effective'' as the Federal standard. 29 U.S.C. 667(c)(2). As noted above, OSHA believes this would be rare.

In addition, some States with OSHA-approved State Plans regard volunteer firefighters and other volunteers as employees under State law. See, *e.g.,* A.R.S. 23–901(6)(d) (2021) (in Arizona, firefighters, police, and other emergency management personnel who are volunteers are deemed to be employees). Regardless of whether these volunteers are considered employees under Federal law, such States must treat them as it does other emergency response workers under its analogue to any final standard resulting from this rulemaking. Cf. Letter from John A. Pendergrass, Assistant Secretary of Labor for Occupational Safety and Health, to Rep. Hamilton Fish, May 4, 1988 (if a State with an OSHA-approved State Plan regards volunteer firefighters as employees, it must apply its fire brigade standard to them) available at *https://www.osha.gov/laws-regs/standardinterpretations/1988-05-04.*

In States with OSHA-approved State Plans, each state determines what types of volunteer emergency responders it covers, and to what extent they are covered, based upon state definitions of who constitutes an employee and whether or not volunteer organizations are covered by state legislation. While the proposed rule does not directly apply to volunteers because OSHA does not have regulatory authority over volunteers, the agency is concerned with the potential ''downstream'' economic impact the proposed rule may have on organizations with volunteer responders. OSHA encourages stakeholders to engage with local and state officials about reducing potential impacts of the proposed rule.

Additionally, the agency seeks input on what it could do in the final rule to reduce undesirable impacts on volunteer organizations. OSHA understands that negative financial impacts on volunteer emergency response entities could have undesirable public safety implications. When drafting this NPRM, OSHA considered the possibility of excluding certain categories of emergency response organizations from certain provisions of the proposed rule based on organization size, funding source, and/or the number of emergencies responded to each year, but was unable to determine any appropriate exclusions in light of the agency's obligation to ameliorate significant risks to employees where economically feasible. OSHA welcomes public comment on these issues.

C. Questions in the Summary and Explanation

Throughout the summary and explanation of this proposed rule, OSHA has requested information or asked questions similar to those in this section. For more information on these topics, refer to the Summary and Explanation discussion for each respective topic.

(a)–1. OSHA is seeking information about how many private-sector emergency response organizations in States without State Plans (Federal OSHA States) have workers who are called volunteers but who receive substantial benefits, such as a retirement pension, life and/or disability insurance, death benefits, or medical benefits. How many such workers do these organizations have and of what type(s) (fire, EMS, technical rescue)?

(a)–2. OSHA is seeking information about which States with OSHA-approved State Plans expressly cover volunteer emergency responders. In those States, how many emergency response organizations have volunteers? How many volunteers do they have and of what type(s) (fire, EMS, technical rescue)?

(a)–3. OSHA is seeking information from States with OSHA-approved State Plans that do not expressly cover volunteer emergency responders. In those States, how many emergency response organizations have workers who are called volunteers but receive substantial benefits, such as a retirement pension, life and/or disability insurance, death benefits, or medical benefits; and as such may be considered employees within the meaning of Federal law? How many such workers do these organizations have and of what type(s) (fire, EMS, technical rescue)? Additionally, OSHA seeks similar input regarding inmate/incarcerated workers.

(a)–4. OSHA is seeking input regarding what types and levels of search and rescue services and technical search and rescue services should be included or excluded from the rule, and the extent to which those inclusions or exclusions should be specifically listed.

(a)–5. OSHA is seeking input whether the agency should consider developing a separate rule for protecting workers involved in the clean-up of disaster sites, and associated recovery efforts? Why or why not?

(a)–6. OSHA is seeking input on whether the agency should consider excluding other activities besides those in 29 CFR 1910.120 (Hazardous Waste Operations and Emergency Response (HAZWOPER)), 29 CFR 1910.146 (Permit-Required Confined Spaces in General Industry.

(b)–1. OSHA is seeking information and data from commenters on whether WEREs have living areas for team members, and if so, whether WEREs should be included in the definition for *Living area.*

(e)–1. OSHA is considering adding to both paragraphs (e)(1) and (2) a requirement to permit employee representatives to be involved in the development and implementation of an ERP, and to paragraph (e)(4) a requirement to allow employee representatives to participate in walkaround inspections, along with team members and responders, and is seeking input from stakeholders on whether employee representative involvement should be added to paragraph (e).

(f)–1. OSHA is seeking input on whether other activities or subjects should be specifically included in the list of minimum requirements for the risk management plan.

(f)–2. OSHA is proposing to have a performance-based infection control program provision in the risk management plan. OSHA is seeking comment on this approach including whether a final standard should incorporate a particular consensus standard or other guidance, or otherwise include specific requirements regarding infection control.

(g)–1. OSHA is seeking input and data on whether the proposed rule's requirements for medical evaluations are an appropriate minimum screening. Should the minimum screening include more or fewer elements, and if so, what elements? Provide supporting documentation and data that might establish the appropriate minimum

screening. OSHA is also seeking additional data and information on the feasibility of the proposed medical evaluation and surveillance requirements for WEREs and ESOs.

(g)–2. OSHA is seeking input on whether an action level of 15 exposures to combustion products within a year is too high, too low, or an appropriate threshold. OSHA is also considering action levels of 5, 10, or 30 exposures a year as alternatives and is seeking public input on what action level would be appropriate. Provide supporting documentation and data that would help with identifying an appropriate action level.

(g)–3. OSHA is seeking input on whether the additional medical surveillance proposed in paragraph (g)(3) should be extended to include WEREs and team members.

(g)–4. OSHA is seeking input and data on whether stakeholders support the proposed fitness for duty requirements or whether the requirements pose a burden on or raise concerns for team members, responders, WEREs or ESOs. Commenters should provide explanation and supporting information for their position.

(g)–5. OSHA is seeking input on whether the health and fitness program in proposed paragraph (g)(6) should be extended to include WEREs and team members.

(g)–6. OSHA is seeking input on whether every three years is an appropriate length of time for fitness re-evaluation, and if not, what period of time would be appropriate. The agency is seeking any available data to support an alternative length of time between evaluations.

(h)–1. OSHA is seeking stakeholder input and data regarding the appropriate methods and interval(s) for skills checks, as it relates to proposed paragraph (h)(3).

(i)–1. OSHA is seeking input regarding what WEREs are currently doing for decontamination, disinfection, cleaning, and storage of PPE and equipment, and whether OSHA should include any additional requirements for these processes in a final standard.

(j)–1. OSHA is seeking input on whether the agency should consider prohibiting the installation of fire poles in new ESO facilities.

(j)–2. OSHA is seeking input on whether ESO facilities with sleeping facilities should be protected by automatic sprinkler systems, as proposed in paragraph (j)(2)(ii).

(k)–1. OSHA is seeking input on whether the agency should specify retirement age(s) for PPE.

(k)–2. OSHA is seeking input regarding whether and how WEREs and ESOs currently provide separation and distinction of PPE and non-PPE equipment that have not undergone gross decontamination.

(k)–3. OSHA is seeking information on whether there is evidence of per- and polyfluoroalkyl substances (PFAS) in PPE causing health issues for team members and responders.

(k)–4. OSHA is seeking input on whether the scheduled updates to NFPA 1971 will address or alleviate stakeholder's concerns about PFAS in PPE.

(l)–1. OSHA is seeking information on whether there are any other situations or vehicles where OSHA should require, or exclude, the use of seat belts and vehicle harnesses. If so, please explain.

(l)–2. OSHA is seeking input on how compliance with (l)(2)(iii) would be achieved in situations where PPE must be donned enroute to an incident. Would the team members or responders stop enroute or wait until arrival at the scene?

(l)–3. OSHA is seeking input on whether it should also require that patients be restrained during transport to prevent an unrestrained patient from being thrown into a team member or responder in the event of a vehicle collision or an evasive driving maneuver.

(o)–1. OSHA is seeking input about WERE and ESO current use of an IMS, whether the NIMS and NRF were used as guidance for the IMS, and if there are any concerns with being compatible with NIMS.

(o)–2. OSHA is seeking input on which aspects of an IMS are the most effective and the least effective in protecting the safety and health of team members and responders. Commenters should explain how and why certain IMS components are or are not effective.

(p)–1. OSHA is seeking stakeholder input on current practices for identifying and communicating the various control zone boundaries. What marking methods are used? How are they communicated to team members and responders? Do the marking methods help or hinder on-scene operations?

(q)–1. OSHA seeks input on whether the agency should include requirements for Standard Operating Procedures (SOPs) regarding protections against workplace violence for team members and responders, and for any data or documentation to support or refute potential requirements. OSHA notes that its regulatory agenda includes a separate rulemaking addressing workplace violence against health care workers. While OSHA has not published a proposed rule in that rulemaking, OSHA welcomes comments on whether violence against emergency responders should be addressed in a potential Emergency Response final rule in addition to that Workplace Violence rulemaking, instead of in that rulemaking, or primarily in that other rulemaking.

(r)–1. OSHA is considering adding a requirement to permit team members, responders, and their representative to be involved in the review and evaluation of the relevant plans as part of the Post-Incident Analysis and would like stakeholder input on whether to add this requirement.

D. Additional Issues

I. Aligned Organizations

The scope of the proposed rule focuses on employers whose employees respond to emergency incidents to mitigate the incidents. OSHA believes that some employees of aligned employers face similar hazards to those who mitigate incidents. For instance, while some jurisdictions have their own fire investigators as part of the fire department, many more depend on State Fire Marshal's office employees to respond to incident scenes to conduct fire investigations. However, these agencies may not provide a firefighting service. Similarly, many jurisdictions have instructors and training facilities directly within the emergency service organization. However, many more depend on other organizations for training such private entities or State-run training centers that do not perform incident mitigation. Nonetheless, these employees face similar hazards while providing training such as exposure to combustion products, and technical rescue scenarios such as confined spaces, trenches, high angle rope rescue, and swift water. OSHA seeks input and supporting arguments on whether these types of aligned employers should be included within the scope of this rulemaking.

II. Portable Fire Extinguishers

OSHA's current standard, 29 CFR 1910.157, Portable Fire Extinguishers, is based on the 1978 edition of NFPA 10, Standard for Portable Fire Extinguisher, and was last updated more than 20 years ago. OSHA's current standard does not include Class K extinguishers or wet chemical agents. Because Class K extinguishers are provided by employers, and the proposed rule would require employers to provide training for team members and responders on all portable fire extinguishers in the

workplace, OSHA is proposing to update the standard to include Class K portable extinguishers and wet chemical agents. OSHA is seeking stakeholder input and data regarding whether the agency should consider updating the standard to improve consistency with a version of the national consensus standard, NFPA 10, Standard for Portable Fire Extinguishers, that is current when the final rule is being developed.

III. Heat

OSHA is in the preliminary stages of developing a proposed rule for *Heat Illness Prevention in Outdoor and Indoor Work Settings* (for additional information, see *https://www.osha.gov/heat-exposure/rulemaking*). OSHA recognizes that emergency response workers must perform their duties regardless of the outdoor environmental conditions. However, some activities, such as exercising for physical fitness and vocational training could be modified based on external temperatures. OSHA is seeking stakeholder input and supporting documentation on whether it should include requirements for operating in external environments with elevated temperature in situations that are not emergency incidents.

IV. Consensus Standards

OSHA is seeking input on the potential impacts of incorporating by reference of various NFPA standards, and how equivalency or consistency could be achieved if the NFPA standards were not incorporated by reference.

OSHA recognizes that organizations such as the National Wildfire Coordinating Group (NCWG) develop standards applicable to their member organizations, and other organizations who perform wildland firefighting services. OSHA seeks input on whether standards such as those developed by NWCG should be considered equivalent to various provisions in the proposed rule; particularly those related to policies and procedures, personal protective equipment, and medical evaluation and surveillance requirements. Are there standards for other ''specialty or non-structural'' types of firefighting that OSHA should consider? Commenters should provide supporting data, documents, and side-by-side comparison.

V. Timeline for Compliance

OSHA expects that some stakeholders may have concerns about the timeline for compliance when the final rule is published. Unless the agency delays compliance, compliance obligations begin on the effective date of a final rule: 60 days after publication of the final rule. However, OSHA often allows regulated parties additional time to come into compliance with certain provisions of a standard that would require additional resources. Many of the provisions in the proposed rule are based on or consistent with current NFPA standards, which are considered to be the industry best practices for emergency services. As such, OSHA believes that most WEREs and ESOs that already meet the NFPA standards are likely to be close to complying with, or already compliant with, many provisions of the proposed rule.

OSHA recognizes that some provisions can be implemented quickly, while others might take more time to phase in. So, the agency is proposing the following timelines for compliance with the specified paragraphs (the time period indicates the number of months past the rule's effective date when compliance would be required):

—(c) and (d)—6 months
—(e)—2 months
—(f)—6 months
—(g)(1), (4)—6 months
—(g)(2), (3), (5), (6)—12 months
—(h)(1)—12 months
—(h)(2) (3)—24 months
—(i) and (j)—24 months
—(k)(1)—12 months
—(k)(2)(i), (vii) through (x), (k)(3)—6 months
—(k)(2)(ii) through (vi)—24 months
—(l) through (q), and (s)—12 months
—(r)—6 months

OSHA is open to considering alternative compliance dates for the proposed standard and seeks input on what reasonable implementation periods would be for specific provisions and why. The agency is also interested if extended compliance timelines would be particularly helpful to small and/or volunteer organizations as a way of mitigating the impact of the rulemaking.

V. Summary and Explanation of the Proposed Rule

The following discussion, which tracks the proposed rule paragraph by paragraph, summarizes the proposed rule's requirements and explains how and why OSHA determined what those requirements would be. This section covers the comments received in response to the 2007 RFI, public input from the stakeholder meetings held in 2014, comments from the NACOSH subcommittee members, small entity representative comments as part of the 2021 SBREFA process, and research conducted by OSHA. References in parentheses are to exhibits in the rulemaking record, as noted in the *Docket* paragraph above in **ADDRESSES**. These references are not meant to be exhaustive but are examples of sources that are relevant to the statements made in the preamble discussion.

As noted in section II., *Background,* earlier in this preamble, section 6(b)(8) of the OSH Act requires OSHA to adopt existing consensus standards or explain why a rule which deviates substantially from a pertinent national consensus standard better effectuates the purposes of the Act. In most cases the proposed standard is aligned with the language of a national consensus standard, and the *Summary and Explanation* so indicates. While OSHA intends to incorporate by reference some portions of several different consensus standards, it has preliminarily determined that in some cases deviating from pertinent consensus standards will better effectuate the purposes of the Act.

In the RFI, OSHA solicited input regarding the types of emergency response activities, emergency responders (called team members and responders in the proposed rule), and organizations that should be covered by a potential rule. Firefighting, pre-hospital emergency medical service, and technical rescue were offered in the RFI as examples of activities for discussion.

Team members and responders deal with a wide range of emergency events. To them, some events are routine or commonly encountered, while others are rarely seen. OSHA recognizes that team members and responders encounter ''routine'' emergencies to the extent that they become commonplace occurrences. Many fewer team members and responders encounter rare events. The broad range of emergency events is overwhelming, and it would be a daunting, if not impossible, task to list them all. Several respondents to the RFI offered examples of common events, while others questioned what constitutes a rare event. Given the vast differences in emergency response organizations across the country, a rare event for a small community or small plant or facility might be a common occurrence in a larger one.

There were 39 respondents to the RFI who offered an opinion on the range of emergency events that should be regulated by OSHA. For example, the Texas Industrial Emergency Services Board (Document ID 0044) wrote that ''all types of emergency incidents (an 'all hazards' approach) should be considered by OSHA for appropriate agency action.'' The International Association of Fire Fighters (Document ID 0060) stated that ''no incident types

or responding activities should be excluded. Emergency response agencies must not only be prepared for mitigating emergency incidents in their jurisdictions, but must be prepared, before and during the event to ensure the health and safety of their employees is protected.'' Overall, many of the respondents were in favor of an ''all-hazards'' approach (Document ID 0011; 0018; 0024; 0027; 0028; 0037; 0039; 0040; 0041; 0044; 0046; 0047; 0048; 0049; 0050; 0052; 0053; 0059; 0060; 0063; 0065; 0069; 0071; 0072; 0073; 0074; 0078; 0080; 0082; 0083; 0085). The agency agrees with these commenters and has preliminarily determined that the safety and health of emergency responders needs to be protected in all types of emergency events. Accordingly, the proposed rule takes an all-hazards approach.

A. Section 1910.120 Hazardous Waste Operations and Emergency Response

OSHA is proposing to update 29 CFR 1910.120(q)(3)(iii) to reflect the revised paragraph for PPE requirements in the proposed rule. The proposed rule would also revise appendix B to § 1910.120 to replace the existing reference to three outdated consensus standards in the Note to Part B, section IV, with the current national consensus standard, NFPA 1990—Standard for Protective Ensembles for Hazardous Materials and CBRN Operations, 2022 ed.

B. Section 1910.134 Respiratory Protection

The proposed rulemaking essentially moves the Respiratory Protection for Structural Firefighting requirements from 29 CFR 1910.134(g)(4) to proposed § 1910.156. This move will help stakeholders by incorporating these requirements related to firefighting into one standard; the proposed rule. The proposed revision would delete the requirement and replace it with a referral to the proposed rule.

C. Section 1910.155 Scope, Application and Definitions Applicable to This Subpart

Definitions for terms in subpart L-Fire Protection are provided in 29 CFR 1910.155. Terms used in the proposed rule are defined therein. The new terms proposed coincide with the updates to other subpart L standards proposed herein and are consistent with those recognized within the industry. OSHA is proposing to add the following definitions:

Class K fire means a fire in a cooking appliance involving animal oils, vegetable oils, or fats.

Clean agent means an extinguishing agent that is odorless, colorless, electrically non-conducive, and leaves no residue.

Halogenated agent means a liquified gas extinguishing agent that chemically interrupts the combustion reaction between the fuel and oxygen to extinguish fires.

Wet chemical means an aqueous solution of organic or inorganic salts, or a combination thereof, that forms an extinguishing agent.

Wetting agent means a concentrate mixed with water that reduces the surface tension of the water which increases its ability to spread and penetrate, thus extending the efficiency of the watering extinguishing fires.

OSHA is also proposing to delete from 29 CFR 1910.155 definitions needed for terms used in the current Fire Brigades standard but not used in the proposed rule. The definitions proposed to be removed are those for *Afterflame, Buddy-breathing device, Enclosed structure, Fire brigade, Flame resistance, Helmet, Lining, Outer shell, Positive-pressure breathing apparatus, Quick disconnect valve,* and *Vapor barrier.* These terms are not used in any other subpart L standards.

D. Section 1910.156 Emergency Response

Paragraph (a) Scope

Proposed paragraph (a) establishes the scope of general industry employers that would be covered by the proposed rule. The proposed rule would not include employers engaged in activities and operations regulated by OSHA's construction, maritime, and agriculture standards. The existing Fire Brigades standard, 29 CFR 1910.156, applies to employers in general industry that have or establish ''fire brigades, industrial fire departments, and private or contractual type fire departments'' (29 CFR 1910.156 (a)(2)). The scope of the proposed rule is larger, expanding beyond employers who provide only firefighting services to include employers that provide other emergency services, such as pre-hospital EMS and technical search and rescue services. In addition, the proposed rule would impact public and municipal fire departments and other emergency response employers in States with OSHA-approved State Plans, as explained in section VIII.G., *Requirements for States with OSHA Approved State Plans.*

Proposed paragraph (a)(1)(i) provides that the proposed rule would apply to employers that have a workplace emergency response team as defined in paragraph (b) of this section. The employees on the team, as a collateral duty to their regular daily work assignments, respond to emergency incidents to provide services such as firefighting, emergency medical service, and technical search and rescue. For the purposes of this section, this type of employer is called a *Workplace Emergency Response Employer* (WERE), the team is called a *Workplace Emergency Response Team* (WERT), and the employees assigned to the team are called *team members.*

Proposed paragraph (a)(1)(ii) provides that the proposed rule would also apply to employers that are emergency service organizations as defined in paragraph (b) of this section, namely those that provide one or more of the following emergency services as a primary function: firefighting, EMS, and technical search and rescue; or the employees perform emergency service(s) as a primary duty for the employer. For the purposes of this section, this type of employer is called an *Emergency Service Organization* (ESO), and the employees and members are called *responders.* The term ESO encompasses entities who pay their employees, entities with volunteers, and entities whose members are a combination of paid and volunteer. Similarly, OSHA uses the term responders to encompass both those who are paid employees of an ESO and those who are volunteer members of an ESO.

I. Coverage of Volunteers

OSHA recognizes that many emergency responders, particularly firefighters and EMTs, are referred to as ''volunteers.'' The OSH Act applies to employers who have employees, 29 U.S.C. 652(5), and does not cover true volunteers. However, workers who are labeled as volunteers actually are occasionally considered employees under Federal law because they receive a certain amount of compensation, which may be money or other types of remuneration (see Section III. *Pertinent Legal Authority*). Therefore, any emergency responders who are referred to as volunteers but receive ''significant remuneration'' within the meaning of Federal law would be included within the scope of this proposed rule as employees. OSHA believes that volunteer emergency responders rarely receive compensation substantial enough to render them employees under this ''significant remuneration'' test and thus OSHA does not expect that many emergency responders will fall into this category. Additionally, OSHA notes that nothing in this rulemaking will in any way alter the existing requirements of

Federal law on this issue. Accordingly, all volunteer emergency responders who are currently excluded from coverage under the OSH Act should expect that they will continue to be excluded from the scope of this rulemaking.

OSHA also recognizes that among the States with OSHA-approved State Plans there is variability as to whether volunteer emergency responders are classified as employees under state law. Regardless of state law, should there be any ''volunteers'' who receive ''significant remuneration'' such that they would be considered employees under Federal law (see Section III. *Pertinent Legal Authority,* B. Coverage), State Plans would be required to cover those employees as part of their obligation to promulgate a standard ''at least as effective'' as the Federal standard. 29 U.S.C. 667(c)(2).

In addition, some States with OSHA-approved State Plans regard volunteer firefighters and other volunteers as employees under state law. See, *e.g.,* A.R.S. 23–901(6)(d)(2021) (in Arizona, firefighters, police, and other emergency management personnel who are volunteers are regarded as employees). Regardless of whether these volunteers are considered employees under Federal law, such States must treat them as it does other emergency response workers under its analogue to any final standard resulting from this rulemaking. *Cf.* Letter from John A. Pendergrass, Assistant Secretary of Labor for Occupational Safety and Health, to Rep. Hamilton Fish, May 4, 1988 (if a State with an OSHA-approved State Plan regards volunteer firefighters as employees, it must apply its fire brigade standard to them).

In Question (a)–1, OSHA seeks information about how many private-sector emergency response organizations in States without State Plans (Federal OSHA States) have workers who are called volunteers but who receive substantial benefits, such as a retirement pension, life and/or disability insurance, death benefits, or medical benefits. How many such workers do these organizations have and of what type(s) (fire, EMS, technical rescue)?

In Question (a)–2, OSHA seeks information about which States with OSHA-approved State Plans expressly cover volunteer emergency responders. In those States, how many emergency response organizations have volunteers? How many volunteers do they have and of what type(s) (fire, EMS, technical rescue)?

In Question (a)–3, OSHA seeks information from States with OSHA-approved State Plans that do not expressly cover volunteer emergency responders. In those States, how many emergency response organizations have workers who are called volunteers but who receive substantial benefits, such as a retirement pension, life and/or disability insurance, death benefits, or medical benefits; and as such may be considered employees within the meaning of Federal law? How many such workers do these organizations have and of what type(s) (fire, EMS, technical rescue)? Additionally, OSHA seeks similar input regarding inmate/incarcerated workers.

II. Coverage of Employees Who Perform Emergency Services as a Collateral Duty

The existing Fire Brigades standard, 29 CFR 1910.156, does not differentiate between employers whose workers perform emergency services as their primary duty and employers whose primary business operation is not an emergency service but who have workers who perform emergency service as a collateral duty, and not as their primary duty. Likewise, the existing standard does not differentiate between primary duty emergency service employees and collateral duty emergency service employees.

While they are an important component in the overall community of emergency and first responders, the proposed rule would not apply to employees while engaged in law enforcement/crime prevention activities. The proposed rule would, however, apply to employers whose employees, in addition to performing law enforcement duties, also provide services such as firefighting, emergency medical service, or technical search and rescue. Employees engaged in these dual roles are sometimes known as Public Safety Officers, and the proposed rule would apply only with respect to when those employees provide services that do not qualify as law enforcement. For example, OSHA understands that many law enforcement employers have employees who are trained in some aspects of emergency medical care to attend to the public and fellow employees. They are excluded from the proposed rule when they arrive at an emergency scene to provide law enforcement duties such as traffic control or securing an area, but they would be covered by the rule if they then transport an injured person to a medical facility via a dedicated medical transport vehicle such as an ambulance or helicopter. Additionally, some employers have employees who are trained in the use of ropes for law enforcement, such as a tactical response team using rope for tactical access to above- or below-grade locations as part of a hostage rescue operation. These employees would not be covered by the proposed rule during the hostage rescue. They would, however, be covered when they are designated to provide rope rescue during non-law enforcement activities, such as helping to secure a person who is trapped on a scaffold.

III. WEREs and ESOs

During the SBREFA teleconferences, SERs commented that the employees of employers whose primary business is emergency response are exposed to more hazards more frequently than the employees of employers that are not in the business of providing emergency services but require their workers to perform emergency response activities as a collateral duty to their primary work assignments. There was consensus from the SERs that OSHA should have fewer and/or less stringent requirements for the latter employers because of the less frequent exposure of their employees to emergency response-related hazards and should clearly differentiate between the requirements for the two types of employers (Document ID 0115, p. 27). OSHA agrees and, to the extent appropriate, has provided separate requirements in the proposed rule.

To clearly distinguish between the two types of employers and employees, OSHA proposes to use different terms to refer to each type. The first term is ''Workplace Emergency Response Employer (WERE).'' This term applies to employers engaged in industries such as manufacturing, processing, and warehousing that have, or establish, a workplace emergency response team. As noted earlier, the employees on the team, as a collateral duty to their regular daily work assignments, respond to emergency incidents to provide service(s) such as firefighting, EMS, and technical search and rescue at the employer's facility. The team is called a ''Workplace Emergency Response Team (WERT),'' and the employees assigned to the team are called ''team members.''

The second term is ''Emergency Service Organization (ESO).'' This term applies to employers that provide emergency service(s) as a primary function of the organization, or the employees perform emergency service(s) as a primary duty for the employer. Examples include providers of emergency services such as firefighting, emergency medical service, and technical search and rescue. In the proposed rule, the employees and members of an ESO are called ''responders.''

IV. Search and Rescue: Technical v. Non-Technical

The proposed rule defines technical search and rescue as a type of service that utilizes special knowledge and skills and specialized equipment to resolve unique or complex search and rescue situations, such as rope rescue, vehicle/machinery rescue, structural collapse, trenches, and technical water rescue. OSHA anticipates the proposed rule would apply to WEREs and ESOs that provide such service, utilizing team members and responders who have the technical knowledge, skills, and abilities and are trained to perform and direct the designated technical rescue.

OSHA believes that *technical* level search and rescue means the WERT or ESO has specialized equipment and team members and responders who are trained to use the equipment and perform specialized tasks. OSHA consulted NFPA 2500, 2022 ed., Standard on Operations and Training for Technical Search and Rescue Incidents and Life Safety Rope and Equipment for Emergency Services, for guidance in using the technical level as the determining point for what types of search and rescue activities should be covered by the proposed rule. The scope of this proposed rule does not extend to employers that perform search and rescue at a lower-than-technical level. There is little evidence that the provisions of the proposed rule would reduce injuries and fatalities in organizations that only provide rescue services below the technical level.

OSHA is seeking input from the regulated community about how and where to draw the line between technical and non-technical search and rescue activities. As drafted, for example, the proposed rule encompasses rescue services such as swift water and underwater rescue as *technical.* On the other hand, while the agency is in no way demeaning the valuable services provided by emergency service providers such as pool lifeguards, OSHA preliminarily deems this type of service to be non-technical rescue and therefore is not intending to cover it under this proposed rule. This same distinction can be drawn with regard to other types of search and rescue which may be technical or non-technical, such as, for example, mountain and wilderness search and rescue, which could include ski patrols at recreational snow skiing and snowboarding facilities. Some mountain and wilderness search and rescue organizations may provide services that qualify as being technical, so are within the scope of the proposed rule, while those who do not provide a technical service are not within the scope. In Question (a)–4, OSHA is seeking input regarding what types and levels of search and rescue services and technical search and rescue services should be included or excluded from the rule, and the extent to which those inclusions or exclusions should be specifically listed.

V. Skilled Support Workers

As noted above, proposed paragraphs (a)(1)(i) and (ii) indicate that this section applies to WEREs and ESOs. There are no proposed provisions for other employers. There are, however, some provisions related to skilled support workers who work for other employers. Proposed paragraph (b) defines *skilled support worker* as an employee of an employer whose primary function is not as an emergency service provider and who is skilled in certain tasks or disciplines that can support a WERT or ESO. The proposed rule would require WEREs and ESOs to provide protection for skilled support workers who work for other employers but are performing duties in support of the WERE and ESO activities on the emergency incident scene. These skilled support workers would operate under the direction of the Incident Commander (IC) or the Unified Command (UC) as provided in proposed paragraph (p)(10) of this section.

For example, a WERT or ESO needs a backhoe and operator to dig through the rubble of a collapsed structure to complete extinguishment of fire but does not have a backhoe or operator. The WERT or ESO could arrange to use a backhoe and operator belonging to another employer. The backhoe operator would be considered a skilled support worker under the direction of the WERT's or ESO's IC, and thus within the scope of the proposed rule. But once the IC or the UC terminates the incident or the WERT or ESO leaves the location of the incident, the operator's activities would no longer fall under the scope of the proposed rule. Note that other standards might apply to the operator's work during this period; for example, if the operator were operating a crane, the crane standard would apply.

On a larger scale such as a disaster site, skilled support workers who operated under the direction and control of the WERE's or ESO's IC or the UC might remain at the location to participate in disaster site clean-up and recovery efforts. Once the emergency nature of the incident has ended, however, skilled support workers would no longer be working under the direction of the WERE or ESO and the proposed rule would no longer apply to them.

VI. Exclusions

Proposed paragraph (a)(2) ensures that employers are aware of activities that are not covered by the proposed rule. Paragraph (a)(2)(i) of the proposed rule explains that employers performing disaster site clean-up or recovery duties following natural disasters such as earthquakes, hurricanes, tornados, and floods and human-made disasters such as explosions and transportation incidents would be excluded from the requirements of this section after emergency response activities have terminated. OSHA intends it to be clear that the proposed rule would not apply to clean-up and recovery operations once the emergency nature of an incident has ended. OSHA is seeking input in Question (a)–5 whether or not the agency should consider developing a separate rule for protecting workers involved in the clean-up of disaster sites, and associated recovery efforts? Why or why not?

Proposed paragraph (a)(2)(ii) would specifically exclude activities covered by 29 CFR 1910.120 (Hazardous Waste Operations and Emergency Response (HAZWOPER)) and 29 CFR 1910.146 (Permit-Required Confined Spaces in General Industry). In addition, OSHA notes that there are a number of other general industry OSHA standards that impose requirements on employers concerning emergency-type or related services. These include 29 CFR 1910.38, Emergency action plans; 29 CFR 1910.157, Portable fire extinguishers; 29 CFR 1910.151, Medical services and first aid; 29 CFR 1910.119, Process safety management of highly hazardous chemicals; and 29 CFR 1910.272, Grain handling facilities. While employees are engaged solely in activities subject to one or more of these other OSHA standards, OSHA intends that the protections of those standards apply instead of the protections of the proposed rule. So, if an emergency response employer limits its activities exclusively to activities covered by those other standards, it may not be subject to any provisions of this proposed rule. OSHA notes, however, that most employers engaged in activities covered by those other standards are likely to also engage in other emergency response activities and would therefore need to comply with the proposed standard in order to prepare for and respond to covered emergency incidents.

OSHA's intent is to avoid additional burden or inflicting overlapping or conflicting requirements on an

employer who only performs the activities identified in this proposed provision. In Question (a)–6, OSHA is seeking input on whether the agency should consider excluding other activities besides those listed in paragraph (a)(2)(ii).

Paragraph (b) Definitions

Proposed paragraph (b) defines terms that are applicable to proposed 29 CFR 1910.156. OSHA drew from or based these definitions on other OSHA standards (*e.g.,* 29 CFR 1910.120 and 1910.134), FEMA's guidance ''National Incident Management System'' (NIMS), and NFPA national consensus standards. To facilitate compliance, OSHA is using terms that are familiar to the emergency response community, and thus relies heavily on definitions already in use in the community. However, some terms currently in use have multiple interpretations. OSHA is providing definitions in its proposed rule to clearly provide the agency's intended meaning of these terms. Additionally, OSHA is proposing to delete some definitions from existing 29 CFR 1910.155 because the terms are only used in existing 29 CFR 1910.156, which would be replaced by the proposed rule. Specific changes to 29 CFR 1910.155 are listed in the *Proposed Amendments.*

OSHA based several definitions in this paragraph on the following NFPA standards:

- NFPA 600, Standard on Facility Fire Brigades. 2020 Ed. (NFPA 600)
- NFPA 1500, Standard on Fire Department Occupational Safety, Health, and Wellness Program. 2021 Ed. (NFPA 1500)
- NFPA 1561, Standard on Emergency Service Incident Management System and Command Safety. 2020 Ed. (NFPA 1561)
- NFPA 1660, Standard for Emergency, Continuity, and Crisis Management: Preparedness, Response, and Recovery. 2024 Ed. (NFPA 1660)
- NFPA 2500, Standard on Operations and Training for Technical Search and Rescue Incidents and Life Safety Rope and Equipment for Emergency Services. 2022 Ed. (NFPA 2500)
- NFPA 1700, Guide for Structural Fire Fighting. 2021 Ed. (NFPA 1700)
- NFPA 1710, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments. 2020 Ed. (NFPA 1710).

The following definitions apply to 29 CFR 1910.156:

Combustion product. The proposed rule defines this term as the heat, volatized liquids and solids, particulate matter (microscopic and small unburned particles), ash, and toxic gases released as a result of combustion (fire). OSHA based the definition on the term in NFPA 1700. Smoke is a visible indicator of the presence of combustion products; however, combustion products may be present without visible smoke. OSHA believes exposure to combustion products is a leading cause for many illnesses among team members and responders. Exposure to combustion products is a significant factor for Workplace Emergency Response Employers (WEREs) and Emergency Service Organizations (ESOs) in developing their Risk Management Plan and when determining what medical evaluation and surveillance is needed for team members and responders.

Community. The proposed rule defines this term as a state, region, municipality or portion thereof, such as a village, town, township, borough, city, county, or parish. This term and definition are used in conjunction with the term *community vulnerability assessment.* Community is a general term that is meant to encompass the geographic area where the ESO has a primary responsibility to provide emergency service(s); sometimes referred to as the *first due* area. OSHA recognizes that many ESOs are not limited by specific political boundaries to define their service community and that the community boundary between ESO facilities is often determined as the geographic midpoint between the ESO facilities, based on response times.

Community vulnerability assessment. The proposed rule defines this term as the process of identifying, quantifying, and prioritizing the potential and known vulnerabilities of the overall community that may require emergency service from the ESO, including the community's structures, inhabitants, infrastructure, organizations, and hazardous conditions or processes. The definition also indicates that the assessment is intended to include both human-created vulnerabilities and natural disasters. OSHA intends the assessment to be a systematic evaluation of the community to determine the impact that could be caused by potential emergency incidents, the severity of the impact, and the available or needed resources for mitigation. It would include risks and vulnerabilities associated with the prevailing residential structures and principal structures such as schools, colleges, and universities; hospitals and medical centers; large residential structures and hotels; transportation, manufacturing, processing, and warehousing facilities; and retail. It would also include an assessment of the community's critical infrastructure such as available water supply, electric power generation and transmission, routine and emergency communication, and highways and railways.

Control zone. The proposed rule defines this term as an area at an incident that is designated based upon safety and the degree of hazard to team members and responders. The definition also states that a control zone may be designated as cold, warm, hot, or no-entry. OSHA based the definitions on the terms in NFPA 1500. Control zones are used to establish what activities take place, what resources are available, and what PPE is required based on the zone. OSHA notes that control zones are not permanent areas for the duration of an incident. Zone boundaries are expected to change as the incident and environmental conditions dictate.

Cold zone. The proposed rule defines this term as the area immediately outside the boundary of the established warm zone where team members and responders are not exposed to dangerous areas or contaminants from fire, toxic chemicals, and carcinogens. The definition indicates that the cold zone typically contains the command post and such other support functions as are deemed necessary to control the incident and that it may also be known as the support zone.

Warm zone. The proposed rule defines this term as the area immediately outside the boundary of the hot zone that serves to transition to the cold zone. The definition indicates that the warm zone typically is where team member and responder and equipment decontamination and hot zone support take place and that it may also be known as the contamination reduction zone.

Hot zone. The proposed rule defines this term as the area including and immediately surrounding the physical location of a fire or other hazardous area, having a boundary that extends far enough away to protect team members and responders outside the hot zone from being directly exposed to the hazards present in the hot zone.

No-entry zone. The proposed rule defines this term as an area designated to keep out team members and responders, due to the presence of dangers such as imminent hazard(s), potential collapse, or the need to preserve the scene. This zone may contain hazards where PPE cannot provide protection; for example, the

presence of a downed energized electrical line or the potential collapse of a wall or roof. An area could be designated as a no-entry zone for team members and responders for other reasons, such as the need to preserve evidence for determining the cause and origin of a fire, to preserve evidence of a possible crime, or for accident/incident investigation.

Emergency Medical Service (EMS). The proposed rule defines this term as the provision of patient treatment, such as basic life support, advanced life support, and other pre-hospital procedures, and may include transportation to a medical facility. The definition also indicates that the term does not include the provision of first aid within the scope of 29 CFR 1910.151, Medical services and first aid. The definition is based on NFPA 1500. EMS covers a broad range of pre-hospital care that WEREs and ESOs may provide. Examples of EMS include Basic Life Support, First Responder, Emergency Medical Technician (EMT)–Basic, EMT-Intermediate, EMT-Advanced, Paramedic, and Flight/Transport Nurse. As part of the Emergency Response Program (ERP), WEREs and ESOs would identify the type(s) and level(s) of service they intend to provide. By excluding from the definition first aid within the scope of 29 CFR 1910.151, Medical services and first aid, the proposed rule would not apply to situations in which an employer utilizes employees or medical personnel to treat sick or injured workers strictly for compliance with § 1910.151.

Emergency Response Program (ERP). The proposed rule defines this term as a written program, developed by the WERE or ESO, to ensure that the WERE or ESO is prepared to safely respond to and operate at emergency incidents and non-emergency situations, and to provide for the occupational safety and health of team members and responders. The definition further states that the ERP shall be composed of at least the information and documents proposed to be required by this section. Additional specific requirements for the ERP are identified in paragraphs (c) and (d) of the proposed standard. The WERE and ESO would determine and include in the ERP what specifically would be best for their organization and for the health and safety of their team members and responders.

Emergency Service Organization (ESO). The proposed rule defines this term as an organization that provides one or more of the following emergency response services as a primary function: firefighting, emergency medical service, and technical search and rescue; or the employees perform emergency service(s) as a primary duty for the employer. Personnel (called responders in the proposed rule), as part of their regularly assigned duties, respond to emergency incidents to provide service such as firefighting, emergency medical service, and technical search and rescue. Additionally, the term ESO encompasses employers whose primary function is not as an emergency service provider but have employees whose primary duty for the employer is to perform emergency service(s); for example, refineries and manufacturing facilities with full-time fire departments and hospital-based emergency medical service and transport.

OSHA recognizes that ESOs may also be called upon to perform non-emergency services, defined below. The proposed definition goes on to clarify that the term would not include organizations solely engaged in law enforcement, crime prevention, facility security, or similar activities. As such, those organizations are excluded from the scope of the rule. However, organizations whose employees are cross-trained to provide fire, EMS, or technical search and rescue services covered by the scope of this proposed rule are included in the scope, but only for those activities covered by this proposed rule. In states with OSHA-approved State Plans, public sector employers, and volunteer organizations whose members the State deems to be employees, would be covered as ESOs under this proposed rule.

Facility. The proposed rule defines this term as a structure, including industrial, commercial, mercantile, warehouse, power plant (utility), assembly occupancy, institutional or similar occupancy, public, and private as well as for-profit, not-for-profit, and governmental location, structure, campus, compound, base, or similar establishment. This definition is consistent with the same term as defined in NFPA 600. For the proposed rule, OSHA is focused on those facilities that have a Workplace Emergency Response Team (WERT) or a dedicated ESO for the facility. This term and definition are used in conjunction with the term facility vulnerability assessment, discussed below. As defined, the term *Facility* may cover an individual structure or location and its associated property or a location with multiple related structures such as a campus, base, or multi-building manufacturing plant.

Facility vulnerability assessment. The proposed rule defines this term as the process of identifying, quantifying, and prioritizing the potential and known vulnerabilities of the entire facility, including the facility's structures and surrounding locations, inhabitants, infrastructure, and hazardous conditions or processes. A facility's vulnerable areas are those areas which are most susceptible to emergencies or disasters; the loss of which could severely impact the facility's operation, adversely affect the health and safety of employees, or cause potential damage to the environment. OSHA intends for the assessment to be a systematic evaluation of the facility to determine the impact that could be caused by potential emergency incidents, the severity of the impact, and the available or needed resources for mitigation. It would include risks and vulnerabilities associated with the principal structures; processing facilities; significant storage; hazardous materials and processes; critical infrastructure such as available water supply, electric power generation and transmission, and routine and emergency communication; and potential for damage to the environment.

Gross decontamination. The proposed rule defines this term as the initial phase of the decontamination process during which the surface contaminants and foreign materials on team member's or responder's skin, clothing, personal protective equipment (PPE), tools, and equipment are removed or significantly reduced, such as by brushing, rinsing, wiping, use of detergents, or use of personal hygiene wipes. The term is consistent with NFPA 1500. Gross decontamination is a preliminary exposure reduction method and is the first step in the decontamination process.

Immediately Dangerous to Life or Health (IDLH). The proposed rule defines this term as an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere. OSHA drew the term and definition from 29 CFR 1910.134, Respiratory Protection.

Incident. The proposed rule defines this term as any situation to which a WERE or an ESO responds to perform services, such as firefighting; emergency medical service; technical search and rescue; other situations such as responses to downed electrical power lines, and outside propane or natural gas leaks. The term is based on NFPA 1561 and NIMS. Incidents may be the result of a natural or human-caused occurrence.

Incident action plan (IAP). The proposed rule defines this term as the

incident objectives, strategy, and tactics necessary to manage an incident. The definition further states that the IAP is developed at the incident site and provides essential information for actionable incident organization, work assignments, management of resources, risk management, and team member or responder safety when operating at an incident. This definition is consistent with NFPA 1500 and NIMS. The IAP is developed by the Incident Commander (IC) and updated as needed throughout the incident. Because the IAP includes the information ''necessary to manage the incident,'' the form and level of detail of the IAP is dependent on the needs of the situation. In the initial stage of an incident, the IAP may be a simple plan, based on incomplete situational information, and communicated orally to team members and responders. Small-scale incidents may not need a written IAP or may only need to use something such as a fillable form, a white/wipe-off board, or a magnetic incident board. For a larger, complex, or long-duration incident, a more comprehensive IAP would likely need to be developed.

Incident Commander (IC). The proposed rule defines this term as the team member or responder who fulfills the incident command function of the Incident Management System (IMS); who is responsible for the overall management of an incident and the safety of all team members or responders involved in the response; and who is responsible for all incident activities, including the development of strategies and tactics, the direction and control of all team members and responders at the incident, and the ordering and release of resources. This definition is consistent with NFPA 1710 and NIMS. Proposed paragraph (o)(3) provides further clarification of the responsibilities of the IC, including front line management of the incident, overall incident safety, and planning and execution of intended tactics, and proposed paragraph (p)(2) contains additional specific requirements related to emergency incident operations. Depending on the WERE's or ESO's IMS, the team member or responder who serves in the role of the IC may vary. For instance, in a single unit response, the senior or ranking team member or responder would typically fulfill the role of IC. In a multiple unit response, often the senior or ranking team member or responder on the first arriving unit might serve at the initial IC until a higher-ranking team member or responder assumes the role.

Incident Management System (IMS). The proposed rule defines this term as a system used for managing and directing incident scene operations and activities. The definition further states that the IMS includes establishing functions for managing incidents, describes the roles and responsibilities to be assumed by team members and responders, and standard operating procedures to be utilized. Incident command is a function of the IMS. The IMS would provide core concepts, principles, and terminology used by WEREs or ESOs, and provides for structure and coordination with other WEREs and ESOs for safely managing incidents.

Incident Safety Officer (ISO). The proposed rule defines this term as the team member or responder at an incident scene who is responsible for monitoring and assessing safety hazards and unsafe situations and for developing measures for ensuring team member and responder safety. This term is based on NFPA 1521 and is consistent with the definition of *safety officer* in NIMS and other NFPA standards. The ISO is typically a member of the command staff responsible for advising the IC or Unified Command (UC) on matters related to operational safety, and the health and safety of team members and responders. The ISO monitors incident operations and modifies or stops the action(s) being performed to prevent unsafe acts.

Incident scene. The proposed rule defines this term as the physical location where activities related to a specific incident are conducted. The definition goes on to state it includes nearby areas that are subject to incident-related hazards or used by the WERE or ESO for team members, responders, and equipment. The definition is consistent with NFPA 1561. Incident scenes can be divided into control zones, as defined in the proposed rule and discussed above, depending on the location and nature of the incident.

Living area. The proposed rule defines this term as the room(s) or area(s) of the ESO's facility where responders may cook, eat, relax, read, study, watch television, complete paperwork or data entry, and similar daily living activities. The definition includes the following examples: day rooms, kitchen/dining areas, classrooms, offices, and TV rooms. Sleeping areas are not included in this definition because they are defined separately. However, if any areas provided as examples of living spaces have a bed(s), such as a wall bed or ''Murphy'' bed, then it is considered a sleeping area. The definition also clarifies that areas such as maintenance shops, utility and storage areas, and interior vehicle parking bays are not considered living areas. OSHA is aware that some ESOs have areas that are available for use by the community, such as large reception and meeting halls used for private or community events which may include commercial/catering kitchens. Areas such as these would need to meet the same protective requirements as living areas. WEREs are not included in this proposed definition because OSHA believes that these types of areas are typically not provided in WERE facilities. In Question (b)–1, OSHA is seeking information and data from commenters on whether WEREs have similar areas for team members, and if so, whether WEREs should be included in this definition.

Mayday. The proposed rule defines this term as an emergency procedure term used to signal that a team member or responder is in distress, needs assistance and is unable to self-rescue; it is typically used when safety or life is in jeopardy. The term mayday comes from the French phrase ''venez m'aider'' meaning ''come help me.'' It is an internationally recognized radio term to signal distress, most frequently recognized as being used by the maritime and aviation industries. Use of the term by emergency services has become more prevalent with the expansive availability and use of portable radios. Examples of situations where the term *mayday* would apply include a lost or missing team member or responder, a Self-Contained Breathing Apparatus (SCBA) malfunction or loss of air, a team member or responder seriously injured or incapacitated, a team member or responder trapped or entangled, or any life-threatening situation that cannot be immediately resolved.

Mutual aid agreement. The proposed rule defines this term as a written agreement or contract between WEREs and ESOs, or between ESOs, that they will assist one another upon request by furnishing personnel, equipment, materials, expertise, or other associated services as specified. The definition is consistent with NFPA 1710 and NIMS. The purpose of establishing a mutual aid agreement(s) is to facilitate the rapid deployment of needed resources, typically viewed as an automatic reciprocal response. WEREs and ESOs may have previously referred to such agreements by other terms such as automatic aid or fire protection agreement. Mutual aid agreements ensure availability of sufficient resources to mitigate incidents that may not be possible by the WERE or ESO alone, or for when an incident occurs that the ESO or WERE does not have the

personnel, training, or equipment to mitigate.

Non-emergency service. The proposed rule defines this term as a situation where a WERT or ESO is called upon to provide a service that does not involve an immediate threat to health, life, or property, such as assisting law enforcement with tools, equipment, and scene lighting; removing people from a stuck elevator; resetting an accidentally activated fire alarm system; or assisting a mobility-challenged person downstairs during an elevator outage. OSHA recognizes that WERTs and ESOs are called upon to perform non-emergency services because of their knowledge, skills, abilities, and possession of the tools needed to perform the service. They may also be called upon to go to homes to check on the health or welfare of persons whom family members are unable to contact because they have forcible entry tools and can provide emergency medical treatment, if needed.

Personal protective equipment (PPE). The proposed rule defines this term as the clothing and equipment worn and utilized to prevent or minimize exposure to serious workplace injuries and illnesses. The proposed provision also lists examples including gloves, safety glasses and goggles, safety shoes and boots, earplugs and muffs, hard hats and helmets, respirators and SCBA, protective coats and pants, hoods, coveralls, vests, and full body suits. This definition is consistent with the definition and use of the term in 29 CFR part 1910, subpart I—Personal Protective Equipment. Additional examples of PPE that team members and responders might be required to use include wet suits, dry suits, personal floatation devices, and self-contained underwater breathing apparatus (SCUBA) used in technical water rescue. PPE is particularly important for team members and responders because other protective measures such as administrative and engineering controls are often not practical for emergency response activities.

Physician or other licensed health care professional (PLHCP). The proposed rule defines this term as an individual whose legally permitted scope of practice (*i.e.,* license, registration, or certification) allows the individual to independently provide, or be delegated the responsibility to provide, some or all of the health care services required by paragraph (g) of this section. OSHA drew the term and definition from 29 CFR 1910.134, Respiratory Protection. The provisions in the proposed rule that require a PLHCP have varying degrees of medical complexity. OSHA expects that PLHCPs would only perform services within their area of expertise, as well as their license or certification, and would make referrals to a higher level or different area of expertise, as appropriate.

Pre-incident plan (PIP). The proposed rule defines this term as a written document developed by gathering general and detailed data about a particular facility or location that is used by team members or responders in effectively and safely managing an emergency incident there. Specific requirements for WERE and ESO PIPs are set forth in paragraphs (m) and (n), respectively. A PIP is developed before an incident occurs and is intended to be used in the development of an IAP during an incident to aid in the safe mitigation of the incident. The term is consistent with NFPA 1660. The PIP provides crucial information to prepare WEREs and ESOs for emergency incidents and assists the IC with making informed decisions at the time of an emergency.

Rapid intervention crew (RIC). The proposed rule defines this term as a group of at least two (2) team members or responders dedicated solely to serve as a stand-by rescue team available for the immediate search and rescue of any missing, trapped, injured or unaccounted-for team member(s) or responder(s). This crew must be fully equipped with the appropriate PPE and rescue equipment needed based on the specifics of the operation that is underway as required by paragraph (q)(2)(viii) of the proposed rule. OSHA based the definition on NFPA 1500.

Responder. The proposed rule defines this term as an employee or member of an ESO who is, or will be, assigned to perform duties at emergency incidents. Some ESOs, especially those with volunteers, use the term *member* when referring to the people in their organizations. OSHA intends that the term *responder* in the proposed standard to be inclusive of both terms. Also, the term *responder,* as defined, excludes employees or volunteers who do not have emergency response duties, such as administrative staff who do not perform duties at emergency incident scenes. The proposed rule would not cover activities of these employees. Employees and members of public sector emergency response employers in states with OSHA-approved State Plans, who are regulated as employees by the State, are considered responders under this rulemaking.

Size-up. The proposed rule defines this term as the observation and evaluation of the influencing factors at an incident used to determine the scope of the incident and to develop strategic goals and tactical objectives. The definition is consistent with NFPA 1700. Many factors are involved in a size-up, beginning with the emergency dispatch center's receipt of information and the need for emergency service, the dispatch of the appropriate service(s) to an incident, to the relay of information received. Factors involved in a size-up vary depending on the type of incident (fire, EMS, technical rescue), but as discussed in the *Summary and Explanation* of paragraph (p), all size-ups need to include evaluation of the level of safety hazards to the person/people involved in the incident, bystanders, and team members and responders. Size-up is an ongoing process that includes a continuing evaluation of information received and observations made at the incident scene. Based on the size-up, strategy and tactics may change depending on whether the changing conditions of the incident are improving or deteriorating.

Skilled support worker (SSW). The proposed rule defines this term as an employee of an employer whose primary function is not as an emergency service provider and who is skilled in certain tasks or disciplines that can support a WERT or ESO. This definition is based on the description of skilled support personnel in 29 CFR 1910.120, HAZWOPER. SSWs are not limited to general industry employers. Examples of SSWs include operators of equipment such as heavy-duty wrecker/rotator tow vehicles, mechanized earth moving or digging equipment, crane and hoisting equipment, and others such as utility service workers (gas, water, electricity), public works workers, and technical experts. SSWs perform immediate support work that cannot reasonably be performed in a timely fashion by responders or team members, and who will be or may be exposed to the hazards at an emergency incident. The proposed rule does not include requirements for employers of SSWs. However, proposed paragraph (p) establishes requirements for WEREs and ESOs who utilize SSWs to provide for the safety of those SSWs.

Sleeping area. The proposed rule defines this term as designated room(s) or area(s) of the ESO's facility where responders sleep in beds. OSHA intends for this term to cover ESO's permanent facilities with room(s) or area(s) such as a dormitory, sleeping quarters, bunk room, or sack room. It includes rooms or areas with wall beds or ''Murphy'' beds. The term is not intended to apply to areas used temporarily for sleeping, such as tents or a community center used as a base camp in a wildfire

situation, training room with cots set up during inclement weather events, or a TV room with couches.

Standard operating procedure (SOP). The proposed rule defines this term as a written directive that establishes a course of action or administrative method to be followed routinely and explains what is expected of team members or responders in performing the prescribed action, duty, or task. OSHA based the definition on NFPA 1710. The definition is similar in concept with NIMS. Proposed paragraph (q) addresses requirements regarding SOPs.

Team member. The proposed rule defines this term as an employee of the WERE whose primary job duties are typically associated with the business of the WERE (*e.g.,* production, manufacturing, processing, warehousing, administration) and who is assigned to the WERT to perform certain designated duties at emergency incidents at the WERE facility. The definition further clarifies that emergency response is a collateral duty for team members. The term *team member* encompasses all employees who serve roles as part of the WERT in emergency operations, from the firefighter holding a hose to the facility engineer who, for example, closes a sprinkler valve at the direction of the IC, ensures the fire pump is operating properly, or adjusts the control switches for the heating/ventilating/air conditioning system to provide full exhaust of smoke.

Technical search and rescue/ Technical rescue. The proposed rule defines this term as a type of service that utilizes special knowledge and skills and specialized equipment to resolve complex search and rescue situations, such as rope, confined space, vehicle/machinery, structural collapse, trench, or technical water rescue. The definition is based on NFPA 2500. With respect to water rescue, OSHA specifically uses the term *technical* to specify that non-technical water rescue would be excluded from the proposed rule. Examples of non-technical water rescue include services such as pool and water-amusement park lifeguard services, lake and beach lifeguard services that only use non-mechanized equipment such as rescue boards, rescue buoys, rescue tubes and cans, and snorkeling equipment. Proposed paragraph (h)(2)(vii) addresses the required qualifications for technical search and rescue team members and responders.

Unified Command (UC). The proposed rule defines this term as a structure for managing an incident that allows for all agencies with jurisdictional responsibility for an incident, either geographical or functional, to manage an incident by establishing a common set of incident objectives and strategies. The definition is consistent with NFPA 1561 and NIMS. A UC is typically utilized when an incident is large and complex and involves multiple ESOs and agencies, such as a large-scale wildland fire or flash flood; a derailed passenger train or aircraft crash; or the collapse of a large, occupied structure. Other agencies involved may vary depending on the type, size, and location of the incident and could include agencies such as law enforcement, public works, utilities, Federal agencies such as FEMA and OSHA, non-governmental organizations, and others.

Workplace Emergency Response Employer (WERE). The proposed rule defines this term as an employer who has a workplace emergency response team; and whose employees on the team, as a collateral duty to their regular daily work assignments, respond to emergency incidents to provide service such as firefighting, emergency medical service, or technical search and rescue. WEREs are typically for-profit entities engaged in industries such as manufacturing, processing, and warehousing. They have a workplace emergency response team to respond to emergency incidents at the facility. Workers on the employer's emergency response team meet the definition of team member under this proposed rule. However, if an employer has workers who meet the definition of responder (providing emergency service(s) is their primary duty for the employer), then the employer is an ESO, not a WERE.

Workplace Emergency Response Team (WERT). The proposed rule defines this term as a group of employees (known as team members) who, as a collateral duty, prepare for and respond to emergency incidents in the WERE's workplace. This term, and variations of it, are currently in use in multiple industries, with varying degrees of application. OSHA is providing this proposed definition to clearly identify what it means by the term *WERT.* In the proposed rule, team members are workers who would typically be engaged in an activity related to the employer's primary business function and leave that position when alerted to an emergency requiring the worker's service as a WERT team member. OSHA believes that various terms previously used, such as industrial or facility fire brigade or fire department; emergency response team; fire team; and plant emergency organization are confusing to many employers. The terms have often been used interchangeably by various entities. In the proposed rule, OSHA clearly differentiates the types of emergency response entities by using and defining the terms WERE, WERT, and ESO. OSHA recognizes that WEREs may also be called upon to perform non-emergency services, defined above.

Paragraph (c) Organization of the WERT, and Establishment of the ERP and Emergency Service(s) Capability

As noted in the *Summary and Explanation* for proposed paragraph (a) Scope, the proposed rule would not apply to any employer that is not an Emergency Service Organization (ESO) and does not have a Workplace Emergency Response Team (WERT). Nothing in this proposed rule would require an employer to establish a WERT. Each employer makes the decision for itself, based on a risk assessment of its facility, about how emergency response services will be provided for its workers at its facility. Employers may choose to rely on emergency services available in the community where the facility is located. Community fire and EMS ESOs are available in varying capacities throughout the country. When an employer is considering how emergency response services will be provided at its facility, response time and community ESO availability may be a concern and should be a factor in the employer's decision. Additionally, employers should not assume that the local ESO is able to provide all types of services that may be needed at their facility. In particular, ESOs with technical rescue capabilities are not as widely available as fire and EMS ESOs.

Another option would be for the employer to establish a team of facility workers into a WERT to provide some, or all of the emergency services potentially needed at the facility. The establishment of the WERT could be a component of the employer's 29 CFR 1910.38 compliant emergency action plan, when required. For example, if the employer's facility risk assessment identified the need for technical rescue, but the community ESO provides only fire and EMS services, the employer could establish a WERT for technical rescue only. Or perhaps the risk assessment indicates a need for firefighting services because the facility is located a long distance from the community ESO. To ensure an adequate response time, the employer could establish a WERT to provide the appropriate level of firefighting services at its facility. Under the proposed rule,

an employer who establishes a WERT is considered a Workplace Emergency Response Employer (WERE). If an employer chooses to establish a WERT, the requirements of the proposed standard would apply.

Paragraph (c) of the proposed rule sets forth the core responsibilities of WEREs. The purpose of the proposed rule is to reduce team member injuries and fatalities, and a primary means to achieve this intended purpose is to require WEREs to develop and implement an Emergency Response Program (ERP) that encompasses the rule's requirements. As discussed in the *Summary and Explanation* of paragraph (b), the proposed rule defines an ERP as a written program, developed by the WERE or ESO, to ensure that the WERE or ESO is prepared to safely respond to and operate at emergency incidents and non-emergency service situations, and to provide for the occupational safety and health of team members and responders. The ERP will assist WEREs in ensuring emergency preparedness and compliance with the rule. In developing an ERP, WEREs will be better prepared for emergency incidents by establishing emergency procedures that are maintained in a central plan that can be readily shared with and accessed by supervisors and employees. This will promote clear understanding and knowledge of the WERE's emergency procedures and better prepare the workplace for emergency incidents.

Paragraphs (c)(1) and (2) of the proposed rule would require the WERE to develop and implement a written ERP that provides protection for each of its employees designated to operate at an emergency incident. In the proposed rule, these designated workers are referred to as *team members.* The ERP would establish the existence of the WERT; the basic organizational structure of the WERT, such as management and leadership structure/chain-of-command, and the purpose of the WERT and duties and responsibilities of team members; and include how the WERE is addressing the provisions in the following paragraphs of the Proposed rule: (c), (e), (f), (g), (h), (i), (k), (l), (m), (o), (p), (q), (r), and (s). The ERP must include an up-to-date copy of all written plans and procedures, except for pre-incident plans (PIPs), required by this section. Hence, the ERP is a compilation of all documents required by the proposed rule, except for PIPs. The organizational structure would include how the WERT is managed and how it fits into the operation of the facility. Most written plans and procedures might only be updated annually, unless deficiencies are discovered. The ERP would be revised as these plans and procedures are updated. PIPs, on the other hand, have the potential to be developed or updated on a much more frequent basis, new versions must be provided to the WERT when updates are made, and the most recent versions must be available and accessible to team members and responders on incident scenes. As such, OSHA has preliminarily determined it is not necessary for PIPs to also be redundantly included in the ERP.

Proposed paragraph (c)(3) would require the WERE to conduct a vulnerability assessment of their facility for the purpose of establishing its emergency response capabilities and determining its ability to match the facility's vulnerabilities with available resources. The employer's facility risk assessment would have already determined whether there is a need or desire to establish a WERT to provide emergency services. Building on that risk assessment, this proposed paragraph would require a more in-depth assessment of the facility to determine specific vulnerabilities, such as workers who work at elevated locations or the use or storage of large quantities of flammable liquids; what resources are needed for mitigation, such as the tools or equipment needed to rescue a worker who is suspended after falling from an elevated location or specialized extinguishing agents for flammable liquids; and whether the resources are available at the facility and are sufficient for mitigating the identified vulnerabilities.

Paragraph (c)(4) of the proposed rule would require the WERE, as part of the facility vulnerability assessment, to identify each structure, process area, and other location where a PIP is needed. Proposed paragraph (m) provides additional information and proposed provisions for developing PIPs, which would be used by team members at emergency incidents as discussed further in proposed paragraph (p).

Under proposed paragraphs (c)(4)(i) and (ii), the facility vulnerability assessment would identify each vacant structure and location at the facility that is unsafe for team members to enter due to conditions such as previous fire damage, damage from natural disasters, and deterioration due to age and lack of upkeep; and would require the WERE to provide a means for notifying team members of the vacant structures and unsafe locations. Such vacant structures and locations are typically unsafe to enter under normal circumstances, and are even more dangerous during an emergency incident, particularly when on fire. Possible means of notification include installing a sign or painting a warning symbol on the wall adjacent to the entrance(s) that is visible to team members before they would enter the structure and blocking off an unsafe location. Also, the office responsible for alerting and communicating with team members (emergency dispatch center, safety office, security office) could maintain information on file for the vacant structure or unsafe location and could inform team members when an emergency incident occurs. The term vacant indicates that no person would be expected to be inside the structure. OSHA believes that team members should only enter the unsafe structure or location during an emergency incident in an attempt to perform a feasible rescue of a person or persons known to be inside.

Paragraph (c)(5) of the proposed rule would require the WERE to specify the resources needed, including personnel and equipment, for mitigation of emergency incidents identified in the facility vulnerability assessment. This is an important step in the process of determining what is needed to address an emergency incident at the facility in order to ensure that team members have the resources necessary to perform their duties safely and effectively.

In paragraphs (c)(6) and (7), the proposed rule would require the WERE to establish and document in the ERP, the type(s) and level(s) of emergency service it intends to perform, and establish tiers of team member responsibilities, qualifications, and capabilities for each of the type(s) and level(s). The concept of *type(s), level(s),* and *tiers* is used throughout the proposed rule. The WERE would use these terms consistently to determine how and to what extent various provisions of the proposed rule apply. For example, requirements for medical evaluations, training, and PPE may differ depending on the type(s), level(s), and tier(s) of service the WERT performs. The WERE would identify whatever tiers are appropriate to their organization.

The type(s) of service(s) might include firefighting, technical rescue, or EMS for example. For firefighting operations, examples of levels of service could be incipient stage, advanced exterior, interior structural, and both advanced exterior and interior firefighting. Tiers of team members could be trainee, incipient stage, advanced exterior, interior structural, and both advanced exterior and interior firefighter, team leader/officer, team manager/chief, or support.

For technical rescue type of operations, examples of levels of service could be rope rescue, vehicle/machinery rescue, structural collapse, trench rescue, and technical water rescue. Tiers of team members could be trainee, awareness, operation, technician, team leader/officer, team manager/chief, or support.

For EMS, level(s) of service could be, for example, Basic Life Support or Advanced Life Support, or another level of pre-hospital care such as aeronautical medical evacuation. As noted above, the proposed rule would not apply to employers who only provide first aid and first aid kits in accordance with 29 CFR 1910.151, Medical services and first aid. For tiers, positions such as trainee, Emergency Medical Responder (EMR), Emergency Medical Technician (EMT), Advanced EMT, Paramedic, Nurse, Physician, or support.

For the example support tier identified in proposed paragraph (c)(7), OSHA envisions that a team member in this tier would not perform any mitigation duties. Instead, this could be a building engineer who checks to make sure the fire pump is functioning properly while sprinklers are flowing, ensures that the smoke exhaust system is effectively exhausting smoke, or ensures sources of energy are locked out and tagged out during a technical rescue of an employee trapped in a machine. It could also be a cafeteria worker-team member designated to deliver and provide water and other refreshments at the incident scene, or an employee-team member designated to meet mutual aid WERTs or ESOs at the entrance gate and direct them to the location of the incident.

Proposed paragraph (c)(8) would require the WERE to identify, and document in the ERP, what emergency service(s) the WERE itself is unable to provide, and develop mutual aid agreements with other WEREs and ESOs, as necessary, or contract with an ESO(s), to ensure adequate resources are available to mitigate foreseeable incidents. For example, if a WERE identifies that its facility has tall structures that need an aerial ladder or elevated platform vehicle for firefighting or rescue, but its WERT does not have such a vehicle, the WERE would need to establish a mutual aid agreement with a neighboring WERE or ESO with an aerial ladder or elevated platform vehicle to provide it when needed. Another example is where a WERE has a permit-required confined space, but its WERT only performs firefighting. The WERE would need to establish a mutual aid agreement with a neighboring WERE or ESO, or contract an ESO, that provides confined space rescue services.

Proposed paragraph (c)(9) and (10) would require the WERE to keep for a minimum of five (5) years previous editions of ERP documents required by the proposed rule; notify team members of any changes to the ERP; and make the current ERP and previous editions available for inspection by team members, their representatives, and OSHA personnel. Ensuring that team members have knowledge of and access to the most up-to-date ERP documents is essential to ensuring those documents serve their purpose. The proposed retention and access requirements will also aid OSHA's enforcement and compliance activities. Availability of OSHA required documents is a long-standing requirement imposed by the agency in its standards and is carried forward from existing 29 CFR 1910.156(b)(1).

Paragraph (d) ESO Establishment of ERP and Emergency Service(s) Capability

Paragraph (d) of the proposed rule sets forth the ESO's responsibility to establish and implement an Emergency Response Program (ERP). As explained above in the *Summary and Explanation* for paragraph (c), the purpose of this rulemaking is to reduce responder injuries and fatalities, and a primary means to achieve this intended purpose is to require WEREs and ESOs to develop and implement an ERP that encompasses the rule's requirements. An ERP serves the same purpose for ESOs as it does for WEREs; that is, it promotes clear understanding and knowledge among responders of the ESO emergency procedures by maintaining those procedures in a central plan that can be readily shared with and accessed by supervisors and employees. This understanding and knowledge will aid compliance and ensure the protections of the rule will be realized.

Paragraphs (d)(1) and (2) of the proposed rule would require the ESO to develop and implement a written ERP that provides protection for each of its responders designated to operate at an emergency incident. The ERP would include the ESO's plans for how it will comply with each of the following paragraphs of the proposed rule: (d) through (h), (j) through (l), and (n) through (s). The ERP must include an up-to-date copy of all written plans and procedures, except for PIPs, required by this section. Hence, the ERP is a compilation of all documents required by the proposed rule, except for PIPs. Most written plans and procedures might only be updated annually, unless deficiencies are discovered. The ERP would be revised as these plans and procedures are updated. PIPs, on the other hand, have the potential to be developed or updated on a much more frequent basis, are specific to a particular location, and are required to be available and accessible to team members and responders on incident scenes. As such, OSHA has preliminarily determined it is not necessary for PIPs to also be redundantly included in the ERP.

Proposed paragraph (d)(3) would require that the ESO conduct a community or facility vulnerability assessment of hazards within the primary response area where the emergency service(s) it provides is/are expected to be performed. An in-depth assessment of the community or facility would determine specific vulnerabilities. The ESO would be able to determine what resources are available for mitigation, both within the ESO and from mutual aid WERTs and ESOs, and whether the available resources are sufficient for mitigating the identified vulnerabilities. OSHA believes that most stakeholders are familiar with the concept of primary response area, which may also be known by other terms such as the first-due area. It is the area in which the ESO would be the first in line to be the only emergency service dispatched for an incident requiring a single response vehicle, such as for a dumpster fire that is outside with no exposures, or a person with a minor injury in need of emergency medical attention. In other words, it is the area where the ESO is principally responsible for responding to emergency incidents.

In considering its primary response area, the ESO's assessment would include a systematic evaluation of the community it services to determine the impact that could be caused by potential emergency incidents, the severity of the impact, and the available or needed resources for mitigation. Such assessment would include risks and vulnerabilities associated with the prevailing residential structures; and principal structures such as schools, colleges, and universities; hospitals and medical centers; large residential structures and hotels; transportation, manufacturing, processing, and warehousing facilities; and retail. It would also include an assessment of the community's critical infrastructure such as available water supply, electric power generation and transmission, routine and emergency communication, and highways and railways. Natural features such as bodies of water, caves,

gorges, mountains, and cliffs would also need to be assessed.

As the note to proposed paragraph (d)(3) explains, an ESO whose primary response area is a community would assess the community it serves. An ESO whose primary response area is, for example: a manufacturing facility, a military facility, a research and development facility, or similar occupational facility or workplace, would assess that facility.

Paragraph (d)(4) of the proposed rule would require the ESO, as part of the community or facility vulnerability assessment, to identify each structure and other location where a PIP is needed. Proposed paragraph (m) provides additional information and proposed provisions for developing PIPs, which would be used by responders at emergency incidents as discussed further in proposed paragraph (p).

Proposed paragraphs (d)(4)(i) and (ii) would further require that the community or facility vulnerability assessment identify each vacant structure and location that is unsafe for responders to enter due to conditions such as previous fire damage, damage from natural disasters, and deterioration due to age and lack of upkeep; and would require the ESO to provide a means for notifying responders of the vacant structures and unsafe locations. Such vacant structures and locations are typically unsafe to enter under normal circumstances, and are even more dangerous during an emergency incident, particularly when on fire. Possible means of notification include installing a sign or painting a warning symbol on the wall adjacent to the entrance(s) that is visible to responders before they would enter the structure and blocking off an unsafe location. Also, the emergency dispatch center could maintain information on file for the vacant structure or unsafe location and could inform responders when an emergency incident occurs. The term vacant indicates that no person would be expected to be inside the structure. OSHA believes that responders should only enter an unsafe structure or location during an emergency incident in an attempt to perform a feasible rescue of a person or persons known to be inside.

Proposed paragraph (d)(5) would require that the ESO's community vulnerability assessment include all facilities within the ESO's service area that are subject to reporting requirements under 40 CFR part 355 pursuant to the Emergency Planning and Community Right-to-Know Act (EPCRA) (also referred to as the Superfund Amendments and Reauthorization Act of 1986 (SARA), 42 U.S.C. 11001 *et seq.*). The fact that these types of facilities are subject to reporting to the Local Emergency Planning Committee indicates that they are hazardous, either because the facility handles an ''extremely hazardous substance'' or because it has been designated for emergency planning purposes by the relevant state or tribal entity (see 40 CFR 355.10). Some of these facilities may have WERTs, in which case, the ESO could communicate with the WERT to discuss the likelihood of the need for mutual aid, and to obtain a copy of the PIP from the WERT. In the absence of a WERT-provided PIP, the ESO would need to develop its own PIP to ensure the ESO is sufficiently prepared to respond to incidents at the facilities as required by paragraph (n)(3) of this section.

Proposed paragraph (d)(6) would require the ESO to evaluate the resources needed, including personnel and equipment, for mitigation of emergency incidents identified in the community or facility vulnerability assessment. The provision would also require the ESO to establish in the ERP the type(s) and level(s) of service(s) it intends to perform. This is an important step in the process of determining what is needed to address an emergency incident in the community or at the facility and would help ensure that responders know what services they are expected to provide when an incident occurs and have the resources needed to perform those services.

In paragraph (d)(7), the proposed rule would require the ESO to establish tiers of responder responsibilities, qualifications, and capabilities for each of the type(s) and level(s). The concept of *type(s), level(s),* and *tiers* is used throughout the proposed rule. The ESO would use these terms consistently to determine how and to what extent various provisions of the proposed rule apply. For example, requirements for medical evaluations, training, and PPE may differ depending on the type(s), level(s), and tier(s) of service the ESO performs. The ESO would identify whatever tiers are appropriate to their organization. Typically, the ESO will already know what type(s) and level(s) of service it provides and may already have tiers of responders based on responder duties, training, qualifications, certifications, and responsibilities.

The type(s) of service(s) might include firefighting, technical rescue, or EMS for example. For firefighting type of operations, examples of levels of service could be structural, wildland, proximity, marine, and aerial. Tiers of responders could be trainee, basic firefighter, advanced firefighter, officer/crew leader, command officer, chief, pilot, fire police/traffic control, or support.

For technical rescue type of operations, examples of levels of service could be rope rescue, vehicle/machinery rescue, structural collapse, trench rescue, and technical water rescue. Tiers of responders could be awareness, operation, technician, crew leader/officer, or support.

For EMS, level(s) of service could be Basic Life Support or Advanced Life Support, or another level of pre-hospital care such as aeronautical medical evacuation. As noted above, the proposed rule would not apply to employers who only provide first aid and first aid kits in accordance with 29 CFR 1910.151, Medical services and first aid. For tiers, positions could be trainee, Emergency Medical Responder (EMR), Emergency Medical Technician (EMT), Advanced EMT, Paramedic, Nurse, Physician, EMS officer, chief, pilot, or support.

For the example support tier identified in proposed paragraph (d)(7), OSHA envisions that a responder in this tier would not perform any mitigation duties. Instead, this could be, for example, an auxiliary/associate responder responsible for providing canteen/refreshment services at incident scenes, a SCBA maintenance technician responsible for performing services at incident scenes, or vehicle maintenance technician responsible for servicing or refueling vehicles at incident scenes.

Under paragraph (d)(8) of the proposed rule, the ESO would be required to define the service(s) needed, based on paragraph (d)(4) of this section, that the ESO is unable to provide, and develop mutual aid agreements with WEREs or other ESOs as necessary to ensure adequate resources are available to safely mitigate foreseeable incidents. For example, if an ESO identifies that its community or facility has tall structures that need an aerial ladder or elevated platform vehicle for firefighting or rescue, but does not have such a vehicle, the ESO would need to establish a mutual aid agreement with a neighboring ESO with an aerial ladder or elevated platform vehicle to provide it when needed. Another example is an ESO that only provides EMS at the Basic Life Support level. The ESO would need to establish a mutual aid agreement with a neighboring ESO to provide EMS at the Advanced Life Support level to its primary response area.

Proposed paragraph (d)(9) and (10) would require the ESO to keep for a minimum of five (5) years previous editions of ERP documents required by the proposed rule; notify responders of any changes to the ERP; and make the current ERP, as well as previous editions, available for inspection by responders, their representatives, and OSHA personnel. Ensuring that responders have knowledge of and access to the most up-to-date ERP documents is essential to ensuring those documents serve their purpose. The proposed retention and access requirements will also aid OSHA's enforcement and compliance activities. Availability of OSHA required documents is a long-standing requirement imposed by the agency in its standards and is carried forward from existing 29 CFR 1910.156(b)(1).

Paragraph (e) Team Member and Responder Participation

To be effective, any safety and health program needs the meaningful participation of workers and their representatives. Similarly, for the Emergency Response Program (ERP) to be effective, team members and responders need to be involved in establishing, operating, evaluating, and improving the ERP.

Proposed paragraphs (e)(1) and (2) would require that the WERE and ESO establish and implement a process to involve team members and responders in developing and updating the ERP, in implementing and evaluating the ERP, and in the review and change process. Team members and responders have much to gain from a successful program and the most to lose if the program fails. They are often the most knowledgeable about potential hazards associated with their jobs. Participation by team members and responders allows them to identify steps to protect themselves. In addition, participation both enhances understanding and awareness of the ERP and increases the likelihood that team members and responders will consistently adhere to its requirements by creating a sense of ownership. In Question (e)–1, OSHA is considering adding to both paragraphs (e)(1) and (2) a requirement to permit employee representatives to be involved in the development and implementation of an ERP, and to paragraph (e)(4) a requirement to allow employee representatives to participate in walkaround inspections conducted by the WERT or ESO, along with team members and responders, and is seeking input from stakeholders on whether employee representative involvement should be added to this paragraph.

Under proposed paragraph (e)(3), the WERE and ESO would need to request input from team members and responders regarding modifications proposed by the WERE or ESO to their own facility(ies). Just as in the case of paragraphs (e)(1) and (2), team members and responders who routinely work in the facility are typically most familiar with the location where potential modifications are proposed and potentially in a good position to recognize how modifications could affect their health and safety in responding to emergencies. It could be that the modification is being proposed as a result of a complaint or a suggestion from those familiar with the area, so including them could help determine if the modification will improve protections during an incident.

Paragraph (e)(4) of the proposed rule would require the WERE and ESO to establish and implement a process to involve team members and responders in walkaround inspections conducted by the WERE or ESO, inspections conducted in response to health and safety concern(s) raised, and incident investigations at the WERE and ESO's own facility(ies). The inspections to which this paragraph refers include the safety and health inspections conducted to protect the workforce in general, and those conducted when a health or safety concern is identified, or in response to a complaint. The agency believes that inspections and incident investigations are most effective when they include managers and employees working together, since each bring different knowledge, understanding and perspectives to the inspection or investigation.

Proposed paragraphs (e)(5) and (6) would require the WERE and ESO to establish and implement a process to encourage team members and responders to report safety and health concerns, such as hazards, injuries, illnesses, near misses, and deficiencies in the ERP, and to respond to such reports in a reasonable period. Team members and responders are often best positioned to identify safety and health concerns and program shortcomings, such as emerging workplace hazards, close calls/near misses, and actual incidents. By encouraging reporting and following up promptly on all reports, WEREs and ESOs can address issues before an illness, injury, or fatality occurs. Examples of how the WERE and ESO can encourage team members and responders to report safety issues include making the reporting process as easy as possible, giving the option of reporting anonymously, assuring team members and responders that they will not face retaliation for reporting concerns and ensuring that no retaliation occurs, addressing concerns quickly, and seeking input from all team members and responders.

Proposed paragraph (e)(7) would require the WERE and ESO to establish and implement a process to post procedures for reporting safety and health concerns under paragraph (e)(5) of this section in a conspicuous place or places where notices to team members and responders are customarily posted. Examples of such places are bulletin boards and internal web pages. This requirement ensures that team members and responders know how to raise safety and health concerns and further serves to encourage involvement in the safety and health of the workplace.

Paragraph (f) WERE and ESO Risk Management Plan

Paragraph (f)(1) of this proposed rule would require WEREs and ESOs to develop and implement a written comprehensive risk management plan based on the type and level of service(s) that would be established in proposed paragraphs (c) and (d) of the proposed rule. The purpose of the proposed risk management plan is to ensure that risks to the team members' and responders' health and safety have been identified and evaluated, and a control plan has been developed and implemented by the WERE and ESO in a manner that mitigates or reduces the risk to a level that is as low as reasonably practicable. The minimum proposed provisions of the risk management plan are based on NFPA 1500, as recommended by several commenters in response to the RFI (Document ID 0072; 0074; 0078), and by SERs (Document ID 0115).

Proposed paragraphs (f)(1)(i)(A) through (F) provides further detail and would require the comprehensive risk management plan to cover, at a minimum, risks to team members and responders associated with activities at WERE and ESO facilities; training; vehicle operations (both emergency and non-emergency); operations at emergency incidents; non-emergency services and activities (*e.g.,* community outreach activities); and activities that lead to exposure to combustion products, carcinogens, and other incident-related health hazards. While these are the minimum areas to be covered, WEREs and ESOs would need to ensure all reasonably anticipated hazards are addressed in the risk management plan, regardless of whether it falls under a covered area identified in (f)(1)(i). In Question (f)-1, OSHA seeks input on whether other activities or subjects should be specifically

included in this list of minimum requirements for the risk management plan.

To provide a framework for the proposed requirements of the risk management plan for each of the covered areas identified in proposed paragraph (f)(1)(i), proposed paragraphs (f)(1)(ii)(A) through (E) would require the WERE and ESO to include, at a minimum, the following components: identification of actual and reasonably anticipated hazards; evaluation of the likelihood of occurrence of a given hazard and the severity of its potential consequences; establishment of priorities for action based upon a particular hazard's severity and likelihood of occurrence; risk control techniques for elimination or mitigation of potential hazards, and a plan for implementation of the most effective solutions; and a plan for post-incident evaluation of effectiveness of risk control techniques. If during a post-incident analysis conducted in accordance with paragraph (r) of the proposed rule, or during the ERP program evaluation conducted in accordance with paragraph (s) of the proposed rule, it is determined that the risk control techniques were not sufficient, the WERE and ESO would need to develop and implement improved risk control techniques. These new risk control techniques would then need to be documented in the risk management plan and, as required under paragraphs (c)(10) and (d)(10) of the proposed rule, communicated to all affected team members and responders.

In addition to the risks that would be identified and addressed in proposed paragraphs (f)(1)(i) and (ii), respectively, there are several other written components that would be needed as part of the overall risk management plan. Proposed paragraphs (f)(1)(iii)(A) through (D) would require the WERE and ESO to include, at a minimum, a PPE hazard assessment that meets the requirements of 29 CFR 1910.132(d); a respiratory protection program that meets the requirements of 29 CFR 1910.134; an infection control program that identifies, limits or prevents exposure of team members and responders to infectious and contagious diseases to the extent feasible; and a plan to protect team members and responders from bloodborne pathogens that meets the requirements of 29 CFR 1910.1030. OSHA does not currently have a standard on airborne infectious and contagious diseases. Rather than incorporating a consensus standard by reference, OSHA believes that allowing the infection control provision in (f)(1)(iii)(C) to be performance-based will give WEREs and ESOs the flexibility to design an infection control program that is tailored to their operations and facilities. WEREs and ESOs can reference consensus standards, such as NFPA 1581, 2022 ed., and OSHA, CDC, or other state and local guidance documents when creating and implementing the infection control program. In Question (f)–2, OSHA seeks comment on this approach including whether a final standard should incorporate a particular consensus standard or other guidance, or otherwise include specific requirements regarding infection control.

OSHA recognizes that there are extraordinary instances where a team member or responder would need to deviate from the ordinary procedures set out in the risk management plan to rescue a person in imminent peril. To accommodate these situations, proposed paragraph (f)(2) would require the WERE and ESO to include in the risk management plan a policy for extraordinary situations when a team member or responder, after making a risk assessment determination based on the team member or responder's training and experience, is permitted to attempt to rescue a person in imminent peril, potentially without benefit of, for example, PPE, tools, or equipment. A team member's or responder's decision to not use a risk control technique that has been identified in the risk management plan is to be made on a case-by-case basis and must have been prompted by legitimate and truly extenuating circumstances. These circumstances typically have a time constraint that would make it infeasible to implement the risk control technique and rescue a person in imminent peril. This proposed provision could allow, for example, an ambulance crew, without benefit of firefighting PPE, to perform a rescue of a person endangered by fire who would potentially sustain significant injury or death if they did not take immediate action.

Proposed paragraph (f)(3) would require the WERE and ESO to review the risk management plan when required by paragraph (r) or (s) of this section, but no less than annually, and update it as needed. Risks are dynamic and uncertain. Previously known risks may change, and new risks may develop that need to be addressed in the risk management plan. An annual review and update would ensure the risk management plan reflects the current situation for managing risks effectively, while proposed paragraphs (r) and (s) ensure that this review and update takes place upon occurrence of significant events or the discovery of deficiencies.

Paragraph (g) Medical and Physical Requirements

Emergency response is a physically demanding occupation. As discussed in section II.A., *Need for the Standard,* approximately half of all firefighter on-duty and line of duty deaths are due to cardiovascular events. Emergency response activities can place a tremendous strain on the cardiovascular system which can trigger a catastrophic cardiovascular event. This is especially true for team members and responders with pre-existing heart conditions which they may or may not be aware of. Emergency response activities often involve activities that increase the risk of team member and responder musculoskeletal injuries, *e.g.,* lifting and carrying heavy loads (equipment, PPE, victims, etc) in awkward positions, sustained use of equipment that may result in injuries related to repetitive motion, ergonomically unsafe cutting angles when safer approaches are unavailable, or vibration. Emergency response activities often occur in extreme environmental conditions that increase risks for heat or cold injury. Noise from sirens, alarms, and equipment motors can induce hearing loss especially if the noise exposure is occurring in situations where it may be concurrent with exposure to carbon monoxide or other substances known to have synergistic effects with noise on hearing loss especially as many responders may not use hearing protection devices out of concern for effective communication with others on scene.

Emergency response activities may also involve exposure to numerous toxic substances. Team members and responders may be exposed to combustion products produced by the fire they are responding to as well as from operation of their own equipment/apparatus, hazardous materials when material releases occur, and infectious diseases during emergency medical responses that may result in adverse health effects to team members and responders. Additionally, exposure to combustion products increases team members' and responders' risk of developing several different kinds of cancer. Finally, emergency response activities expose team members and responders to traumatic, emotionally charged events, and the impact of these events on responders' mental health is compounded by inadequate duration and quality of sleep due to unpredictable nature of calls which is exacerbated by frequently working back-to-back long shifts and excessive overtime especially in understaffed fire

departments. Mental health issues may be worsened by perceived stigma regarding use of mental health services.

Proposed paragraph (g) includes medical and physical requirements to address these hazards. The physical fitness and physical and mental medical requirements in paragraph (g) serve two purposes: (1) ensuring that responders are physically and mentally capable of performing their duties without injury to themselves or their fellow responders, and (2) identifying and addressing physical and mental health effects resulting from emergency response activities.

Most major emergency response organizations support medical evaluation of emergency responders. The International Association of Fire Fighters (IAFF) and International Association of Fire Chiefs (IAFC) include medical evaluation consistent with NFPA 1582 in their Joint Labor-Management Wellness-Fitness Initiative (Document ID 0127). The National Volunteer Fire Council (NVFC) recommends getting an annual physical in their Lavender Ribbon Report—Best Practices for Preventing Firefighter Cancer (Document ID 0129). The National Fallen Firefighter Foundation (NFFF) recommends medical physicals in their 16 Firefighter Life Safety Initiatives (Document ID 0127). Comprehensive medical evaluations are also recommended by NFPA in NFPA 600 and NFPA 1582 (Document ID 0133, 0118).

OSHA agrees with the industry consensus that medical evaluation and surveillance is necessary for team members and responders who perform emergency response duties. The agency has preliminarily determined that the medical and physical requirements in proposed paragraph (g) are essential elements of a standard for emergency responders because they ensure team member and responder fitness for duty and also serve as a means to monitor and address team member and responder exposures that cannot otherwise be eliminated due to the nature of emergency response activities. Fitness and medical surveillance requirements are a highly effective means of reducing work-related injuries, illnesses, and fatalities and improving the health of team members and responders.

NFPA 1582, Standard on Comprehensive Occupational Medical Program for Fire Departments, 2022 ed., contains provisions for an occupational medical program that is designed to reduce risks and provide for the health, safety, and effectiveness of fire fighters while performing emergency operations (Document ID 0118). It requires a comprehensive medical examination annually for fire fighters engaged in the full range of emergency response activities including firefighting, emergency medical response, HAZMAT response, and technical rescue. In response to the 2007 Emergency Response RFI, several commenters strongly supported consideration of the provisions in NFPA 1582 for the medical evaluation program (Document ID 0007, Att. 3; 0022, p. 10; 0024, p. 4; 0041, pp. 26–27; 0046, p. 11; 0047, p. 13; 0050, p. 14; 0060, pp. 17–18; 0078, p. 9; 0080, p. 4; 0083, p. 12; 0084, p. 1). During a NACOSH subcommittee meeting, Pat Morrison, a subcommittee member representing the IAFF, stated that requiring medical evaluations, ''is the single most important thing we can do'' with the proposed rule (Docket ID OSHA–2015–0019–0006, Tr. 22). The subcommittee members agreed that while a full NFPA 1582 compliant physical would provide optimal screening, such physicals are costly and should only be required for team members and responders expected to enter an IDLH environment. They also agreed that less extensive medical screening should be required for other team members and responders based on their duties. However, they were not able to agree on a recommendation of what those less extensive requirements should be (Docket ID OSHA–2015–0019–0006, Tr. 11–14).

During the 2021 SBREFA panel, many of the SERs expressed concern about the high cost of the medical exams and evaluations identified in the NFPA 1582 standard (Document ID 0115, p. 16). For example, Clarence E. ''Chip'' Jewell III, representing the Libertytown Volunteer Fire Department, submitted in post-panel comments that, ''Unfortunately, every fire department does not have the manpower or financial resources to fully implement NFPA 1582 and most likely would never be able to comply with mandatory regulations'' (Document ID 0109, p. 1). Many SERs were supportive of team members and responders receiving at least some medical screening and evaluation; however, SERs did not offer any clear indication of which medical screening tests should be retained and which were less crucial for maintaining a healthy workforce (Document ID 0115, p. 16).

OSHA recognizes that the medical surveillance required by NFPA 1582, Chapter 7, was intended specifically for fire fighters exposed to combustion products and not for all emergency responders. The provisions for medical screening and surveillance described below account for these concerns. The proposed baseline medical examination focuses on health hazards that are common to all team members and responders, with potential additional requirements based on the particular type and level of service(s) performed, while the proposed medical surveillance requiring a full NFPA 1582-compliant physical is reserved for those team members and responders exposed to combustion products above a specific action level. As explained in section VII.C., *Costs of Compliance,* OSHA expects that only structural and wildland firefighters will meet the threshold for the full NFPA 1582 requirements.

Proposed paragraph (g)(1)(i) would require that each WERE and ESO establish minimum medical requirements based on the type and level of service(s) established in paragraphs (c) and (d) of this section. The medical requirements in proposed paragraph (g) would differ based on the tiers of team members and responders established by each WERE or ESO in accordance with paragraphs (c)(7) and (d)(7), except for those in a support tier (see examples in the *Summary and Explanation* for paragraphs (c) and (d)) who are excluded from the requirements in paragraph (g) of this section. By tying the medical requirements to the type and level of service(s), proposed paragraph (g)(1)(i) requires the WERE or ESO to establish those requirements, and only those requirements, necessary to ensure the health and safety of team members or responders based on the duties they are expected to perform. This proposed provision allows the WERE and ESO flexibility so that team members and responders with less physically demanding duties or who are exposed to fewer hazards may be subject to less stringent medical requirements than team members and responders expected to perform more physically demanding duties or who are exposed to more or more frequent hazards during emergency response incidents.

Paragraph (g)(1)(ii) of the proposed rule would require that each WERE and ESO maintain confidential records for each team member and responder that includes duty restrictions based on medical evaluations; occupational illnesses and injuries; and exposures to combustion products, known or suspected toxic substances, infectious diseases, and other dangerous substances. OSHA is sensitive to concerns that the medical evaluation may divulge confidential information regarding a responder's medical condition or may otherwise divulge information that may adversely affect the responder. The proposed

requirements are intended to balance team member and responder privacy with the WERE's and ESO's need for personal medical information to identify and address occupational hazards by limiting the medical information obtained, as identified in proposed paragraph (g)(2), to the type of information necessary to assess a team member's or responder's ability to perform specific tasks based on their health and fitness ability. The use of such medical information is limited to identifying potential health effects or risks related to a team member's or responder's ability to perform emergency response activities. The WERE or ESO would be required to maintain the confidentiality of these medical records by storing them in a secure location with restricted access.

Proposed paragraph (g)(1)(iii) would require that each WERE and ESO ensure that medical records maintained under this paragraph are maintained and made available in accordance with 29 CFR 1910.1020, Access to employee exposure and medical records. These recordkeeping requirements are in accordance with section 8(c) of the OSH Act which authorizes the promulgation of regulations requiring an employer to make, keep and preserve, and make available, such records as the Secretary deems necessary or appropriate for the enforcement of this Act or for developing information regarding the causes and prevention of occupational accidents and illnesses. As explained in 29 CFR 1910.1020(a), access to personal medical records by employees, their representatives, and the Assistant Secretary is necessary to yield both direct and indirect improvements in the detection, treatment, and prevention of occupational disease. OSHA has preliminarily determined that maintenance of and access to the medical records required by this section will help ensure proper evaluation of the team member's or responder's health status, facilitate compliance, and assist the agency in enforcing the proposed standard.

Proposed paragraph (g)(2)(i) would require that each WERE and ESO establish a medical evaluation program for team members and responders, based on the type and level of service(s), and tiers of team members and responders established in paragraphs (c) and (d). The purpose of medical evaluations for team members and responders is to determine, where reasonably possible, if the individual can perform emergency response duties without experiencing adverse health effects and to determine the team member's and responder's fitness to use PPE appropriate to their designated duties. As one commenter to the 2007 Emergency Response RFI stated, ''[r]equirements should vary based upon the level of physical and mental activity required that must be performed'' (Document ID 0024, p. 4). Furthermore, another commenter stated that ''NFPA 1582 is not the appropriate standard for use by general industry'' since it was ''designed for municipal fire fighters'' (Document ID 0039, p. 15). Hence, as stated above, this proposed provision would allow the WERE and ESO flexibility to tailor its medical evaluation program so that team members and responders with less physically demanding duties or who are exposed to fewer hazards during emergency responses may have less stringent medical requirements than team members and responders expected to perform more physically demanding duties who are exposed to more or more frequent hazards. Additionally, each responder routinely exposed to combustion products at or above the threshold set forth in proposed paragraph (g)(3) would be afforded additional medical surveillance as described in that paragraph.

Paragraph (g)(2)(ii) of the proposed rule would require WEREs and ESOs to ensure that, prior to performing emergency response duties, each team member and responder is medically evaluated to determine fitness for duty by a physician or other licensed health care professional (PLHCP) at no cost to the team member or responder, in accordance with proposed paragraphs (g)(2)(iii) through (vi) of this section. Each responder who is exposed to combustion products above the action level would also need to be evaluated in accordance with proposed paragraph (g)(3) of this section. The proposed rule would require that medical examinations be made available by the WERE and ESO without cost to team members and responders (as required by section 6(b)(7) of the OSH Act), and at a reasonable time and place.

Paragraph (g)(2)(ii) and the related fitness for duty requirements in proposed paragraph (g)(5), discussed below, ensure each team member and responder is capable of performing their assigned job duties without injury to themselves or their fellow team members or responders. These requirements are consistent with OSHA's existing Fire Brigades standard, which requires employers to ensure that employees expected to perform interior structural firefighting ''are physically capable of performing duties which may be assigned to them during emergencies'' (29 CFR 1910.156(b)(2)). Current § 1910.156(b)(2) also specifies that the employer ''shall not permit employees with known heart disease, epilepsy, or emphysema, to participate in fire brigade emergency activities unless a physician's certificate of the employees' fitness to participate in such activities is provided.'' Other OSHA standards contain similar requirements. For example, the HAZWOPER standard requires employers to provide certain emergency responders with medical exams that include an evaluation of ''fitness for duty including the ability to wear any required PPE under conditions . . . that may be expected at the work site'' and ''the physician's recommended limitations upon the employee's assigned work'' (29 CFR 1910.120(f)(2) and (7)). Further, in all cases where respiratory protection is required, either by a substance-specific standard (see, *e.g.,* § 1910.1024(g)(1); 1910.1053(g)(1)) or by OSHA's general Respiratory Protection standard (id. § 1910.134), employees must be medically evaluated to determine their ability to wear a respirator (id. § 1910.134(e)(6)) and must pass a fit test (id. § 1910.134(f)(1)).

The term physician or other licensed health care professional (PLHCP), as defined in proposed paragraph (b), refers to individuals whose legal scope of practice allows them to provide, or be delegated responsibility to provide, some or all of the health care services required by the medical surveillance provisions. The determination of who qualifies as a PLHCP is based on state certification, which can vary from state-to-state. OSHA considers it appropriate to allow any professional to perform medical surveillance required by the standard when they are licensed by state law to do so. This proposed provision provides flexibility to the WERE and ESO while limiting cost and compliance burdens.

Proposed paragraphs (g)(2)(iii)(A) through (D) specifies elements that must be included in all medical evaluations, regardless of the type and level service(s) provided or tiers of team members and responders, to detect any physical or medical condition(s) that could adversely affect the team member's or responder's ability to safely perform the essential job functions. Each evaluation would include medical and work history with emphasis on symptoms of cardiac and respiratory disease; physical examination with emphasis on the cardiac, respiratory, and musculoskeletal systems; spirometry; an assessment of heart disease risk including blood pressure, cholesterol levels, and other relevant heart disease risk factors; and any other

tests deemed appropriate by the PLHCP. These medical evaluations are all included in NFPA 1582. Medical and work histories are an efficient and inexpensive means for collecting information that can aid in identifying individuals who are at risk because of hazardous exposures (WHO, 1996, Document ID 0119, p. 26). Information on present and past work exposures, medical illnesses, and symptoms can lead to the detection of diseases at early stages when preventive measures can be taken. Recording of symptoms would in some cases help to identify the onset of disease in the absence of abnormal tests.

OSHA is including spirometry as a baseline measurement so that decline in lung function can be assessed in subsequent evaluations if needed. In a study of emergency responders involved in the 2001 World Trade Center collapse response, a comparison of pre- and post-incident spirometry was able to demonstrate lung function decline, indicating the need for medical evaluation and ongoing surveillance (Aldrich et al., 2010, Document ID 0161, p. 791).

Special emphasis is placed on heart disease risk assessment due to the nature of emergency response duties and the associated physiological stress. Cardiac risks include but are not limited to physical exertion, exposure to asphyxiants and other products of combustion, noise, psychological stress, and heat (Soteriades et al., 2011, Document ID 0121, p. 202; Smith et al., 2016, Document ID 0120, p. 90). Roughly half of all firefighter on-duty and line of duty deaths (LODD) are the result of heart attacks (Fahey et al., 2022, Document ID 0122, p. 5; Kahn et al., 2015, Document ID 0162, p. 218; Soteriades et al., Docket ID 0121, p. 202).

Guidance from the American College of Cardiology (ACC)/American Heart Association (AHA) for heart disease risk assessment and prevention in the general population utilizes risk calculators to guide preventive recommendations (Arnett et al., 2019, Document ID 0124, p. e603). Well-known risk factors, such as blood pressure, elevated cholesterol levels, smoking or vaping, and diabetic status are used to calculate lifetime and/or 10-year atherosclerotic cardiovascular disease risk. Risk enhancers, such as metabolic syndrome and chronic kidney disease, and coronary artery calcium (CAC) measurement, are additional considerations for those whose risk remains uncertain. Risk-enhancing factors are reasonable to use to guide PLHCP screening decisions and preventive interventions.

As discussed in section II.A., *Need for the Standard,* emergency responders are routinely exposed to a wide variety of airborne respiratory hazards including gases, fumes, particulates, and infectious diseases. In addition, many emergency responders are routinely exposed to diesel exhaust both responding to emergency incidents and while in WERE and ESO facilities where vehicles are located.

The risks for musculoskeletal issues are further discussed in section II.A., *Need for the Standard,* which notes that the increased risk for musculoskeletal injury rates for emergency responders compared to all private industries varied by the type of emergency service provided, ranging from 1.7 times the reportable injury rates for private ambulance drivers to 4 times the reportable injury rates for EMS workers, with comparable rates among firefighters. Increased musculoskeletal injury rates for emergency responders is attributed to overexertion and strain associated with emergency response activities.

Due to the risk of sudden cardiovascular death from strenuous emergency response activities, paragraph (g)(2)(iv) of the proposed rule would require that each WERE and ESO provide additional screening of team members and responders as deemed appropriate by the PLHCP and at no cost to the team member or responder. The PLHCP has the option of ordering additional testing they deem appropriate based on individual signs or symptoms and clinical judgment. OSHA recognizes that this may result in increased cardiovascular screening of team members and responders beyond those recommended for the general population. This is consistent with NFPA 1582, sections 7.7.7.3.1 through 7.7.7.3.2, which recommends additional cardiovascular assessment at certain risk levels beyond authoritative guidance for general population screening recommended by the ACC/AHA and the United States Preventative Services Task Force (USPSTF) (USPSTF 2018, Document ID 0163, p. 2311; Arnett et al., 2019, Document ID 0124, p. e602). The cardiovascular risk assessment of team members and responders allows the medical provider the ability to focus further screening on only those team members and responders at highest risk of suffering a cardiac event while performing emergency response duties. OSHA has preliminarily determined that compliance with the proposed provision would reduce the risk of sudden death in team members and responders brought on by the stress of their emergency response duties.

These additional screenings may include a symptom-limiting exercise stress test with imaging of at least 12 Metabolic Equivalents (METs) as recommended in NFPA 1582, section 7.7.7.3.1.1, for the evaluation of those at intermediate risk of atherosclerotic cardiovascular disease (10 to < 20% calculated risk over the next 10 years), and those with metabolic syndrome, diabetes, or history of coronary artery disease. This is noted as a consideration for intermediate risk asymptomatic adults (class IIb) [5] by AHA/ACC as well (Greenland et al., 2010, Document ID 0125, p. e66). ACC/AHA also specifically addressed occupational screening in their 2002 Guideline Update for Exercise Testing in which exercise testing is a class IIb recommendation in asymptomatic individuals who work in occupations in which impairment might impact public safety (Gibbons et al., 2002, Document ID 0126, p. 1538).

NFPA 1582, section 7.7.6, also recommends a resting electrocardiogram at baseline and annually in those over age 40 or as clinically indicated. ACC/AHA considers resting to be reasonable for asymptomatic patient screening in those with diabetes or hypertension (class IIa) [6] and a consideration in those without diabetes or hypertension (class IIb) (Greenland et al., 2010, Document ID 0125, p. e66). This test may detect abnormalities such as left ventricular hypertrophy and arrythmias indicative of increased risk.

NFPA 1582, in the explanatory appendix section A.7.7.7.3.1.1, and ACC/AHA (Arnett et al., 2019, Document ID 0124, p. e613) both consistently mention CAC as a consideration for medical evaluation of emergency response personnel, although NFPA 1582 does not specify indications. Similarly, both organizations emphasize metabolic syndrome as a risk factor.

Additional medical screening might also be required for other medical conditions that are detected in the baseline examination, which may affect a responder's or team member's ability to perform their emergency response duties. If the PLHCP suspects a musculoskeletal injury or condition, they may require an x-ray or MRI to determine medical fitness for duty. For respiratory diseases, the PLHCP may require a complete pulmonary function test, exercise stress testing, or

[5] For ACC/AHA Class IIb medical conditions, the recommended procedure or treatment may be considered.

[6] For ACC/AHA Class IIa medical conditions, ACC/AHA considers it reasonable to perform the procedure or administer treatment.

methacholine challenge testing to determine medical fitness for duty.

As noted above, the proposed rule would require that all medical evaluations, regardless of type and level of service(s) provided or tiers of team members and responders, include a medical history, physical examination, spirometry, laboratory tests, and a cardiovascular disease risk assessment with additional screening as necessary. In Question (g)-1, OSHA is seeking input and data on whether the proposed rule's requirements are an appropriate minimum screening. Should the minimum screening include more or fewer elements, and if so, what elements? Provide supporting documentation and data that might establish the appropriate minimum screening. OSHA is also seeking additional data and information on the feasibility of the proposed medical evaluation and surveillance requirements for WEREs and ESOs.

The proposed rule also specifies how frequently medical examinations would be required for team members and responders. In proposed paragraph (g)(2)(v), WEREs and ESOs would be required to provide medical evaluations to team members and responders with an initial (baseline) examination after assignment and repeated every two years thereafter unless the PLHCP deems more frequent evaluations necessary, except for spirometry which would be repeated when deemed appropriate by the PLHCP. The proposed requirement that a medical examination be required at the time of initial assignment is intended to determine if a team member or responder would be able to perform the assigned emergency response duties without adverse health effects. The expectation is that the baseline physical would be performed prior to any entrance into an emergency response training academy or beginning a training program. It also serves to establish a health baseline for future reference. OSHA has set the medical re-evaluation at every two years due to the focus on cardiovascular disease and the speed with which cardiovascular disease develops. The medical re-evaluations are intended to determine if a medical condition has developed that would inhibit safe emergency incident response by team members and responders. Allowing the PLHCP to order more frequent evaluations based on their medical judgment ensures that team members and responders at higher risk of adverse health effects, such as a cardiovascular event, are appropriately monitored to ensure their continued safety and ability to perform emergency response activities.

Paragraph (g)(2)(vi) of the proposal would require that each WERE and ESO establish protocols regarding the length of time that absence from duty due to injury or illness would require a team member or responder to have a return-to-duty medical evaluation by a PLHCP prior to returning to work. Lengthy absences or certain medical conditions can alter a team member's or responder's ability to perform essential job tasks.

Proposed paragraph (g)(3) applies to ESOs only and includes additional surveillance for responders who are exposed to combustion products. Paragraph (g)(3)(i) of the proposed rule would require that the ESO provide medical surveillance that includes a component based on the frequency and intensity of expected exposure to combustion products established in the risk management plan in proposed paragraph (f). Requirements would differ based on exposures. The proposal is consistent with section 6(b)(7) of the OSH Act (29 U.S.C. 655(b)(7)) which requires that, where appropriate, medical surveillance programs be included in OSHA standards to determine whether the health of workers is adversely affected by exposure to the hazard addressed by the standard.

Under proposed paragraph (g)(3)(i)(A), the ESO would need to ensure that responders who are, or based on experience may be, exposed to combustion products 15 times or more per year, without regard to the use of respiratory protection, receive medical surveillance at least as effective as the criteria specified in the national consensus standard, NFPA 1582, Chapter 7. As noted above, OSHA recognizes that the recommendations in NFPA 1582 were aimed at and specifically designed for firefighters who are exposed to combustion products. Thus, although only some of the requirements in NFPA 1582 may be relevant to other team members and responders depending on the types and level of service(s) they provide, OSHA has preliminarily determined that it is appropriate to require the full NFPA 1582 physical for those responders exposed to combustion products above a particular action level.

With respect to what level of exposure is appropriate to trigger these requirements, Matt Tobia, a subcommittee member representing the IAFC, reported at a subcommittee meeting that a subgroup that discussed medical requirements considered those emergency responders whose job duties required them to enter an IDLH environment to be the responders subject to the full medical requirements (Document ID OSHA–2015–0019–0006, Tr. 108–111). OSHA received no other suggestions for a threshold to require additional medical requirements.

Although the NACOSH subcommittee focused on emergency responders who must enter IDLH environments, some exposures to combustion products may occur outside of such environments. Because the health risks posed by combustion products are not limited to exposures in IDLH environments, the proposed standard would require ESO's to consider all exposures to combustion products, not just those that occur in an IDLH environment. At the same time, given the apparent dose-response relationship between exposures and health effects (see *Need for the Standard*), OSHA does not believe that a single exposure to combustion products would necessitate increased medical requirements beyond what would be required by proposed paragraph (g)(2).

In considering what level of exposure (*i.e.,* action level) should trigger additional medical surveillance, OSHA reviewed its existing standards that require medical surveillance triggered by a specified action level. Most OSHA standards that have an action level that triggers medical surveillance use 30 days of exposure at or above a specified action level: Arsenic (29 CFR 1910.1018); Benzene (29 CFR 1910.1028); 1,3 Butadiene (29 CFR 1910.1051); Cadmium (29 CFR 1910.1027); Hexavalent Chromium (29 CFR 1910.1026); Ethylene Oxide (29 CFR 1910.1047); HAZWOPER (29 CFR 1910.120); Lead (29 CFR 1910.1025); Methylene Chloride (29 CFR 1910.1052); and Methylenedianiline (29 CFR 1910.1050).

Several OSHA standards use exposure above the established permissible exposure level (PEL) or short-term exposure limit (STEL) for 10 days to trigger medical surveillance: Benzene (29 CFR 1910.1028); 1,3 Butadiene (29 CFR 1910.1051); and Methylene Chloride (29 CFR 1910.1052). Other OSHA standards use any exposure or exposure at or above an action level, PEL, or while working in a regulated area to trigger medical surveillance: Acrylonitrile (29 CFR 1910.1045); Asbestos (29 CFR 1910.1001); Compressed Air Environments (29 CFR 1926.803); Cotton Dust (29 CFR 1910.1043); Formaldehyde (29 CFR 1910.1048); Suspected Carcinogens (29 CFR 1910.1003); Vinyl Chloride (29 CFR 1910.1017); and 1,2-dibromo-3-chloropropane (29 CFR 1910.1044).

The proposed rule's action level for medical surveillance of 15 or more exposures per year is modeled after 29 CFR 1910.1050, Methylenedianiline (MDA), which requires that employees who are subject to dermal exposure to MDA for 15 or more days per year receive medical surveillance. 29 CFR 1910.1050(m)(1)(i)(B). Similar to MDA, dermal exposure is a particular concern for responders exposed to combustion products. Research by NIOSH and other scientific experts supports that dermal exposure is a significant exposure pathway for responders. Exposures occur as the combustion products enter the PPE through the interface areas (coat to gloves, coat to pants, pants to boots, neck to hood), as well as permeating directly through PPE (Hwang et al., 2022, Document ID 0156, p. 10; Baxter et al., 2014, Document ID 0157, p. D89; Hwang et al., 2021, Document ID 0155, p. 12; Pleil et al., 2014, Document ID 0158, p. 16).

For purposes of proposed paragraph (g)(3)(i)(A), an exposure incident to combustion products is any exposure to materials that are on fire or smoldering regardless of the use of PPE or respiratory protection. PPE, such as respiratory protection, is considered the lowest level of protection in the hierarchy of exposure controls and cannot be 100% effective as the exposure has not been eliminated. Moreover, elimination of exposure is not an option for emergency response activities. Examples of exposure incidents include fires in residential homes, cars, dumpsters, kitchens, and training scenarios, among other similar incidents. In the event of a large fire or a training fire that requires multiple entries into the IDLH environment for extinguishment or training purposes, the multiple entries would be considered one exposure incident. Exposure incidents occur only for those responders who enter the hot zone of the incident, as defined in proposed paragraph (b) of this rule. If a responder is exposed to multiple incidents during one shift, the incidents would each be considered one individual exposure incident. For example, if a responder on a 24-hour shift responds to a house fire in the morning, then a car fire in the afternoon, and then a kitchen fire in the evening and entered the hot zone at each incident, that responder was exposed to combustion products on three separate incidents during that shift. For wildland firefighting, an exposure incident to toxic combustion products is the number of days the responder was exposed to combustion products while working on the fire line.

OSHA is aware that not all exposure incidents are equal and that some of the exposure incidents described above involve a low level of exposure while others involve a higher level of exposure. While some of the individual components in combustion products have PELs, there are no PELs for combined combustion products. The nature of combustion products, being a combination of any number of potentially hazardous substances, often unknown and changing with each emergency incident, as well as the difficulty in measuring such exposures in the emergency response context, would make establishing any such PEL very difficult. Nonetheless, OSHA has determined that despite the varying levels of exposure, both low and high exposure incidents contribute in the aggregate to a responder's overall exposure to toxic combustion products. Thus, on balance, OSHA has determined that any incident resulting in exposure to toxic combustion products while in the incident hot zone, regardless of the level of exposure, should be counted towards the total number of exposure incidents triggering the action level in this proposed paragraph.

To determine if their responders exceed the action level requiring medical surveillance for exposure, ESOs should review their incident response history. If the average number of exposure incidents is 15 or more a year for an individual responder or a particular tier of responders, then those responders would need the additional medical surveillance.

OSHA has preliminarily determined that an action level of 15 or more exposures per year is an appropriate threshold for triggering medical surveillance to detect and prevent adverse health effects from combustion products. In Question (g)–2, OSHA is seeking input on whether this number of exposures is too high, too low, or an appropriate threshold. OSHA is also considering action levels of 5, 10, or 30 exposures a year as alternatives and is seeking public input on what action level would be appropriate. Provide supporting documentation and data that would help with identifying an appropriate action level.

Proposed paragraph (g)(3)(i)(B) would require ESOs to provide medical consultation and ongoing surveillance to responders who, either immediately or subsequently, exhibit signs and symptoms which may have resulted from exposure to combustion products. Examples include shortness of breath, coughing, or wheezing after an exposure incident. Demonstration of exposure signs and symptoms may indicate a significant exposure event, failure of PPE, a catastrophic event, or some combination thereof and warrants exposure monitoring and medical surveillance. The extension of medical surveillance to responders who demonstrate signs and symptoms of exposure would be required regardless of whether the responder was exposed above the action level. The PLHCP would determine the necessary medical surveillance following the significant exposure event.

Proposed paragraph (g)(3)(ii) would require the ESO to document each exposure to combustion products for each responder, for the purpose of determining the need for the medical surveillance as specified in (g)(3)(i)(A), and for inclusion in the responder's confidential record, as required in (g)(1)(ii). ESOs would review previous incident reports to determine a responder's exposures for the preceding 12 months or from the date when ESOs began keeping such records up to the preceding 12 months. This proposed requirement would ensure the ESO documents exposures in order to comply with the requirements of the proposed rule. OSHA notes, however, that the ESO would not need 12 months of records for a particular responder to determine whether that responder may be exposed above the action level. If the ESO knows, based on experience, that responders in the same tier may be exposed 15 or more times per year, medical surveillance pursuant to paragraph (g)(3) would be required for that responder. As stated previously, proposed paragraph (g)(3) applies only to ESOs. OSHA is seeking input in Question (g)–3 on whether the additional medical surveillance proposed in paragraph (g)(3) should be extended to include WEREs and team members.

In paragraph (g)(4)(i) of the proposed rule, the WERE and ESO would be required to provide behavioral health and wellness resources at no cost to the team member or responder or identify where resources are available at no cost in their community. As discussed in section II.A., *Need for the Standard,* emergency response activities expose team members and responders to traumatic, emotionally charged events, and they frequently work long shifts, get inadequate rest and are repeatedly exposed to stressful scenarios that contribute to mental health issues. The physical and psychological stressors associated with emergency response activities puts team members and responders at increased risk of PTSD, depression, anxiety, burnout, suicide,

and substance use disorders. During the 2021 SBREFA panel, SERs reported that they believed that ongoing behavioral health support is an important component of team member and responder wellness (Document ID 0115, p. 18). For those WEREs and ESOs who do not provide behavioral health resources at their place of employment, they would need to identify local, state, or Federal governmental, non-governmental, and non-profit behavioral health resources that can be accessed by team members and responders. Behavioral health resources provided by a WERE's or ESO's health care plan would meet the requirements of the proposed rule. Although community-based resources are preferred, for those communities that do not have the resources available, telehealth resources would also meet the requirements of the proposed rule.

Proposed paragraphs (g)(4)(ii)(A) through (D) identify the behavioral health and wellness resources that would need to be included, at a minimum. They are diagnostic assessment, short-term counseling, crisis intervention, and referral for behavioral health conditions arising from the team member's or responder's performance of emergency response duties. The conditions that could require referral include substance use disorder, anxiety, depression, suicidality, acute stress reactions, or grief resulting from or exacerbated by the team member's or responder's emergency response duties, such as potentially traumatic events or the cumulative emotional strain of emergency response work. These behavioral health conditions may require more intensive interventions than short-term counseling or crisis intervention would provide. Behavioral health resources should be accessible to the team member or responder both on and off-duty.

Proposed paragraph (g)(4)(iii) would require that each WERE and ESO inform team members and responders, on a regular and recurring basis, and following each potentially traumatic event, of the behavioral health resources that are available to them and how to access those resources. Although resources familiar with the behavioral health aspects of emergency response activities are preferred, it is most important to have resources available for team members and responders to access. ESOs and WEREs should manage team member and responder expectations concerning available behavioral health resources and provide periodic reminders concerning their availability.

In proposed paragraph (g)(4)(iv), the WERE and ESO would be required to ensure that if the WERE or ESO possesses records of a team member or responders use of behavioral health services, those records are kept confidential. Similar to the privacy and confidentiality concerns about medical evaluations and medical records, OSHA is aware that behavioral health evaluations present similar concerns due to the potential to divulge confidential information regarding a team member's or responder's psychological condition that may adversely affect the team member or responder. Proposed paragraph (g)(4)(iv) protects the team member or responder from such unwanted disclosure. Thus, behavioral health record management would be consistent with the requirements for medical record management established in paragraph (g)(1)(iii).

Proposed paragraph (g)(5) focuses on fitness for duty and would require the WERE and ESO to establish and implement a process to evaluate and re-evaluate annually the ability of each team member and responder to perform the essential job functions, based on the type, level, and tier of service(s) established in paragraphs (c) and (d). The fitness for duty evaluation confirms for the WERE and ESO that the team member or responder can physically perform the job functions required of them at emergency scenes. This requirement differs from being medically cleared to perform emergency response duties as determined by paragraph (g)(2). This requirement requires the WERE or ESO to determine if the team member or responder is physically capable to perform the duties required of them during an emergency response. It is possible for a team member or responder to have no medical limitations to performing emergency response activities and still not be physically able to perform the duties. If the team member or responder does not have the physical capability to perform their assigned duties it not only places them at increased risk of injury or death but also increases the risk for other team members and responders on the emergency scene.

During the 2021 SBREFA panel, many SERs expressed concern that the physical fitness for duty requirements would be difficult for team members and responders, especially volunteer responders, to meet (Document ID 0115, p. 17). OSHA understands these concerns. However, the safety of all team members and responders is dependent upon each team member and responder being physically able to perform their assigned duties at an emergency incident. OSHA expects that assessment of the ability to perform essential job functions would be determined during training scenarios in which emergency response activities are practiced under controlled conditions, or during the skills checks required under proposed paragraph (h)(3) of this section. OSHA does not expect a formal testing program to be initiated. In Question (g)–4, OSHA seeks input and data on whether stakeholders support the proposed fitness for duty requirements or whether the requirements pose a burden on or raise concerns for team members, responders, WEREs or ESOs. Commenters should provide explanation and supporting information for their position.

Proposed paragraph (g)(6) applies to ESOs only and includes requirements for a health and fitness program. In proposed paragraph (g)(6)(i), the ESO would be required to establish and implement a health and fitness program that enables responders to develop and maintain a level of physical fitness that allows them to safely perform their assigned functions, based on the type, level, and tier of duty established in paragraph (d). Multiple studies and stakeholder organizations recognize the necessity of fitness programs to maintain the ability to perform job duties as well as to prevent or minimize injuries and to reduce the risk of heart disease and cancer (IAFF and IAFC (Document ID 0127, p. 33); NVFC (Docket ID 0128, p. 24); U.S. Fire Administration (USFA) (Document ID 0130, p. 131); NFPA (Docket ID 0135 p. 34); NIOSH (Document ID 0131, p. 4)).

As the proposed regulatory text indicates, these health and fitness requirements are focused solely on ensuring responders can safely perform their assigned functions. The requirements are aimed at minimizing the risk of occupational injury and illness posed by emergency response activities. OSHA intends these provisions to ensure that responders have the opportunity, means, and knowledge necessary to maintain fitness for duty and to prevent work-related injury and illness.

Proposed paragraphs (g)(6)(ii)(A) through (D) establish the minimum components of the fitness program that the ESO would be required to include. Proposed paragraph (g)(6)(ii)(A) would require that the fitness program have an individual designated to oversee it. If available, the ESO should designate an individual who has knowledge and skills that would benefit program implementation. To have the desired effect on responder health and fitness, a

fitness program needs an individual identified to provide guidance and assistance to responders with the health and fitness program and maintain accountability.

Paragraph (g)(6)(ii)(B) of the proposed rule would require a periodic fitness assessment for all responders, not to exceed every three years. The purpose of the fitness assessment is to inform the responder on their fitness status and whether their fitness has improved, maintained, or decreased. This physical fitness assessment is different from the fitness for duty evaluation described in proposed paragraph (g)(5) in that it is solely a physical fitness-related evaluation and is indirectly related to the evaluation of a responder's ability to perform essential job tasks. The physical fitness assessment should evaluate physical parameters such as responder muscular strength, muscular endurance, cardiovascular endurance, and mobility/flexibility. A physical fitness assessment can flag fitness conditions that may make a responder particularly vulnerable to a negative cardiovascular event. Maintaining fitness is important as responders with higher fitness levels perform essential job tasks at a lower exertion level as a percent of their maximum exertion. Performing essential job tasks at a lower exertion level reduces the responder's risk of suffering a negative cardiovascular event while performing those job tasks.

Proposed paragraph (g)(6)(ii)(C) would require exercise training that is available to all responders during working hours. This provision would not mandate a particular exercise regimen nor require the ESO to purchase or utilize any specific fitness equipment. Effective exercise training could be accomplished using common emergency response tools to provide the resistance necessary to achieve muscular overload. A program of body weight exercises, which use the responder's own body weight to provide resistance, would also satisfy the requirement.

Proposed paragraph (g)(6)(ii)(D) would require health promotion education and counseling for all responders. Health promotion education and counseling aims to provide responders with the knowledge necessary to ensure fitness for duty and is another avenue to address the risk factors and adverse health effects associated with emergency response activities. Responder health promotion can be accomplished with educational resources available in the community or on the internet. Topics that may be covered by the health promotion program could include heart disease risk reduction, smoking-vaping and tobacco cessation, healthy blood pressure, physical fitness, safer personal training methods and other ways to minimize risk of muscle breakdown (rhabdomyolysis), nutrition, weight management, the amount and quality of sleep, infectious disease prevention, and behavioral health topics such as stress management. OSHA emphasizes that these education and counseling resources are one element in the broader health and fitness program with the ultimate goal of ensuring the safe performance of emergency response activities.

OSHA is seeking input in Question (g)–5 whether the health and fitness program in proposed paragraph (g)(6) should be extended to include WEREs and team members. OSHA Question (g)–6 asks for input whether every three years is an appropriate length of time for fitness re-evaluation, and if not, what period of time would be appropriate. The agency is seeking any available data to support an alternative length of time between evaluations.

Paragraph (h) Training

Training is the backbone of WERTs and ESOs. Effective training produces team members and responders with the skills, knowledge, and confidence to safely perform their duties in the face of various hazards at emergency incidents. Paragraph (h) of the proposed rule contains requirements for initial and follow-up training for responders and team members, as well as requirements for maintaining proficiency in the necessary skills and knowledge through regular—at least annual—skills checks. These provisions ensure that team members and responders become and remain prepared and capable of performing their duties safely. Many of the provisions in proposed paragraph (h) are based on, or consistent with, provisions in NFPA 600, NFPA 1500, and other NFPA standards.

To ensure team members and responders are prepared to participate safely in emergency operations, WEREs and ESOs need to establish comprehensive training programs. Proposed paragraph (h)(1) addresses minimum training requirements for team members and responders. Paragraph (h)(1)(i) would require WEREs and ESOs to establish the minimum knowledge and skills required for each team member and responder to participate safely in emergency operations, based on the type and level of service(s), and tiers of team members and responders established in paragraphs (c) and (d) of this section. These minimum requirements will vary based on the type of emergency response being performed; for example, firefighters will have different training requirements than technical rescuers.

Paragraph (h)(1)(ii) of the proposed rule would require the WERE and ESO to ensure each team member and responder is provided with initial training, ongoing training, refresher training, and professional development commensurate with the safe performance of their expected duties and functions based on the tiers of team members and responders, and the type and level of service(s) established in paragraphs (c) and (d) of this section. Training is important at all stages of a team member's or responder's career. Initial training teaches team members and responders how to properly and safely perform their duties; and ongoing and refresher training ensures that these skills stay sharp over time. As they progress through their careers providing emergency service(s), team members and responders learn more about protecting their fellow team members and responders, particularly if they become team leaders, officers, or chiefs.

Proposed paragraph (h)(1)(iii) would require the WERE and ESO to restrict the activities of each new team member and responder during emergency operations until the team member or responder has demonstrated to a trainer/instructor, supervisor/team leader/officer, the skills and abilities to safely complete the tasks expected. Team members and responders performing tasks for which they are not appropriately trained pose a hazard not only to themselves, but also to other team members and responders. The proposed provision would ensure that team members and responders who are new to their jobs are properly trained before performing emergency service tasks.

Proposed paragraph (h)(1)(iv) would require the WERE and ESO to ensure that each instructor/trainer has the knowledge, skills, and abilities to teach the subject matter being presented. It is intuitive that those teaching should be more knowledgeable in the subject matter than those being taught, and when physical skills are required it can be important for the instructor/trainer to have the ability to demonstrate the skills or address a problem when it arises. This provision ensures that the training is conducted by competent individuals who can provide accurate and valuable instruction, leading to a higher level of understanding and proficiency among the trainees.

Proposed paragraph (h)(1)(v) of the proposed rule would require WEREs and ESOs to ensure that training is

provided in a language and at a literacy level that team members and responders understand, and that the training provides an opportunity for interactive questions and answers with the instructor/trainer. Team member and responder comprehension is critical to ensuring that training is effective. If training information is not presented in a way that all team members and responders understand, the training will not be effective. WEREs and ESOs must thus consider language, literacy, and social and cultural appropriateness when designing and implementing training programs for team members and responders. Compliance with the language requirement could be accomplished with an instructor/trainer providing direct instruction in the appropriate language or by use of an interpreter. The purpose of the literacy level provision is to make sure that each team member and responder understands the materials. WEREs and ESOs may consider providing training materials in a language which is as simple as possible without sacrificing necessary content.

The last part of the provision recognizes the fact that asking questions facilitates the learning process for many people. WEREs and ESOs may conduct training in different ways, such as in-person or virtually (*e.g.,* videoconference, recorded video). However, this paragraph requires the WERE and ESO to provide an opportunity to team members and responders to ask questions regardless of the medium of training. This may involve, for example, having a knowledgeable person present during the training in-person or via phone/video call. If it is not possible to have someone present during the training, WEREs and ESOs could also provide the contact information of the individual who team members or responders can contact to answer their questions (*e.g.,* an email or telephone contact).

Paragraph (h)(1)(vi) of the proposed rule would require the WERE and ESO to provide each team member and responder with training on the RMP (risk management plan) established in paragraph (f)(1) of this section. The training would ensure that team members and responders receive comprehensive instruction on various aspects of risk management. It would familiarize them with the specific protocols, procedures, and practices associated with WERE and ESO facilities, training activities, vehicle operations, response to emergency incidents, non-emergency services, and the risks associated with exposure to hazardous substances. Training would also need to include the PPE hazard assessment, the respiratory protection program, the infection control program, and the bloodborne pathogens exposure control plan required by paragraph (f)(1)(iii). Note that the training requirements of this standard are in addition to the training requirements of other standards such as the bloodborne pathogens standard (29 CFR 1910.1030(g)(2)).

Proposed paragraph (h)(1)(vii) would require the WERE and ESO to train each team member and responder about the safety and health policy established in paragraph (f)(2) of this section and the Standard Operating Procedures (SOPs) established in paragraph (q) of this section. Proposed paragraph (f)(2) would require the WERE and ESO to establish a policy for extraordinary situations when a team member or responder, after making a risk assessment determination based on the team member or responder's training and experience, is permitted to attempt to rescue a person in imminent peril, potentially without benefit of, for example, PPE and other equipment. As explained above, proposed paragraph (f)(2) is important because there might be times when team members or responders come across emergency incidents while they are not fully equipped with PPE or other equipment but could, for example, potentially save a life.

Team members and responders need to be trained so that they understand the policy established by the WERE or ESO for these extraordinary situations. SOPs form the foundation of how WEREs and ESOs expect team members and responders to perform at various types of incidents, where they will face a variety of hazards. The SOPs provide procedures intended to facilitate incident operations and keep team members and responders safe.

Paragraph (h)(1)(viii) of the proposed rule would require the WERE and ESO to provide each team member and responder with training that covers the selection, use, limitations, maintenance, and retirement criteria for all PPE used by the team member or responder based on the type and level of service(s), and tiers of team members and responders established in paragraphs (c) and (d) of this section. This training would provide team members and responders with the necessary knowledge and skills to effectively utilize the PPE they are required to wear on the basis of their duties. It would need to include various aspects, including selecting appropriate equipment, use including proper donning and doffing techniques, understanding the limitations of PPE, performing proper maintenance, and knowing when to retire and replace worn-out or damaged equipment. By providing this comprehensive training, WEREs and ESOs can enhance safety and ensure that team members and responders are well-prepared to utilize PPE effectively.

Paragraph (h)(1)(ix) proposes to require the WERE and ESO to train each team member and responder in the selection, proper use, and limitations of portable fire extinguishers provided for employee use in the WERE or ESO's facility and vehicles, in accordance with 29 CFR 1910.157. It is important for all team members and responders (firefighters, EMS providers, and technical rescuers) to be trained to use portable fire extinguishers. Most fires start out small enough that they can be easily controlled or extinguished by a portable fire extinguisher. Portable fire extinguishers are readily found in most workplaces and on many vehicles that team members and responders use, and it is important for team members and responders be trained about how to use them and what their limitations are.

Proposed paragraph (h)(1)(x) would require the WERE and ESO to train each team member and responder in the incident management system (IMS) established under paragraph (o) of this section, in order to operate safely within the scope of the IMS. Because the IMS is required to be used at all emergency incidents (see proposed paragraph (p)(1)(i)), everyone on every incident scene would be operating within it. The training should focus on team member and responder roles and responsibilities within the IMS, including incident scene assessment for hazards, incident safety oversight, means for reporting unsafe conditions, and interactive components for clear communication and effective operations.

Paragraph (h)(1)(xi) of the proposed rule would require the WERE and ESO to ensure that training for each team member and responder engaged in emergency activities includes procedures for the safe exit and accountability of team members and responders during orderly evacuations, rapid evacuations, equipment failure, or other dangerous situations and events. Development of the procedures is required by proposed paragraph (q)(2)(vii) of this section. Team members and responders need to be trained to know their roles in the accountability system. They need to be trained in the actions to take during an orderly evacuation, such as taking all their equipment with them as they back out to regroup their efforts, versus during a rapid evacuation, such as when a

structural collapse seems imminent, when the appropriate action may be to ''drop and run.'' PPE or equipment failure often occurs without warning. Team members and responders need to be trained in the proper procedures for evacuating safely and maintaining accountability should such a situation occur.

Paragraph (h)(1)(xii) proposes to require the WERE and ESO to ensure that each team member and responder is trained to meet the requirements of 29 CFR 1910.120(q)(6)(i) (HAZWOPER), First Responder Awareness Level. While all team members and responders who take part in actual emergency operations are already subject to these requirements per the requirements of the HAZWOPER standard, this training is also important for other responders and team members. Team members and responders who are not part of a hazardous materials (hazmat) team need to be aware of the precautions and actions to be taken at hazmat incidents because they are usually the first to arrive. This training focuses on equipping team members and responders with the necessary knowledge and skills to respond effectively to hazardous materials incidents and take appropriate actions, such as maintaining a safe distance away, evacuating other people, cordoning off the area, and summoning the appropriate resources.

Proposed paragraph (h)(1)(xiii) would require the WERE and ESO to ensure that each team member and responder who is not trained and authorized to enter specific hazardous locations (*e.g.,* confined spaces, trenches, and moving water) is trained to an awareness level (similar to the requirements in 29 CFR 1910.120(q)(6)(i)) to recognize such locations and their hazards and avoid entry. Similar to the requirements of proposed paragraph (h)(1)(xii) with respect to hazmat incidents, this training would provide team members and responders with an understanding of the potential risks and dangers posed by specific hazardous locations, enabling them to identify such locations, exercise caution, not enter the hazardous area, and request assistance from those trained to enter such areas.

Paragraph (h)(1)(xiv) of the proposed rule would require WEREs and ESOs to train each team member and responder to perform cardiopulmonary resuscitation (CPR) and use an automatic external defibrillator (AED). It is important that every team member and responder be able to perform CPR and use an AED as they may be nearby, or the first to arrive, when someone is experiencing a cardiac emergency. Proper training allows team members and responders to confidently respond to cardiac emergencies and perform potentially life-saving interventions. Furthermore, team members and responders need to know how to perform these procedures safely. For example, they need to know how to avoid electric shocks from an AED.

Proposed paragraph (h)(2) specifies vocational training that would be required for designated team members and responders to perform their duties safely. Paragraphs (h)(2)(i) through (viii) each reference a specific NFPA standard and require that team members and responders be trained to a level that is at least equivalent to the job performance requirements (JPR) of the identified standard, for the duties to which they are assigned. The particular editions of the NFPA standards noted in the proposed rule are the ones in existence at the time of the publication of this proposal. OSHA expects that in the final rule it will incorporate the particular edition most recently approved by the NFPA before the public comment period for this NPRM closes.

Paragraph (h)(2)(i) of the proposed rule would require each WERT team member who is designated to perform firefighting duties to be trained to safely perform the duties assigned, to a level that is at least equivalent to the job performance requirements of NFPA 1081, Standard for Facility Fire Brigade Member Professional Qualifications, 2018 ed. NFPA 1081 sets the professional qualifications for firefighting team members and specifies the essential competencies and performance standards required for effective firefighting. This training equips team members with necessary skills in fire suppression techniques, fire behavior, incident command, and other topics related to firefighting, ensuring their ability to perform their duties safely. As explained above, each individual team member need be trained only with respect to the specific job duties they are assigned to perform. For example, a WERT team member designated at the incipient stage tier would need to be trained to a level equivalent to the NFPA 1081 JPRs for that tier only, and not the JPRs for interior structural firefighting.

Paragraph (h)(2)(ii) of the proposed rule would require each ESO responder who is designated to perform interior structural firefighting duties to be trained to safely perform the duties assigned, to a level that is at least equivalent to the job performance requirements of NFPA 1001, Structural Fire Fighter Professional Qualifications, 2019 ed. NFPA 1001 sets the professional qualifications for structural firefighters and outlines the essential competencies and performance standards required for effective firefighting in interior structural environments. This training covers critical areas such as fire behavior, ventilation techniques, search and rescue operations, and incident command systems, ensuring that responders possess the necessary skills to perform their duties safely within interior structural firefighting scenarios.

Paragraph (h)(2)(iii) of the proposed rule would require each team member and responder who is designated to perform interior structural firefighting duties to be trained to safely perform search and rescue operational capabilities at least equivalent to the job performance requirements of NFPA 1407, Standard for Rapid Intervention Team Training, 2020 ed. NFPA 1407 sets the standards for rapid intervention team (RIT) training, specifically focusing on the operational capabilities required for effective search and rescue in hazardous environments. The training covers critical areas, such as search techniques, victim extrication, firefighter self-rescue, and effective communication strategies during rescue operations. This ensures that team members and responders possess the necessary skills to perform search and rescue operations safely and effectively within interior structural firefighting incidents.

Paragraph (h)(2)(iv) of the proposed rule would require each team member and responder who is a vehicle operator to be trained to safely operate that vehicle at a level that is at least equivalent to the job performance requirements of NFPA 1002, Standard for Fire Apparatus Driver/Operator Professional Qualifications, 2017 ed., or similar Emergency Vehicle Operator qualifications based on the type of vehicle the team member or responder operates. NFPA 1002 establishes the professional qualifications for fire apparatus driver/operators and outlines the essential competencies and performance standards required for safe and effective vehicle operation. The training covers critical areas such as vehicle handling, emergency vehicle operations, driving techniques, and knowledge of vehicle systems. This training will help ensure that team members and responders are capable of safely operating vehicles within the scope of their assigned responsibilities. Again, each individual team member or responder need be trained only with respect to the specific job duties they are assigned to perform. For example, a firefighter designated to only operate a

four-wheel drive pick-up truck with a skid-mounted pump and tank would only need to be trained to the equivalent JPRs for that vehicle, and not, for example, the JPRs for tillering a tractor-drawn aerial.

Paragraph (h)(2)(v) of the proposed rule would require each team member and responder who is a manager/supervisor (crew leader/officer) to be trained to safely perform at a level that is at least equivalent to the job performance requirements of NFPA 1021, Standard for Fire Officer Professional Qualifications, 2020 ed. NFPA 1021 establishes the professional qualifications for fire officers and outlines the essential competencies and performance standards required for effective leadership and supervision in fire and emergency service organizations. The training covers critical areas such as incident management, emergency response coordination, personnel management, risk assessment, and decision-making processes. This training will help ensure that managers and supervisors are equipped with the expertise to fulfill their roles while prioritizing the safety and well-being of team members and responders.

Paragraph (h)(2)(vi) of the proposed rule would require each wildland ESO responder to be trained to safely perform at a level that is at least equivalent to the job performance requirements of NFPA 1140, Standard for Wildland Fire Protection, 2022 ed., or that such responder has a ''Red Card'' in accordance with the National Wildfire Coordinating Group—Interagency Fire Qualifications. NFPA 1140 establishes the standards for wildland fire protection and outlines the essential competencies and performance requirements for personnel involved in wildland firefighting operations. The training covers critical areas such as fire behavior, incident management, communication systems, safety protocols, and effective use of firefighting equipment in wildland settings. This training will help ensure that wildland ESO responders are appropriately prepared to mitigate wildland fire risks and respond to these challenging situations in a safe and coordinated manner.

Paragraph (h)(2)(vii) of the proposed rule would require each technical search and rescue team member and responder who is designated to perform a technical rescue to be trained to safely perform at a level that is at least equivalent to the technician capabilities of the job performance requirements of NFPA 1006, Standard for Technical Rescuer Professional Qualifications, 2021 ed. NFPA 1006 establishes the professional qualifications for technical rescuers, defining the essential capabilities and performance requirements for personnel involved in technical rescue operations. By adhering to this standard, team members and responders can acquire the necessary knowledge and skills to safely perform technical rescues. The training covers critical areas such as rope rescue, confined space rescue, structural collapse rescue, vehicle and machinery rescue, and water rescue. This training will help ensure that technical rescuers possess the expertise required to operate safely in complex and hazardous rescue scenarios.

Paragraph (h)(2)(viii) of the proposed rule would require each firefighting team member and responder who operates in a marine environment to be trained to safely perform at a level that is at least equivalent to the job performance requirements of NFPA 1005, Standard for Professional Qualifications for Marine Fire Fighting for Land-Based Fire Fighters, 2019 ed. These individuals play a critical role in responding to fire incidents in marine settings, such as ports, marinas, or waterfront areas. NFPA 1005 sets the professional qualifications for land-based firefighters engaged in marine firefighting operations. It outlines the essential competencies and performance requirements necessary for effectively combating fires in marine environments. By adhering to this standard, firefighting team members and responders can acquire the necessary knowledge and skills to safely operate in marine settings. The training covers critical areas such as marine fire behavior, vessel fire suppression tactics, shipboard firefighting systems, water supply operations, and search and rescue techniques specific to marine environments. This training will help ensure that firefighters are appropriately prepared to handle the unique challenges presented by marine fire incidents.

Paragraph (h)(2)(ix) of the proposed rule would require the WERE and ESO ensure that each EMS team member and responder possesses the professional qualification, certification, or license, required by the applicable jurisdiction, which is relevant to the type and level of service established in paragraphs (c) and (d). This requirement, which was recommended by NACOSH, would help ensure that EMS providers are up to date on the latest methods for safely performing their duties.

Proposed paragraph (h)(3) contains requirements related to maintaining proficiency in the skills and knowledge required by paragraphs (h)(1) and (2). Proposed paragraph (h)(3) would require WEREs and ESOs to provide annual skills checks to ensure that each team member and responder maintains proficiency in the skills and knowledge commensurate with the safe performance of expected duties and functions, based on the type and level of service(s) established in paragraphs (c) and (d) of this section. Initial training is important, but ongoing training or on-the-job performance is just as essential so that team members and responders can maintain proficiency.

OSHA is proposing annual skills checks based on that periodicity referenced in national consensus standards such as NFPA 600, NFPA 1500, and NFPA 1670; and other OSHA regulations, such as 29 CFR 1910.120 and 1910.134, and the existing 29 CFR 1910.156. Conducting periodic skills checks for team members and responders at least once a year (each twelve-month period) is important to ensure they maintain a minimum level of proficiency for safely performing their assigned duties. By conducting regular skills checks, organizations can identify any gaps in proficiency and provide additional training or resources as needed to enhance the capabilities of team members and responders.

OSHA recognizes that skill checks may be completed in different ways, and within the minimum annual period between skill checks the appropriate interval for additional skill checks varies with the nature of the skill in question. For instance, if a pumper operator regularly operates the vehicle, including pumping hose lines, routine observation may substitute for a separate skills check. However, an operator who has not operated the vehicle and pump for nine months may need a more formal skills check to ensure they can still perform the tasks safely even if they last passed a skills check eleven months earlier. In Question (h)–1, OSHA is seeking stakeholder input and data regarding the appropriate methods and interval(s) for skills checks.

Paragraph (i) WERE Facility Preparedness

Proposed paragraph (i) provides requirements to ensure that WERE facilities are safe for team members. Paragraph (i)(1)(i) of the proposed rule would require WEREs to ensure their facilities comply with 29 CFR part 1910, subpart E, Exit Routes and Emergency Planning. Note, however, that the various ERP plans and programs required by this proposed rule (*e.g.,* IAPs, RMPs, PIPs) are not ''emergency

action plans'' for purposes of 29 CFR 1910.38. This proposed provision is not a new requirement because WEREs are already required to comply with subpart E. It is included here to reinforce the concept that compliant means of egress, emergency lightning, exit marking, etc., are of the utmost importance during emergency situations, for all workers, but especially for team members because they spend more time in the dangerous situation. For instance, an obstructed aisle or hallway could interfere with removing a sick or injured non-team-member employee by means of a wheelchair or ambulance cot. That same obstructed aisle or hallway could delay firefighting team members in reaching a fire, thus allowing the fire to grow, further endangering the team members, or block their escape path if they need to evacuate due to deteriorating conditions.

Proposed paragraph (i)(1)(ii) would require WEREs to provide facilities for the decontamination, disinfection, cleaning, and storage of PPE and equipment. Cleaning and decontamination of PPE and equipment is an important step in reducing or preventing exposure to bloodborne pathogens, carcinogens, and other contaminants which can cause cancer and other illnesses in team members and responders. The proposed requirement would ensure that team members have a means to decontaminate, disinfect, and clean their PPE and equipment as needed and as required by proposed paragraph (k). These requirements are based on NFPA 1581, Standard on Fire Department Infection Control Program, 2022 ed., and NFPA 1851, Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting, 2020 ed. In Question (i)–1, OSHA seeks input regarding what WEREs are currently doing for decontamination, disinfection, cleaning, and storage of PPE and equipment, and whether OSHA should include any additional requirements for these processes in a final standard.

The manner of compliance with this provision could vary depending on a WERE's facility, the activities of the WERT, and the manufacturer's instructions for particular PPE and equipment. Some WEREs may provide a dedicated room or area with commercial style washing machines or extractors for PPE. Others may only provide facilities for basic cleaning and gross decontamination using a utility hose and brushes, a large sink with spray nozzle, appropriate cleaning chemicals and disinfectants, and drying racks. Alternatively, if PPE is to be decontaminated or disinfected at another location, such as an off-site commercial launderer, WEREs would need to provide for bagging and storage of contaminated PPE while it is still at the WERE facility, to prevent exposure to employees and team members, and prevent cross contamination with clean PPE.

Proposed paragraph (i)(1)(iii) would require the WERE to ensure that fire detection, suppression, and alarm systems, and occupant notification systems are installed, tested, and maintained in accordance with manufacturer's instructions and 29 CFR part 1910, subpart L—Fire Protection. WEREs are already required to comply with subpart L. Cross-referencing this provision in the proposed rule serves as a reminder to WEREs and reinforces the importance of these requirements in the context of a WERT, where proper operation of these systems during a fire emergency could affect the safety of team members.

Proposed paragraph (i)(2) would require the WERE to ensure fire hose connections and fittings are compatible with, or adapters are provided for, firefighting infrastructure such as fire hydrants, sprinkler system and standpipe system inlet connections, and fire hose valves (FHV), to facilitate prompt firefighting support from mutual aid WERTs and ESOs. A majority of fire hose fittings and connections, with varying diameters, use a standard hose screw thread dimension. However, there are other screw thread dimensions that are available and used for fire hose connections and fittings, including nonthreaded connections. While OSHA believes it would be advantageous to have uniformity of all screw threads, it is more important that the fitting diameters, screw threads, and nonthreaded connections at the facility are compatible with those used by the WERT(s) and ESO(s) who would potentially provide firefighting support. Any delay in providing needed fire suppression water to a sprinkler system or standpipe system could result in a fire spreading and thus endangering or further endangering team members (as well as other employees at the facility). Inability to connect hoses from a fire engine to the inlet connections due to noncompatible screw treads or fitting diameter would certainly cause a delay in providing needed fire suppression water.

OSHA's existing standard for standpipe and hose systems, 29 CFR 1910.158, requires standardized screw threads or adapters for hose connections (29 CFR 1910.158(c)(2)(ii)) for quick connection of fire hoses. The existing provision applies within the employer's facility but fails to take into consideration the need for potential support from mutual aid WERTs or ESOs. Additionally, the existing provision predates the development of nonthreaded connections for large diameter fire hoses, which are sometimes used for sprinkler and standpipe inlet connections and fire hydrant fittings. The proposed provision would ensure mutual aid WERTs and ESOs, as required by proposed paragraph (c)(8) of this section, could provide needed water supply without delay, thus reducing the potential risk to team members, non-team member employees, and responders.

To provide added clarity and as noted elsewhere in this preamble, OSHA proposes in this rulemaking to revise 29 CFR 1910.158, Standpipe and hose systems and 1910.159, Automatic sprinkler systems, to add a provision for system inlet fitting compatibility with, or adapters provided for, mutual aid WERTs and ESOs, consistent with paragraph (i)(2) of this proposed rule.

Proposed paragraph (i)(3) would require WEREs to identify the location of each fire hose valve (FHV) in a manner suitable to the location, such as with a sign, painted wall, or painted column, to ensure prompt access to FHVs. The proposed provision excludes FHVs that are clearly visible on standpipes in enclosed stairways. Compliance with this provision could be achieved by various methods including marking the location of each FHV with a sign, painted wall, painted column, or other suitable means that would ensure that each FHV is clearly visible, thus making the FHV easier to locate during an emergency. This approach is particularly important in facilities with large open areas, such as parking garages, plant manufacturing areas, and storage rack areas, where FHVs may otherwise be difficult to locate, especially during an emergency.

Paragraph (j) ESO Facility Preparedness

Many responders spend a significant amount of time in the workplace, often sleeping and eating meals there, because they are required to be at the ESO facility to respond to emergency incidents quickly. While responders expect to encounter hazards at an emergency incident, they may also become injured or ill from hazards they are exposed to in ESO facilities. Proposed paragraph (j) provides requirements to ensure that ESO facilities are safe for responders.

Proposed paragraph (j)(1)(i) states that the ESO must ensure each ESO facility complies with 29 CFR part 1910,

subpart E—Exit Routes and Emergency Planning. This proposed provision is not a new requirement because ESOs are already required to comply with subpart E. It is included here to emphasize the necessity of safe means of egress, emergency lightning, exit marking, etc., during emergency situations.

Proposed paragraph (j)(1)(ii) would require the ESO to provide facilities for decontamination, disinfection, cleaning, and storage of PPE and equipment. As discussed in *Need for the Standard,* responders are exposed to a variety of hazardous substances from contaminated PPE and equipment. Cleaning and decontamination of PPE and equipment are important steps in reducing or preventing exposure to carcinogens, infectious diseases, and other contaminants which can cause other illnesses. This provision also aids compliance with proposed paragraph (k)(2)(viii), which would require the ESO to ensure that protective ensembles, ensemble elements, and protective equipment are decontaminated, cleaned, cared for, inspected and maintained in accordance with the manufacturer's instructions (see the *Summary and Explanation* for paragraph (k)).

The manner of compliance with proposed paragraph (j)(1)(ii) would vary depending on an ESO's facility and manufacturers' instructions. However, basic cleaning and gross decontamination typically involves using a utility hose and brushes, a large sink with a spray nozzle, appropriate cleaning chemicals and disinfectants, and drying racks. Some ESOs may choose to install commercial-style washing machines or extractors for PPE. Alternatively, if PPE is to be decontaminated off-site, ESOs must provide for bagging and storage of contaminated PPE while it is still at the ESO facility.

The requirements proposed in paragraph (j)(1)(ii) are based on NFPA 1581, Standard on Fire Department Infection Control Program, 2022 ed., and NFPA 1851, Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting, 2020 ed.

Proposed paragraph (j)(1)(iii) would establish requirements for fire poles, slides, and chutes. Under proposed paragraph (j)(1)(iii)(A), the ESO would need to ensure each responder who uses a fire pole maintains contact with the pole using all four extremities and is not holding anything other than the pole. Sliding down the pole is essentially a controlled fall, and maintaining contact with all four extremities offers the best chance for responders to control their speed while descending the pole. Ensuring the responder does not hold anything while using the pole would help them focus on the importance of gripping the pole and would avoid potential distraction such as spilling a cup of coffee or dropping a handful of papers.

Proposed paragraph (j)(1)(iii)(B) would require the ESO to ensure that each fire pole has a landing cushion that is at least 30 inches in diameter, has a contrasting color to the surrounding floor, and has impact absorption to reduce the likelihood and severity of injury. The minimum diameter requirement is meant to accommodate responders of varying shapes and sizes. The contrasting color would enhance visibility to the potential tripping hazard on the floor. The landing cushion would also need to be made of a material with sufficient thickness to reduce the impact of a responder landing on the cushion.

Proposed paragraph (j)(1)(iii)(C) would require ESOs to ensure that each floor hole with a fire pole, chute, or slide that provides rapid access to a lower level is secured or protected in accordance with 29 CFR part 1910, subpart D—Walking-Working Surfaces to prevent unintended falls through the floor hole. Given the importance of these requirements in addressing the hazard posed by these floor openings in ESO facilities, OSHA believes it is important to remind ESOs of their obligations under subpart D to reinforce compliance.

The trend in the design and construction of new ESO facilities is to install slides, chutes, and stairs as an alternative to installing new fire poles. In Question (j)–1, OSHA seeks input whether the agency should consider prohibiting the installation of fire poles in new ESO facilities. In addition to supporting data, the agency seeks input on a potential phase-in period should a prohibition against new poles is included in the final rule.

Paragraph (j)(1)(iv) of the proposed rule would require the ESO to ensure that fire detection, suppression, and alarm systems, and occupant notification systems are installed, tested, and maintained in accordance with manufacturer's instructions and 29 part CFR 1910, subpart L—Fire Protection. Fire protection systems are important for protecting responders from the danger of fire in ESO facilities. They must function properly to provide protection. Following the manufacturer's instructions for installing, testing, and maintaining this equipment will help to provide this protection because the instructions are tailored to deal with the unique features of a particular manufacturer's equipment. The last part of this provision serves as a reminder to comply with subpart L, which contains specific requirements to ensure the effectiveness of various types of fire detection, suppression, and alarm systems.

Paragraph (j)(2) proposes requirements for protective measures for sleeping and living areas of ESO facilities, as defined in proposed paragraph (b) of this section. Proposed paragraph (j)(2)(i) would require the ESO to ensure that interconnected hard-wired smoke alarms with battery back-up are installed inside each sleeping area, and outside in the immediate vicinity of each opening (door) to a sleeping area, and on all levels of the facility, including basements. Smoke detectors that are integral to a fire alarm system would also satisfy this proposed provision. Smoke alarms and detectors provide early warning about the presence of smoke, thus alerting occupants to the hazard and need for evacuation before they are overcome by smoke inhalation and typically before the fire grows to the point of preventing escape.

Proposed paragraph (j)(2)(ii) would require the ESO to ensure that each new ESO facility with one or more sleeping area(s) is protected throughout by an automatic sprinkler system. This provision would apply to new facilities constructed (as determined by the date of building permit issuance) two years or more after the final rule is published. It has long been established that automatic sprinklers save lives. They provide containment or extinguishment of a fire, often before those endangered by the fire are aware of the fire, particularly for those who are asleep. Automatic sprinkler systems are routinely installed in many places where people sleep, such as hotels, motels, dormitories, apartment buildings, and single-family dwellings. OSHA believes it is important for ESOs to provide the same protection for responders. The proposed rule provides ample time for ESOs in the preliminary planning process of designing new facilities to include the installation of sprinklers. In Question (j)–2, OSHA seeks input on whether ESO facilities with sleeping facilities should be protected by automatic sprinkler systems.

Proposed paragraph (j)(2)(iii) would require the ESO to ensure that each sleeping and living area has functioning carbon monoxide alarms installed. Similar to smoke alarms/detectors, carbon monoxide alarms alert occupants

to the presence of the poisonous gas, thus allowing them to evacuate before they become incapacitated. The risk of carbon monoxide exposure may be high for responders because ESO vehicle engines are started and run inside of ESO facilities.

Proposed paragraph (j)(2)(iv) would require the ESO to prevent responder exposure to, and contamination of sleeping and living areas by, exhaust emissions. OSHA believes that compliance with this provision can be achieved by any of several means, including direct or source capture systems attached to vehicle exhaust pipes, automatic ventilation systems, positive air pressure in sleeping and living areas, self-closing doors with weather seals, and others.

Paragraph (j)(2)(v) of the proposed rule would require the ESO to ensure that contaminated PPE is not worn or stored in sleeping and living areas. This provision, in conjunction with proposed paragraphs (j)(1)(ii) (decontamination, disinfection, cleaning, and storage facilities) and (k)(2)(viii) (decontamination and cleaning of PPE), would ensure that responders are not unnecessarily exposed to contaminants in sleeping and living areas.

Paragraph (k) Equipment and PPE

Proposed paragraph (k) contains requirements related to the provision, maintenance, and use of equipment and PPE. Team members and responders rely on PPE to provide protection from and minimize exposure to various hazards they may encounter during emergency response activities that may cause injuries, illnesses, or fatalities. Team members and responders are routinely exposed to hazards such as sharp edges, falling and flying objects, extreme temperatures, bodily fluids, combustion products, and a broad range of other potential contaminants. They depend on PPE because many of the hazards they are exposed to cannot be abated by administrative or engineering controls (see, *e.g.,* § 1910.1000(e)).

To train for and perform their duties properly and safely, team members and responders depend on a wide variety of equipment, such as hoses and nozzles; ladders; saws; hand tools; hydraulic, pneumatic, and electric rescue tools; rope access and fall protection equipment; ambulance cots; stethoscopes and blood pressure cuffs; and oxygen delivery systems. In the proposed rule, OSHA uses the general term *equipment* to be inclusive. (Note: Vehicles used in emergency response are addressed in proposed paragraph (l)). Malfunctioning or inoperable equipment may cause injuries or delays in performing emergency services which could escalate the seriousness of the incident, posing a greater hazard to team members and responders.

Equipment and PPE are routinely exposed to various contaminants and combustion products on emergency incident scenes. Decontamination reduces exposure of team members and responders to the detrimental health effects related to contaminants and combustion products. Many of the provisions in proposed paragraph (k) are based on, or consistent with, NFPA 1500.

Proposed paragraph (k)(1)(i) would require that each WERE and ESO provide or otherwise ensure access to the equipment that team members and responders need to train for and safely perform emergency services, based on the type and level of service(s) that the individual WERE or ESO has established in accordance with proposed paragraphs (c) and (d). The equipment must be provided at no cost to team members or responders. The provision states ''provide . . . or ensure access to'' because WEREs and ESOs may have their own training equipment for tasks they frequently perform, but may depend on a centralized cache of equipment, other WEREs or ESOs, or a training facility for other equipment. For example, all team members and responders would need to be trained to perform cardiopulmonary resuscitation (CPR) and in the use of an automatic external defibrillator (AED) as proposed in paragraph (h). The training for these skills typically uses a CPR manikin and a training model AED. Since this equipment is not frequently used, OSHA believes that instead of purchasing their own training equipment, some WEREs and ESOs would ensure team members and responders have access to the equipment from another source.

Employers are already required to provide necessary PPE at no cost to employees under OSHA's general PPE requirements, 29 CFR 1910.134(h). Proposed paragraph (k)(1)(i) reiterates this requirement and makes clear that non-PPE equipment needed to train for and safely perform emergency services must also be provided at no cost to team members and responders. This requirement is consistent with OSHA's longstanding position that ''[t]he OSH Act requires employers to pay for the means necessary to create a safe and healthful work environment'' (Employer Payment for Personal Protective Equipment, 72 FR 64342, 64344 (Nov. 15, 2007)).

Paragraph (k)(1)(ii) of the proposed rule would require that each WERE and ESO ensure that newly purchased or acquired equipment is safe for use in the manner the WERE or ESO intends to use it. ''Newly purchased or acquired'' means purchased or acquired after the effective date of any final rule that would result from this rulemaking. Often, when WEREs and ESOs purchase or obtain new(er) equipment, they donate or sell their older equipment to other WEREs or ESOs. This provision would require the receiving WERE and ESO to ensure that the equipment received is safe for use prior to utilizing the equipment. Under proposed paragraphs (k)(1)(iii), each WERE and ESO would be required to inspect, maintain, functionally test, and service test equipment at least annually, in accordance with the manufacturer's instructions and industry practices, and as necessary to ensure equipment is in safe working order. Functional testing and service testing are different in that functional testing is performed by using and observing the equipment as it would normally be used. Service testing involves following specific procedures and evaluating test criteria, such as hydrostatic testing of SCBA air cylinders and flow testing SCBA regulators. Proper inspection, maintenance, and testing are necessary to ensure equipment is in proper, safe, working order and ready for use by team members and responders. Many pieces of equipment, such as hand tools, ladders, and rope rescue equipment, would be inspected after each use, and some would only require annual service testing. The manufacturer's instructions are the best source of information about inspection frequency and appropriate maintenance and testing. However, if a WERE or ESO has reason to believe a piece of equipment may not be in safe working order, that equipment would need to be inspected and tested immediately or removed from service, regardless of the inspection frequency recommended by the manufacturer. Paragraph (k)(1)(iv) of the proposed rule would require that each WERE and ESO immediately remove from service any equipment found to be defective or in an unserviceable condition. Equipment that is defective or that is not ready or able to be used safely poses a hazard to team members and responders. The equipment would need to be immediately removed from service to prevent potential injuries to team members and responders. Once repaired to a safe operational condition, the equipment could be returned to service for use.

In proposed paragraph (k)(2)(i), each WERE and ESO would be required to

conduct a PPE hazard assessment for the selection of the protective ensemble, ensemble elements, and other protective equipment for team members and responders. WEREs and ESOs would evaluate their facilities or communities to determine what hazards their team members and responders could be exposed to and what PPE they would need to be protected during an emergency incident, based on the type and level of service established under paragraphs (c) and (d) of this section. Potential hazards requiring PPE could be acute (such as fire) or longer-term (such as exposure to carcinogens) and a comprehensive hazard assessment would identify hazards in both categories. Examples of ensemble elements include gloves, safety glasses and goggles, safety shoes and boots, earplugs and muffs, hard hats and helmets, respirators and Self-Contained Breathing Apparatus (SCBA), protective coats and pants, hoods, coveralls, vests, and full body suits.

Paragraph (k)(2)(ii) of the proposed rule would require that each WERE and ESO provide team members and responders with properly fitting protective ensembles, ensemble elements, and protective equipment designed to provide protection from hazards to which they are likely to be exposed and suitable for the tasks they are expected to perform, as determined by the PPE hazard assessment conducted under paragraph (k)(2)(i). It is OSHA's position that ''properly fits'' means the PPE is the appropriate size to provide the team member or responder with the necessary protection from hazards and does not create additional safety and health hazards arising from being either too small or too large. As with the equipment required by proposed paragraph (k)(1), all required PPE would need to be provided at no cost to team members and responders.

Proposed paragraph (k)(2)(iii) would require that each WERE and ESO ensure that PPE complies with 29 CFR part 1910, subpart I, Personal Protective Equipment. This provision makes clear that the specific PPE requirements in the proposed standard supplement, but do not replace, OSHA's existing PPE requirements. Because most exposures to hazards on emergency incident scenes cannot be abated by administrative or engineering controls, it is particularly important that team members and responders have appropriate PPE to perform their jobs safely. OSHA's existing PPE standard contains important requirements regarding selection of PPE, employee training, and fit testing, among other requirements, that ensure PPE is effective.

Proposed paragraph (k)(2)(iv) would require the WERE and ESO to ensure that existing PPE complies with the requirements of the edition of the respective standard, listed in proposed (k)(2)(v), in effect when the PPE was manufactured. Manufacturers of compliant PPE typically include a tag or label in or on the PPE that indicates the standard to which it was manufactured.

Proposed paragraph (k)(2)(v) lists the PPE-related national consensus standards that the WERE and ESO would need to follow where applicable. These standards represent industry consensus regarding the proper means of selecting, using, and maintaining specific types of PPE. Compliance with these consensus standards ensures that the relevant PPE serves its intended purpose and effectively protects team members and responders. The standards are proposed to be incorporated by reference as noted in section II.C., *National Consensus Standards.* These national consensus standards are as follows:

(A) NFPA 1951, Standard on Protective Ensembles for Technical Rescue Incidents, 2020 ed.;

(B) NFPA 1952, Standard on Surface Water Operations Protective Clothing and Equipment, 2021 ed.;

(C) NFPA 1953, Standard on Protective Ensembles for Contaminated Water Diving, 2021 ed.;

(D) NFPA 1971, Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting, 2018 ed.;

(E) NFPA 1977, Standard on Protective Clothing and Equipment for Wildland Fire Fighting and Urban Interface Fire Fighting, 2022 ed.;

(F) NFPA 1981, Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services, 2019 ed.;

(G) NFPA 1982, Standard on Personal Alert Safety Systems (PASS), 2018 ed.;

(H) NFPA 1984, Standards on Respirators for Wildland Fire-Fighting Operations and Wildland Urban Interface Operations, 2022 ed.;

(I) NFPA 1986, Standard on Respiratory Protection for Tactical and technical Operations, 2023 ed.;

(J) NFPA 1987, Standard on Combination Unit Respirator Systems for Tactical and Technical Operations, 2023 ed.;

(K) NFPA 1990, Standard on Protective Ensembles for Hazardous Materials and CBRN Operations, 2022 ed.;

(L) NFPA 1999, Standard on Protective Clothing and Ensembles for Emergency Medical Operations, 2018 ed.; and

(M) ANSI/ISEA 207, American National Standard for High-Visibility Public Safety Vests, 2011 ed.

Proposed paragraph (k)(2)(vi) would require each WERE and ESO to ensure that air-purifying respirators are not used in atmospheres that are immediately dangerous to life and health (IDLH), as defined in paragraph (b), and are only used for those contaminants that NIOSH certifies them against. Air-purifying respirators are ineffective in IDLH atmospheres because they do not provide protection from the inhalation of gases and vapors, particularly the superheated gases present during fires. They are, however, appropriate for use by team members and responders performing duties such as post-fire overhaul, fire investigation, collapsed building search and rescue, trench/excavation rescue when exposure to respirable crystalline silica is possible, and for emergency medical operations where an airborne infectious disease is known or suspected to be present.

Proposed paragraph (k)(2)(vii) would require that each WERE and ESO ensure that each team member and responder properly uses or wears the protective ensemble, ensemble elements, and protective equipment whenever the team member or responder is exposed, or potentially exposed to the hazards for which it is provided. PPE is effective only when it is worn and used properly. This provision makes clear that the WERE or ESO is not only responsible for providing required PPE and equipment, but must also ensure that they are used whenever exposure to the hazard for which they are provided is reasonably foreseeable.

Paragraph (k)(2)(viii) of the proposed rule would require that each WERE and ESO ensure that protective ensembles, ensemble elements, and protective equipment are decontaminated, cleaned, cared for, inspected and maintained in accordance with the manufacturer's instructions. Proper care and maintenance ensure the PPE will perform as designed. Cleaning and decontaminating ensure that team members and responders are not exposed to carcinogens and pathogens from their PPE. Cleaning, care, and maintenance consistent with this paragraph would include appropriate inspection and testing of the PPE to ensure that it continues to function and protect as it was designed.

During the 2021 SBREFA process, some SERs expressed concern over the PPE retirement schedule in NFPA 1851, Standard on Selection, Care, and

Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting (Document ID 0115, pp. 13–14), which calls for PPE to be retired ten years after the date of manufacture. OSHA recognizes that there are users with concerns that there may be a gap in the scientific evidence on whether PPE aged beyond the retirement schedule published in NFPA 1851 is incapable of providing the designed protection level, regardless of the amount of use. Additionally, OSHA recognizes that older PPE may still be of use for activities where the primary protective properties of the PPE are not needed, for example for some exterior activities on fire scenes, during some training scenarios, and firefighting PPE used for identification and for protection against sharp edges at vehicle accident scenes. However, there is concern that older PPE could be used in situations where it is no longer able to provide the needed protection. In the proposed rule, OSHA is not proposing specific retirement age criteria for any PPE, and instead requires that PPE be cared for and maintained in accordance with manufacturer's instructions. OSHA is seeking input in Question (k)–1 on whether the agency should specify retirement age(s) for PPE.

Paragraph (k)(2)(ix) of the proposed rule would require each WERE and ESO to immediately remove from service any defective or damaged protective ensembles, ensemble elements, or protective equipment. Defective or damaged PPE is not protective and could expose team members and responders to the hazards that the PPE is supposed to be protecting against.

Proposed paragraph (k)(2)(x) would require that when a WERE or ESO permits a team member or responder to provide their own protective ensemble, ensemble element, or other protective equipment for personal use, the requirements of paragraphs (k)(2)(iii) through (ix) of this section are met. Some WEREs and ESOs permit their team members and responders to provide and use their own protective equipment. The proposed provision would require that, to ensure safety and health protections, team member or responder-provided PPE meet the same requirements as that provided by the WERE and ESO. OSHA emphasizes that the use of team member or responder-provided PPE and protective equipment must be truly voluntary. As discussed above, the WERE or ESO possesses primary responsibility for ensuring necessary PPE and equipment is provided at no cost to team members or responders.

Finally, paragraph (k)(3) of the proposed rule addresses protection from contaminants. Paragraph (k)(3)(i) would require that, to the extent feasible, each WERE and ESO ensure that contaminated PPE and non-PPE equipment undergo gross decontamination or are separately contained before leaving the incident scene. Paragraph (k)(3)(ii) would require that, to the extent feasible, team members and responders are not exposed to contaminated PPE and non-PPE equipment in the passenger compartment(s) of vehicles. Decontaminating these items as soon as possible after an incident is an important step in protecting team members and responders from contaminants. It is preferable to perform gross decontamination of PPE and non-PPE equipment before the team member or responder leaves the incident scene. Gross decontamination is defined in paragraph (b) of this section. Examples include rinsing with a hose to reduce or dilute liquid contaminants, or rinsing and brushing to displace solid particulate matter. At times it may not be possible to gross decontaminate equipment at the scene due to weather or other operational considerations. In these situations, to the extent feasible the contaminated PPE or non-PPE equipment should be separated from team members and responders by bagging the contaminated PPE or non-PPE equipment, or separating it by some other physical means, such as storing it in an equipment compartment outside of the vehicle seating area(s). OSHA is seeking input in Question (k)–2 regarding whether and how WEREs and ESOs currently provide this type of separation.

As discussed in section II.A., *Need for the Standard,* exposure to contaminated PPE has been identified as one of the many ways in which team members and responders have been exposed to carcinogens. Beginning the decontamination process at the incident scene and separating contaminated PPE from the team members and responders after the incident have been shown to reduce or eliminate many of these exposures. Full decontamination of PPE by removing or neutralizing contaminants by a mechanical, chemical, thermal, or combined process should occur as soon as operational requirements allow in accordance with the standard operating procedures required by proposed paragraph (q) (see the summary and explanation for paragraph (q), Standard Operating Procedures).

According to the U.S. Environmental Protection Agency (EPA), per- and polyfluorinated substances (PFAS) are widely used, long-lasting chemicals found in many different consumer, commercial, and industrial products. (Further information regarding PFAS is available at: *https://www.epa.gov/pfas/pfas-explained*.) EPA says there are thousands of PFAS chemicals and because of their widespread use and persistence in the environment, they are found in low levels in a variety of food products, water sources, and the environment. PFAS are found in the blood of some people and animals all around the world. OSHA is aware of the emerging concern of PFAS, their carcinogenicities, and potential exposure to firefighters from PFAS in some firefighting foam and firefighting PPE. While current information leans towards ingestion being the most common mode of exposure to PFAS, such as drinking water contaminated with it, concerns have been raised about other modes of exposure.

Performance testing requirements in NFPA 1971, 2018 ed. resulted in firefighting PPE manufacturers using PFAS in their products. OSHA is also aware that manufacturers of firefighting foams and PPE are considering options for reducing or eliminating the use of PFAS in their products. OSHA seeks information in Question (k)–3 whether there is evidence of PFAS in PPE causing health issues for team members and responders. NFPA routinely updates their standards. OSHA seeks information in Question (k)–4 whether NFPA's future standard update(s) will address or alleviate stakeholder's concerns.

Paragraph (l) Vehicle Preparedness and Operation

Paragraph (l) of the proposed rule establishes requirements for vehicle safety both in preparation of and during operation in both emergency and non-emergency incidents. Many team members and responders are injured and killed in vehicle-related incidents and collisions, as discussed in section II.A.I. *Fatality and Injury Analysis.*

Some are due to poor or improper vehicle maintenance or repair, or the manner that the vehicles are operated. Others are a result of improper or lack of use of seat belts and restraints as designed and intended. The controls in paragraph (l) are aimed at mitigating these hazards.

While not defined in the proposed rule, OSHA intends for the term vehicle to include any device used to transport responders and team members while performing their duties. This covers a broad range of modes of conveyance for transporting a person or people by land,

water, or air. Examples include bicycles, motorcycles, snowmobiles, golf carts, utility carts, cars, trucks, buses, ambulances, watercraft, and aircraft.

Proposed paragraph (l)(1) would ensure that vehicles are prepared for safe use by team members and responders. Paragraph (l)(1)(i) of the proposal would require the WERE or ESO to ensure that each vehicle provided by the WERE or ESO and driven or operated by team members or responders be inspected, maintained, and repaired in accordance with the manufacturer's instructions. Inspection and maintenance schedules can vary widely based on the type of vehicle and the nature of the inspection or maintenance. WEREs and ESOs may choose to conduct more frequent inspections and maintenance, based on the type of vehicle and the amount of use. A robust vehicle inspection, maintenance, and repair program ensures vehicle safety.

Proposed paragraph (l)(1)(ii) would require the WERE or ESO to ensure that vehicles are immediately removed from service when safety deficiencies are discovered. Once properly repaired the vehicle could be returned to service. Deficiencies could be discovered by team members and responders during the inspection performed in accordance with paragraph (l)(1)(i) or at times such as when being driven or operated, or during normal daily activities. Examples include a bird strike on the windshield that affects the driver's visibility, a missing or broken windshield wiper during inclement weather, the driver's seat belt not functioning properly, a door not latching closed properly, loose or missing lug nuts, brakes not functioning properly, a cot retention mechanism not latching, and no heat or air conditioning in the patient transport compartment. Manufacturers' instructions and guidance from national consensus standards such as NFPA 1910, 2024 ed., offer a broad range of examples of potential deficiencies. When a safety-related deficiency is identified, the vehicle would be required to be taken out of service as soon as possible.

Some SERs expressed concern that OSHA would adopt the vehicle replacement schedule recommended in NFPA 1910, Standard for Inspection, Maintenance, Refurbishment, Testing, and Retirement of In-Service Emergency Vehicles and Marine Firefighting Vessels, 2024 ed. (Document ID 0115, pp. 19–20, 30). OSHA recognizes that there are many variables related to the amount of use and conditions of operation for the wide variety of vehicles used by team members and responders that can affect the safe working life of a particular vehicle and firm deadlines for retiring vehicles may result in costly and unwarranted replacement. Given this variability, OSHA is not proposing particular timeframes for vehicle replacement. Instead, the proposed rule requires that vehicles be inspected, maintained, and repaired as specified by the manufacturer and that any vehicle with a safety-related deficiency be immediately removed from service.

Paragraph (l)(1)(iii) of the proposed rule would require the WERE or ESO to ensure that each vehicle is provided with a seat for each riding position, and each riding position is provided with a functioning seat belt or vehicle safety harness that is designed to accommodate a team member or responder with and without heavy clothing, unless the vehicle is designed, built, and intended for use without seat belts or vehicle safety harnesses. The seat belts and vehicle safety harnesses would need to accommodate a team member or responder wearing a duty uniform or other daily apparel or heavy clothing, such as a winter coat or firefighting PPE. The benefits of seatbelts and vehicle safety harnesses in preventing and reducing injuries and fatalities are well known. A vehicle safety harness would be used in place of a seatbelt, typically in a patient transport vehicle where the EMS provider needs access to treat a patient that would not be possible while using a seatbelt. Team members and responders would be required to use the seats, seatbelts, and vehicle safety harnesses as specified in proposed paragraph (l)(2) of this section.

OSHA realizes that many types of vehicles used by team members and responders are designed, built, and intended for use without seatbelts or vehicle safety harnesses. Examples include some All-Terrain Vehicles, passenger seats in buses, bicycles, motorcycles, snowmobiles, boats, and personal watercraft. Such vehicles are exempted from the requirements in paragraph (1)(1)(iii).

Proposed paragraphs (l)(1)(iv) and (v) would require the WERE or ESO to ensure that vehicles with aerial devices and vehicles with vehicle-mounted water pumps be inspected, maintained, and service tested in accordance with the manufacturer's instructions or in a manner at least equivalent to the criteria specified in NFPA 1910, 2024 ed. The testing and maintenance program specified in the manufacturer's instructions and the consensus standard are recognized as the most effective programs to ensure the safety of these devices. Failure to inspect and maintain an aerial device could result in serious injuries or fatalities should a catastrophic failure occur when the device is elevated or extended. Water provided through vehicle mounted pumps is needed for fire suppression. Team members and responders depend on the water to protect them when they are in close proximity to a fire. They could be injured or killed if a pump were to malfunction or breakdown due to inadequate maintenance. Service testing ensures that aerial devices and pumps are functioning properly.

Proposed paragraph (l)(2) would ensure vehicles are driven and operated in a manner that would keep team members and responders safe. While the primary focus of this provision is for the safety of team members and responders, it would also have the effect of protecting the public such as other drivers on the road and their passengers, bystanders, and patients being transported by EMS providers.

Proposed paragraph (l)(2)(i) would require the WERE and ESO to ensure that each vehicle is operated by a team member or responder who has successfully completed an operator training program commensurate with the type of vehicle the team member or responder will operate, or by a trainee operator who is under the supervision of a qualified operator. Operators of vehicles would have to be adequately trained, or in the process of being trained, to operate the vehicle. An untrained or inadequately trained operator poses a safety hazard to team members and responders riding in the vehicle, to operators of other vehicles, and to bystanders.

Proposed paragraph (l)(2)(ii) would require the WERE or ESO to ensure that each vehicle is driven or operated in accordance with the standard operating procedures (SOP) developed in proposed paragraph (q)(2)(iv) (see the Summary and Explanation for paragraph (q)). The proposed SOP provision includes several safety-related topics that are key to safe vehicle operation. Paragraph (l)(2)(ii) requires the WERE or ESO to ensure that these important procedures are not only established but that they are understood and followed by team members and responders.

Paragraphs (l)(2)(iii) and (iv) are aimed at protecting team members and responders both during the normal operation of the vehicle and in the event of an accident. Paragraph (l)(2)(iii) would require that the WERE or ESO ensure the team member or responder operating the vehicle does not move the vehicle until all team members or

responders in or on the vehicle are seated and secured with seat belts or vehicle safety harnesses in approved riding positions, except for vehicles without seat belts and vehicle safety harnesses as noted in proposed paragraph (l)(1)(iii), or as provided in proposed paragraph (l)(2)(viii). The proposed provision anticipates that the driver or operator would verify with team members and responders that they are safely secured in an appropriate position or are otherwise prepared for vehicle movement. In Question (l)–1 OSHA is interested in getting information on whether there are any other situations or vehicles where OSHA should require, or exclude, the use of seat belts and vehicle harnesses? If so, please explain.

Whereas proposed paragraph (l)(2)(iii) would ensure team members and responders are ready for the vehicle to move, proposed paragraph (l)(2)(iv) would require the WERE or ESO to ensure they remain seated and secured any time that the vehicle is in motion and ensure seat belts and vehicle safety harnesses are not released or loosened for any purpose while the vehicle is in motion, including the donning (putting on) or doffing (taking off) of PPE.

When dispatched to an incident from the WERE or ESO facility, OSHA anticipates team members and responders would don PPE before being seated and secured, as required by proposed paragraph (l)(2)(iii). However, there are often occurrences when team members and responders are not wearing PPE while the vehicle is moving, such as for driver training, community assessment and familiarity, and other non-response driving situations, and they are dispatched to respond to an incident that requires donning PPE. The proposed provision requires that they not release or loosen seat belts or vehicle safety harnesses to don PPE when the vehicle is moving. Conversely, if the PPE has already been donned, the proposed provision prohibits the loosening of seat belts or vehicle safety harnesses to doff the PPE when the PPE is no longer needed, such as when the response is terminated. Question (l)–2 asks how would compliance be achieved? Would the team members or responders stop enroute or wait until arrival at the scene?

Paragraph (l)(2)(v) of the proposed rule would require the WERE or ESO to ensure that team members and responders actively performing necessary emergency medical care while the vehicle is in motion are secured to the vehicle by a seat belt, or by a vehicle safety harness designed for occupant restraint, to the extent consistent with the effective provision of such emergency medical care. Restraining EMS providers who are providing care during transport reduces the likelihood of serious injury or death, should the vehicle make abrupt turns, stops, or starts; or become involved in a collision or rollover. In Question (l)–(3), OSHA is seeking input on whether it should also require that the patient be restrained to prevent an unrestrained patient from being thrown into a team member or responder in the event of a vehicle collision or an evasive driving maneuver?

Proposed paragraph (l)(2)(vi) would require the WERE or ESO to ensure that the establishment and implementation of a procedure for driver training on vehicles with tiller steering that ensures when the instructor and trainee are both located at the tiller position, they are both adequately secured to the vehicle whenever it is in motion.

Tractor-drawn aerial (TDA) ladder trucks, and tractor-drawn heavy duty and technical rescue vehicles, are unique in that they are required to have two operators; the main driver in the front, similar to other tractor-trailer trucks, and a second (tiller) operator who steers the wheels at the rear end of the trailer. They are also unique in that there is no passenger seat for the tiller instructor to sit in, as there would be when training the main driver at the front of the truck.

Some manufacturers provide a detachable seat with a seat belt for the instructor to use. There are other options for compliance including the use of a vehicle safety harness with a designated anchor point that has sufficient strength to support a fallen team member or responder and is not just an ordinary handhold/grab rail.

OSHA recognizes that boats are vehicles subject to the proposed standard, and some boats have tiller steering. However, this proposed provision would not apply to boats with tiller steering because they are designed, built, and intended for use without seat belts or vehicle safety harnesses, as noted in the discussion above regarding proposed paragraph (l)(1)(iii) of this section.

Paragraph (l)(2)(vii) of the proposed rule would require the WERE or ESO to ensure that a vehicle safety harness designed for occupant restraint is provided to secure the team member or responder in a designated stand-up position during pump-and-roll operations. While manufacturers have typically phased out stand-up positions on newer models, many older model vehicles used for wildland or wildland urban interface firefighting have designated stand-up positions for operating the water delivery systems. Stand-up positions pose a fall hazard to team members and responders if they are not restrained.

Proposed paragraph (l)(2)(viii) would require the WERE or ESO to ensure that policies and procedures are established and implemented for ensuring the safety of team members and responders when it is determined that it is not feasible for each team member, responder, or person to be belted in a seat. Examples include when moving the vehicle while reloading long lays of hose, standing as honor guards during a funeral procession, transporting people acting as holiday figures or other characters or mascots (*e.g.,* Santa Claus, Easter Bunny, Smokey Bear, Superman, etc.), during parades, and for vehicles without seatbelts as noted in proposed paragraph (l)(1)(iii) of this section. The policies and procedures would differ depending upon the type of vehicle and activity taking place. OSHA anticipates a variety of alternatives for compliance such as the use of ladder belts, harnesses, or other fall protection, and limitations on the speed vehicles may travel.

When an emergency incident occurs, some WEREs and many ESOs depend on team members or responders driving to their facilities to provide staffing for emergency response vehicles, or to respond directly to the incident scene to provide emergency services. In these instances, as noted in section VII., *Preliminary Economic Analysis and Initial Regulatory Flexibility Analysis,* some team members and responders are injured and killed while responding in privately owned vehicles (POVs). OSHA is including requirements in the proposed rule to address this hazard.

Proposed paragraph (l)(2)(ix) would require the WERE or ESO to ensure that policies and procedures are established and implemented for team members and responders who, when alerted of an emergency incident, are authorized by the WERE or ESO to respond in vehicles not under the direct control of the WERE or ESO to the emergency incident scene or to the WERE facility. Such vehicles are those that are, for example, privately owned, leased, rented, or otherwise under the control of the team member or responder (including on-loan from a friend or family member).

Some WEREs and ESOs depend on ''home response'' by team members and responders. In other words, team members are at home or otherwise on personal time, and directly respond in their POV to the incident location or to the WERE or ESO facility when alerted

of an emergency incident. This response is typically time-sensitive, requiring the team member or responder to travel with haste, often while communicating and coordinating with the WERE, ESO, or other team members or responders. This scenario presents hazards that are directly related to emergency response activities. As such, OSHA does not consider this sort of home response to be a commute to the workplace as described in 29 CFR 1904.5(b)(2)(vii), which is not treated as work-related for purposes of recordkeeping and injury and illness reporting requirements under 29 CFR part 1904. Rather, OSHA intends to cover these types of home responses under the proposed standard. Under the proposal, the WERE's or ESO's procedures for use of POV vehicles in these circumstances would need to include the same elements as those for driving their emergency vehicles, including requirements for wearing seatbelts, speed limits, stopping and proceeding at traffic control devices, passing other vehicles, and the use of warning lights and signals.

Paragraph (l)(2)(x) proposes to require the WERE or ESO to ensure that, where tools, equipment, and respiratory equipment are carried within enclosed seating areas of vehicles, each is secured either by an effective mechanical means of holding the item in its stowed position or by placement in a compartment with an effective latching mechanism. This would ensure that these items do not become flying projectiles that could injure team members and responders should the vehicle be involved in a collision or roll-over.

Paragraph (m) WERE Pre-Incident Planning

Pre-incident plans (PIPs) help team members effectively manage incidents and maximize the protection of team members as well as facility employees and the facility. PIPs provide critical information to team members that can guide their response to an emergency incident. PIPs typically include maps of the facility and diagrams and drawings, along with the designation of predetermined locations for emergency vehicle positioning during an incident. An accurate, up-to-date PIP is a valuable tool for assisting team members with safe and effective mitigation of incidents.

Under paragraph (m)(1) of the proposed rule, the WERE would be required to develop PIPs for locations within the facility where team members may be called to provide service. The PIPS are based on the facility vulnerability assessment and the type(s) and level(s) of service(s) established in paragraph (c) of this section. The facility and vulnerability assessment would identify the locations and processes in the facility where WERT services are likely to be needed.

Proposed paragraph (m)(2) would require the WERE to include in the PIP(s) the locations of unusual hazards that team members may encounter, such as storage and use of flammable liquids and gases, explosives, toxic and biological agents, radioactive sources, water-reactive substances, permit-required confined spaces, and hazardous processes. Unusual hazards are those hazards that are particularly dangerous to the health and safety of team members when carrying out their activities on the WERT. Including them in the PIP provides team members with notice of their presence and thus allows team members to prepare for them and to take appropriate action during emergency situations.

Proposed paragraph (m)(3) would require that the WERE include in the PIPs the locations of fire pumps, fire hose valves, control valves, control panels, and other equipment for fire suppression systems, fire detection and alarm systems, and smoke control and evacuations systems. During an emergency, team members need quick access to built-in protective systems, equipment, and components. Including their locations in the PIPs makes it easier for team members to find these items when needed. PIPs may also be used in training situations for familiarizing team members with the facility layout and locations of the important items specified in the proposed provision.

Under paragraph (m)(4) of the proposed rule, the WERE would ensure that the most recent versions of PIPs are provided to the WERT and are accessible and available to team members operating at emergency incidents. To be useful, PIPs must be accessible to responding team members, especially the incident commander. PIPs should also be made available as a training tool.

Proposed paragraph (m)(5) would require the WERE, to the extent feasible, to include in PIPs the actions to be taken by team members if the scope of the incident is beyond the capability of the WERT. For example, a PIP that includes the location of an unusual hazard that the WERT is not trained for might indicate that team members must remain a safe distance from the area, ensure facility workers are being evacuated, and summon mutual aid to mitigate the incident. Including these procedures in the PIP ensures that team members know the steps to take when faced with unusual hazards that are beyond their capability. It also helps to ensure team members do not expose themselves to hazards they are unequipped to handle by articulating the expectation in the event of such a hazard.

Paragraph (m)(6) would require that WEREs review PIPs annually and when conditions or hazards change at the facility. They shall be updated as needed. To be useful, PIPs must be up to date. OSHA believes that requiring the WERE to review PIPs when condition or hazards change and at least annually is sufficient to ensure the WERE identifies deficiencies in the PIP and keeps it up to date. The requirement ensures the WERE addresses known changes that might affect the WERT in a timely manner while the annual review allows the WERE to identify small changes that may have been overlooked since the past review. For example, the WERE would know when significant changes are made to the facility, such as building renovations and additions. This knowledge would prompt an update of the PIP as soon as reasonably possible. A smaller change, such as the relocation of bottled gas storage from one room to another, is something that might be identified during an annual review of the PIPs and appropriate updates would then be made.

Paragraph (n) ESO Pre-Incident Planning

Pre-incident plans (PIPs) help responders effectively manage incidents and maximize the protection of responders by planning in advance. Also, PIPs provide critical information to responders that can guide their response to an emergency incident. PIPs typically include maps of the subject facility, and diagrams and drawings, along with designation of predetermined locations for emergency vehicle positioning during an incident. The provisions in proposed paragraph (n) are based on the pre-incident planning paragraphs in NFPA 1660, Standard for Emergency, Continuity, and Crisis Management: Preparedness, Response, and Recovery, 2024 ed. While not required by the proposed rule, ESOs would benefit from using a standard form and format for PIPs for ease of use by incident commanders (IC) and other responders during an incident.

Under paragraphs (n)(1) and (2) of the proposed rule, the ESO would be required to determine the locations and facilities where responders may be called to provide services that need a PIP, based on the community or facility

vulnerability assessment and the type(s) and level(s) of service(s) established in paragraph (d), and develop PIPs for facilities, locations, and infrastructure where emergency incidents may occur. The proposed rule does not require a PIP for every incident imaginable. Rather, through the community or facility vulnerability assessment, the ESO must identify structures, facilities, and other locations where a PIP would help the ESO prepare for an incident, and then assist the IC with the development of the IAP in paragraph (p)(2)(vi).

ESOs should prioritize PIP development according to the type and magnitude of the potential incident. Hazards to life and health are of the utmost importance and would have the highest priority in creating PIPs. Likewise, the larger or more complex a structure or facility is, the greater the risk in mitigating an emergency incident at these places and therefore the need for a PIP would also be greater.

Proposed paragraph (n)(3) would require the ESO to prepare a PIP for each facility within the ESO's primary response area that is subject to reporting requirements under 40 CFR part 355 pursuant to the Emergency Planning and Community Right-to-Know Act (EPCRA) (also referred to as the Superfund Amendments and Reauthorization Act of 1986 (SARA)), 42 U.S.C. 11001 *et seq.* These types of facilities are particularly hazardous because they involve hazardous chemicals, and PIPs are necessary to ensure ESOs are sufficiently prepared to respond to incidents at these facilities. Additionally, these facilities may not have a WERT organized to mitigate emergencies, or the size and scope of the emergency may be beyond the WERT's capabilities.

Under proposed paragraph (n)(4), the ESO would need to ensure that, when preparing a PIP for a facility, the facility personnel the ESO consults are knowledgeable about the facility's use, contents, processes, hazards, and occupants. It is important that all potential hazards are identified to responders preparing PIPs, so it is important that the facility personnel assisting with the PIP development have thorough knowledge of the facility. It may be necessary to consult with more than one facility representative to ensure that all the necessary information needed for the PIP is accurately conveyed. While preparing the PIP, the responder may be provided access to information, materials, or processes that are considered proprietary business information. A note to proposed paragraph (n)(4) recommends that the ESO develop a policy for protecting this information.

Paragraph (n)(5) of the proposed rule would require that the ESO ensure that the responders responsible for PIP preparation know how to identify the information to be collected and included in the PIP. The PIP is only as good as the information contained in it. For instance, all necessary facility information must be recorded, items of concern must be noted, and accurate sketches or diagrams must be prepared.

Proposed paragraph (n)(6) would require the ESO to ensure that PIPs have a level of detail commensurate with the facility's complexity and hazards. PIPs for facilities which are not complex can be developed with minimal amounts of data. However, additional data are required for more complex facilities with more hazards. For example, the PIP for a multi-story high school would be expected to be more complex than the PIP for a fast-food restaurant. Regardless of facility complexity, the PIP details should be presented as concisely as possible to make them easily understandable to the appropriate responders.

Paragraph (n)(7) of the proposed rule would require the ESO to ensure that PIPs include actions to be taken by responders if the scope of an incident is beyond the capacity of the ESO. The PIP would be developed with an understanding of the ESO's response capability based on the type(s) and level(s) of service established in paragraph (d), and this provision would require planning for what to do if the ESO encounters an incident that exceeds that response capability. For example, the PIP might include what mutual aid ESO or skilled support resources would be needed. The PIP would also describe action(s) the ESO would take, such as establishing defensive firefighting positions, establishing no-entry zones, ensuring surrounding areas are evacuated, etc. In some situations, the appropriate action might be simply to pull back all responders to a safe distance away from the hazard.

Under proposed paragraph (n)(8), the ESO must ensure that the most recent PIPs are disseminated as needed and are accessible and available to responders operating at emergency incidents. OSHA is aware that some ESOs use electronic versions of PIPs in a database, while others use hardcopies kept in binders in response vehicles. Any method that ensures the PIPs are accessible and available would comply with the provision. PIPs can only be useful if they are available at the incident site and accessible to responders operating at emergency incidents. Also, they should be easy for responders to understand. PIPs are particularly important for the IC's use during an incident.

Paragraph (n)(9) of the proposed rule would require the ESO to ensure that PIPs be reviewed annually and updated as needed. For example, during the course of their daily routines, responders might observe facilities being renovated, additions being built, or a change of occupancy. Observations such as these might prompt a PIP update. Other information on PIPs might not be easily observed, such as names and phone numbers for responsible parties, access codes for doors and gates, etc. This type of information would be gathered during an annual review.

Paragraph (o) Incident Management System

WERTs and ESOs respond to a wide variety of incidents; most of which are considered routine and involve a small commitment of resources. Some incidents are more complex and involve larger commitments of resources, and potentially higher-risk operations. It is important for the WERE and ESO to develop an incident management system (IMS) that accommodates all types and sizes of incidents and provides for a systematic process of escalation from the arrival of the first units at a routine incident, to an appropriate response to larger and more complex incidents.

As discussed in the *Summary and Explanation* of proposed paragraph (b), the proposed rule defines an IMS as ''a system used for managing and directing incident scene operations and activities. It includes establishing functions for managing incidents, describes the roles and responsibilities to be assumed by team members and responders, and standard operating procedures to be utilized.'' Because OSHA is aware that some WERTs and ESOs use the terms IMS and Incident Command System (ICS) synonymously, the definition also indicates that incident command is a functional component of the IMS.

An IMS provides for the safety and health of team members and responders by establishing structure and coordination for the management of emergency incident operations. Several commenters responding to OSHA's 2007 RFI indicated that an IMS is appropriate for managing all types of emergency incidents and is effective in reducing injuries and illnesses to team members and responders (Document ID 0018; 0022; 0024; 0030; 0032; 0036; 0037; 0039; 0041; 0044; 0046; 0047; 0048;

0049; 0050; 0051; 0052; 0053; 0060; 0070; 0071; 0072; 0073; 0074; 0078; 0080; 0081; 0082; 0083; 0085). Lack of, or deficiencies in, an IMS are routinely cited by NIOSH in their investigation reports for team member and responder injuries and fatalities (Document ID 0326; 0327; 0328; 0329; 0330). Examples of deficiencies noted include multiple team members and responders serving in command roles in an uncoordinated manner, lack of an established accountability system for tracking team members and responders, not establishing a rapid intervention crew (RIC), and not designating an Incident Safety Officer (ISO) or otherwise ensuring for the safety and health of team members and responders.

Paragraphs (o)(1)(i) through (iii) of the proposed rule would require that each WERE and ESO develop and implement an IMS to manage emergency incidents based on the type and level of service(s) established in paragraphs (c) and (d) of this section, the facility or community vulnerability assessment conducted in accordance with paragraphs (c) and (d) of this section, and the pre-incident plans developed in accordance with paragraphs (m) and (n) of this section. An IMS provides a standard approach to managing the broad range of emergency incidents that team members and responders may encounter. The IC should be able to apply the IMS in a manner that supports the effective and efficient management of the incident. Each WERE and ESO should evaluate existing systems as it develops and implements an IMS that meets its own requirements and provides compatibility with systems used by mutual aid WERTs and ESOs, and other agencies that it would reasonably be expected to work with at emergency incidents.

Proposed paragraph (o)(2)(i) would require that WEREs and ESOs ensure that their IMS include flexible and scalable components that are adaptable to any situation. A note included with the proposed provision indicates that standardization of the IMS, such as provided in the NIMS and the National Response Framework (NRF), developed by FEMA, an agency of the U.S. Department of Homeland Security, is essential to the successful coordination and function of WERTs and ESOs in incident response operations. The NRF provides guidance for how the nation responds to all types of disasters and emergencies. It is built on scalable, flexible, and adaptable concepts identified in the NIMS to align key roles and responsibilities. The NIMS guides WERTs and ESOs with shared vocabulary, systems, and processes for working effectively together at emergency incidents. In Question (o)-1, OSHA asks for stakeholder input about their current use of an IMS, whether the NIMS and NRF were used as guidance for the IMS, and if there are any concerns with being compatible with NIMS.

Paragraph (o)(2)(ii) of the proposed rule would require that each WERE and ESO ensure that, in the absence of a dedicated ISO, the IC assesses the incident scene for existing and potential hazards and oversees incident safety. Many incidents have an ISO whose primary responsibilities are to assess the incident scene for existing and potential hazards and oversee incident safety. Small-scale incident scenes, however, may not have a team member or responder who is designated as the ISO. In these circumstances, the IC would need to oversee incident safety.

Paragraph (o)(2)(iii) of the proposed rule would require that each WERE and ESO ensure that the IMS includes a means for team members or responders to notify the IC or Unified Command (UC) of unsafe conditions and actions on the incident scene. Unsafe conditions or actions may become evident to team members and responders while they are performing their duties. It is important that they be able to alert the ISO, IC or UC as soon as possible, by means of portable radio, cell phone, face-to-face communication, or another method designated in the IMS, so that actions can be taken by the IC or UC to address the hazard.

Paragraph (o)(2)(iv) of the proposed rule would require that each WERE and ESO ensure that the IMS consists of collaborative components that provide the basis for clear communication and effective operations. Components, such as those identified in the NIMS—resource management, command and coordination, and communications and information management—would provide structure and coordination for ICs and UCs to manage emergency incident operations, which would provide for the safety and health of team members and responders.

Proposed paragraphs (o)(3)(i) through (iii) would require that each WERE and ESO designate the responsibilities of the IC that at least include front-line management of the incident, overall incident safety, and tactical planning and execution. The front-line management of the incident could include activities such as establishing a command post, conducting size-ups of the incident, and controlling incident communications. The overall incident safety responsibility of the IC could cover activities such as including team member and responder safety in the IAP, and continuously assessing the risk to the safety and health of team members and responders. The tactical planning and execution could include activities such as developing an overall strategy and an IAP, assigning duties and tasks to team members and responders, establishing hazard control zones, maintaining resource and team member or responder accountability, and updating the IAP as needed.

Under proposed paragraph (o)(3)(iv), the WERE and ESO would also designate to the IC the responsibility of determining if additional assistance is needed, and relaying requests for internal resources, mutual aid, and skilled support assistance through the emergency communications and dispatch center. The IC is in the best position to know what and when additional assistance is needed. Assistance is requested by the IC through the dispatch center which would contact the requested internal resources, mutual aid WERT or ESO, or the employer who can provide the requested skilled support.

Paragraph (o)(4) of the proposed rule would require that each WERE and ESO ensure that the IC has the training and authority to perform IC duties. Training would vary depending on the team member's or responder's tier of duty. For example, NFPA 1021, Standard for Fire Officer Professional Qualifications, 2020 ed., identifies four levels for minimum requirements for leadership and supervision over others and operations, which includes incident management. Level 1 is a tier for an entry level/first-line supervisor, ESO ''company officer,'' or team leader. Level 4 is the top level or top tier for the chief of the ESO. On a single unit response incident, typically the senior team member or responder would be the IC. On a multi-unit response incident, the senior team member or responder could be the initial IC, but the role of IC would pass up the chain of command as more senior/higher tier team members or responders arrive on the scene. Additionally, as part of the IMS, the WERE and ESO would need to authorize the appropriate team members and responders to serve as an IC.

Many of the provisions in this section are based on, or are consistent with, NFPA 1500, and NFPA 1561, Standard on Emergency Services Incident Management System and Command Safety, 2024 ed. OSHA has preliminarily determined that development and use of an IMS would make incident scenes safer and prevent injuries and fatalities. In Question (o)-2, OSHA is seeking input on which

aspects of an IMS are the most effective and the least effective in protecting the safety and health of team members and responders. Commenters should explain how and why certain IMS components are or are not effective.

Paragraph (p) Emergency Incident Operations

During emergency incident operations, team members and responders face the most challenging aspects, both physically and psychologically, of their vocation. Ensuring safe operations at incidents can reduce team member and responder injuries and fatalities, and limit exposure to health hazards. Paragraph (p) of the proposed rule is based on current industry practices, as reflected by NFPA consensus standards and FEMA's ''National Incident Management System,'' and would not present new requirements for most ESOs and WEREs.

Proposed paragraph (p)(1) would establish requirements for incident command and management. Paragraphs (p)(1)(i) and (ii) would require the WERE and ESO to ensure that the IMS developed in accordance with paragraph (o) of this section is used at every emergency incident and that every incident has an Incident Commander (IC) or a Unified Command (UC). For an IMS to be effective on large scale incidents, it needs to be used on small scale incidents so that all involved are familiar with it and experienced with working within its scope. Also, it is important that every incident, no matter how large or how small, has a person designated to be in charge. For a simple EMS response for a sick person laying in the yard with two EMS providers on the ambulance, one provider would be designated the leader, or IC, and in charge of response activities for the incident.

Under proposed paragraph (p)(1)(iii), the WERE and ESO would need to ensure that the task of overseeing incident safety is addressed, or an ISO is assigned and designated to monitor and assess the incident scene for safety hazards and unsafe situations and develop measures for ensuring team member and responder safety. The task of overseeing incident safety is sometimes referred to as the ''safety'' role. Typically, the IC would oversee the safety role on small(er) incidents. For larger or more complex incidents, where division of labor is appropriate so that the IC is not overwhelmed, a team member or responder (usually with seniority or in a higher tier) can be designated to fill the safety role as the ISO. Whoever fulfills the safety role needs to be mindful of observed and anticipated safety hazards and develop measures to stop or correct them to prevent injuries or fatalities.

Proposed paragraph (p)(1)(iv) would require the WERE and ESO to ensure that if an incident escalates in size and complexity, the IC divides the incident into strategic or tactical level management components. Dividing complex incidents into manageable components allows for an appropriate span of control for team members and responders managing the components and reduces the likelihood that the IC or component managers will be overwhelmed. For example, a derailed and overturned passenger train is a large-scale incident that involves multiple WERTs or ESOs spread apart by distance, due to the length of the train, and also by the train itself being a large obstruction physically separating one side of the incident from the other. In this situation, the ESO could separate the incident into geographic areas, separating each side of the tracks (north/south, east/west) into individual divisions (as described in NIMS), with an overall IC, and a senior team member or responder designated as the division leader.

Under proposed paragraph (p)(1)(v), the WERE and ESO would need to ensure that a Unified Command (UC) structure is utilized on incidents where the complexity requires a shared responsibility among two or more WEREs, ESOs, or other agencies. For example, a common situation requiring a UC could be during a large-scale wildfire that crosses jurisdictional boundaries, such as town/city, county, state, and Federal lands (such as national parks). The UC would likely be comprised of individuals who would be the IC in their own jurisdiction, to coordinate efforts and operate together to achieve a common goal to mitigate the incident and prevent injuries and fatalities.

Proposed paragraph (p)(1)(vi) would require the WERE and ESO ensure that IC(s), team members, and responders are rotated or replaced during complex or extended operations, as determined by the WERE or ESO. Emergency response activities can be physically and mentally challenging, resulting in fatigue that can impair the team member or responder's ability to safely and effectively perform their duties. It is important that team members and responders receive adequate rest breaks and the opportunity to mentally decompress.

Proposed paragraph (p)(2) would establish requirements for the incident commander. Paragraph (p)(2)(i) would require the WERE and ESO to ensure a team member or responder is assigned as the IC. Each incident needs someone to be in charge, who would serve as the IC. However, the team member or responder designated to fill the role of IC may change as the incident progresses and more senior tier team members or responders arrive at the scene, or as the incident escalates in size or complexity.

Paragraph (p)(2)(ii) would require each WERE and ESO to ensure that the identity of the IC and the location of the command post are communicated to the team members or responders who are on the incident scene or responding to it. The IC should announce via radio the specific location of the command post. For communications via radio between the sender and receiver, the command post could be anywhere within range of the radio. However, most often incident scene communication occurs face-to-face. Thus, team members and responders need to know who and where the IC is on the scene. Often, response vehicles are used as the command post, but where multiple vehicles are on the scene, it may be difficult to distinguish which vehicle is being used as the command post. The command post could also be a free-standing table/command board located close to incident operations or away from vehicles. A visible object, such as a steady or flashing light of a distinct color, or a flag, banner, or other visible marker could be used to help identify the location of the command post. If the IC is outside of the identified vehicle, a distinguishing garment, such as a reflective vest with ''Command,'' or other suitable means should be used to identify the IC.

Under proposed paragraphs (p)(2)(iii) and (iv), the WERE and ESO would need to ensure the IC conducts a comprehensive and ongoing size-up of the incident scene that places life safety as the highest priority and conducts a risk assessment based on the size up before actively engaging the incident. Factors involved in a size-up vary depending on the type of incident (*e.g.,* fire, EMS, technical rescue), but all size-ups need to include evaluation of the safety hazards to the person/people involved in the incident, bystanders, and team members and responders. Size-up is an ongoing process that includes a continuing evaluation of information received and assessment of the hazards present. When feasible, the size-up should include a 360-degree walkaround survey of the involved structure or incident scene to evaluate the incident from all angles so that a

clear mental picture of the scope of the incident can be developed.

Under proposed paragraph (p)(2)(v), the WERE and ESO would ensure the IC coordinates and directs all activities for the duration of the incident. This provision would require the IC, or successive ICs, to remain engaged in managing the incident from beginning to end. Similar to the IC role being passed as an incident escalates, the IC role could be passed again as the incident de-escalates. Because all activities must be conducted under the direction of the IC, ''freelancing'' (operating without direction from the IC and outside the scope of the IMS) on the incident scene would be prohibited.

Proposed paragraph (p)(2)(vi) would require the WERE and ESO to ensure the IC develops an Incident Action Plan (IAP) that prioritizes life safety for each incident, updates it as needed during the incident, and utilizes the information contained in the PIP. The IAP helps to coordinate incident operations and activities, and ensure they support the incident mitigation objectives. The IAP provides structure to manage the incident. For the majority of incidents, the IAP is usually not a formal, written plan, although for some large-scale incidents the IC or UC may develop a written plan. Often, the IAP may only be documented on a fill-in incident management/incident command template, chart, magnetic or wipe-off board, or others means depending on the IC's preference. If a PIP was developed for the incident scene location, proposed provision (p)(2)(vi) would require that it be used in the development of the IAP. The purpose for requiring the development of PIPs in proposed paragraphs (m) and (n) is to aid the IC's management of the incident.

Proposed paragraph (p)(3) would establish requirements for control zones. In paragraph (p)(3)(i), the WERE and ESO would be required to establish control zones at every emergency incident to identify the level of risk to team members and responders and the appropriate protective measures needed, including PPE. Control zones serve to delineate the areas where certain team members and responders are designated to operate. In addition to the protective measures or PPE needed for each zone, the differentiation among control zones may also indicate the required level of training (*i.e.,* team member or responder tier) appropriate to operate in each zone.

Proposed paragraphs (p)(3)(ii) and (iii) would require the WERE and ESO to ensure the perimeters of control zones are designated by the IC, and that any changes to the perimeters during the incident are communicated to all team members and responders on the scene. For control zones to serve their intended purpose, team members and responders need to be notified of the zone perimeters. As an incident escalates or de-escalates the boundaries of the zones are likely to expand or contract. For example, when a fire extends from one attached dwelling (*i.e.,* townhouse, rowhouse) to another the zones would expand to include the additional dwelling on fire. As the fire is brought under control, the zones would contract. Team members and responders would need to be notified of these changes via radio or visually by the relocation of the marking method required by proposed paragraph (p)(3)(iv)(B).

Under proposed paragraphs (p)(3)(iv)(A) through (C), the WERE and ESO would need to ensure that control zones are established as no-entry, hot, warm, and cold, as defined in proposed paragraph (b); marked in a conspicuous manner, with colored tape, signage, or other appropriate means, unless such marking is not possible; and communicated to all team members and responders attending the incident before the team member or responder is assigned to a control zone. These proposed provisions elaborate on the general requirements in the preceding provisions. The individual zones are defined in proposed paragraph (b), and further explained in the *Summary and Explanation* for paragraph (b). In Question (p)–1, OSHA is seeking stakeholder input on current practices for identifying and communicating the various zone boundaries. What marking methods are used? How are they communicated to team members and responders? Do the marking methods help or hinder on-scene operations?

Proposed paragraph (p)(3)(v) would require the WERE and ESO to ensure that only team members and responders with an assigned task are permitted in the hot zone. The hot zone is the area with the greatest potential for risk of injury or exposure to hazards. Team members or responders entering the hot zone without an assigned task would be considered to be freelancing, thus operating outside the scope of the IMS, and therefore placing themselves at risk, and potentially increasing the risk to those designated to operate within the zone. Freelancing team members and responders are also likely to be difficult to track in the personnel accountability system established in proposed paragraph (p)(2)(vi).

Paragraph (p)(3)(vi) of the proposed rule would require the WERE and ESO ensure that where a no-entry zone is designated, team members and responders are prohibited from entering the area. A no-entry zone can be established for any number of reasons. The most important reason is to protect team members and responders from injury or death. For example, during a structure fire, there is the danger of a wall or other part of a structure collapsing. The area where the collapsing structural components are likely to fall would be designated as a no-entry zone, and team members and responders would be prohibited from entering that area. While not a hazard to team members and responders, a no-entry zone could be established to protect evidence for a potential criminal investigation.

In paragraph (p)(3)(vii) of the proposed rule, the WERE and ESO would be required to ensure that for each zone the appropriate protective measures are designated, including PPE, that are commensurate with the hazards in the zone the team member and responder will be operating in, and that each team member and responder appropriately uses the protective measures for that zone. The protective levels of PPE needed vary for each zone level, with the highest level needed for the hot zone. A protective measure for a downed electrical wire could be to a maintain a certain, safe distance away from the downed wire (a no-entry zone), with no specific PPE needed.

Proposed paragraph (p)(4) would require safety and health measures to be taken on the incident scene. Under proposed paragraphs (p)(4)(i) and (ii), WEREs and ESOs would be required to identify the minimum staffing needed to ensure that incidents are mitigated safely and effectively and ensure that operations are limited to those that can be safely performed by the team members and responders available on the scene. OSHA recognizes that many WERTs and ESOs ''do more with less.'' The proposed provisions would require the WERE and ESO to identify the staffing needed for various types of incidents that they may respond to, potentially prompting a request for mutual aid resources, but also that they limit operations to those that can be safely performed with the team members and responders on the scene. NFPA 1710 and NFPA 1720 provide guidance on staffing levels for various types of firefighting ESOs. To be clear, OSHA is not specifying, nor recommending minimum staffing levels for emergency response vehicles, or the minimum number of team members or responders needed on an incident scene for safe incident operations, except with respect to the ''2-in, 2-out'' requirement discussed below. Operations on the

incident scene would need to be limited to those that can be safely conducted by the team members or responders on the scene.

Proposed paragraphs (p)(4)(iii) through (v) are essentially carried forward into the proposed rule from the existing requirements in 29 CFR 1910.134(g)(4), Respiratory Protection; Procedures for interior structural firefighting. The existing provisions are commonly referred to as the ''2-in, 2-out'' rule. As part of this rulemaking, OSHA intends to delete existing paragraph (g)(4) from 29 CFR 1910.134 and insert a note there referring readers to this rule for the requirements on interior structural firefighting. WEREs and ESOs are required to continue to comply with the remaining provisions of 29 CFR 1910.134. In addition, under proposed paragraphs (p)(4)(iii) through (v), the coverage is expanded to include all IDLH atmospheres that team members and responders enter, not just interior structural firefighting. Team members and responders performing other duties, such as technical rescue in an IDLH, face many of the same hazards as those performing interior structural firefighting, and need to be afforded the same protective measures.

Paragraph (p)(4)(iii) of the proposed rule would require the WERE and ESO to ensure that at least four team members or responders are assembled before operations are initiated in an IDLH atmosphere in a structure or enclosed area, unless upon arrival at an emergency scene, the initial team member(s) or responder(s) find an imminent life-threatening situation where immediate action could prevent the loss of life or serious injury, in which case such action would be permitted with fewer than four team members or responders present. The requirement in this provision of a minimum of four team members or responders is consistent with existing 29 CFR 1910.134(g)(4), which requires at least two team members or responders to enter the IDLH environment and at least two team members or responders located outside the IDLH environment.

This provision includes an exception to the 2-in, 2-out requirement and coincides with proposed provision (f)(2) of this section. OSHA's intent is that this exception is for the rescue of a person in imminent peril only, where team members or responders observe, or are informed by a witness of the imminent life hazard. The traditional emergency services adage may be relevant when considering whether an exception to the 2-in, 2-out requirement would be appropriate: ''Risk a lot to save a lot, risk little to save little; risk nothing to save nothing.'' This proposed provision is not intended to be used as a loophole for non-compliance with proposed paragraph (p)(4)(iii). Some organizations have tried to use the existing 2-in, 2-out requirement to justify minimum staffing levels on emergency response vehicles, which is a mischaracterization of the requirement. The four team members or responders need not arrive on the same vehicle and could arrive at the incident scene separately to be in compliance with the proposed provision.

Under proposed paragraph (p)(4)(iv), the WERE and ESO would need to ensure that at least two team members or responders enter the structure or enclosed area with an IDLH atmosphere as a team and remain in visual or voice contact with one another at all times, unless there is insufficient space for two team members or responders, such as for example, in a confined space or collapsed structure. Two team members or responders are needed to work together as a team in case one has an issue that requires the assistance of the other one. Often visible contact is not possible in dark or smoke-filled locations. Voice contact is person-to-person, without the use of radios, so that they can hear one another in case one needs help.

Proposed paragraph (p)(4)(v) would require the WERE and ESO to ensure that outside the structure or enclosed area with the IDLH atmosphere, a minimum of two team members or responders are present to provide assistance to, or rescue of the team operating in the IDLH atmosphere. One of the two team members or responders located outside the IDLH atmosphere may be assigned to an additional role, such as IC, so long as this team member or responder is able to perform assistance or rescue activities without jeopardizing the safety or health of other team members or responders operating at the incident.

Paragraph (p)(4)(vi) of the proposed rule would require WEREs and ESOs ensure each team member and responder in the IDLH atmosphere uses positive-pressure SCBA or a supplied-air respirator in accordance with the respiratory protection program specified in proposed paragraph (f) of this section. The air pressure inside the facepiece of a positive-pressure SCBA and supplied air respirators is constantly higher than the air pressure outside the facepiece. Therefore, if a break in the seal of the facepiece to the face should occur, the high internal air pressure will push air out thus preventing contaminated air from entering.

Proposed paragraph (p)(4)(vii) would require the WERE and ESO to ensure that each supplied-air respirator used in an IDLH atmosphere is equipped with a NIOSH-certified emergency escape air cylinder and pressure-demand facepiece. An escape cylinder is needed in case something happens that stops the air flow from the air hose, or an event occurs that requires the team member or responder to rapidly escape, thus disconnecting from the air hose to avoid being hindered by a potentially entangled air hose.

Under proposed paragraph (p)(4)(viii), the WERE and ESO would ensure that team members and responders use NIOSH-certified respiratory protection during post-fire extinguishment activities, such as overhaul and fire investigation. Once the fire has been substantially extinguished, team members and responders typically begin overhaul activities to find and expose any smoldering or hidden pockets of fire in the area that has burned. Usually, SCBA is no longer needed to protect team members' and responders' respiratory systems from the heated gases. However, other combustion products are still present. Thus, NIOSH-certified respiratory protection suitable for carcinogenic combustion products would be needed. Fire investigator team members and responders are also exposed to combustion products while performing their duties on a fire scene, even after an emergency incident is contained. Therefore, these team members and responders would also need to use respiratory protection.

Proposed paragraph (p)(5) would establish requirements for communication between the emergency communications and dispatch center, and team members and responders and the IC; and for on-scene communication. Paragraph (p)(5)(i) of the proposed rule would require the WERE and ESO ensure, to the extent feasible, that there is adequate dispatch and monitoring of on-scene radio transmissions by an emergency communications and dispatch center. Emergency communications and dispatch centers are known by many different terms, such as emergency communications center, public safety communications center, and 911 center. OSHA recognizes that WEREs and ESOs may not have direct supervision or authority over the emergency communications and dispatch. However, OSHA expects that emergency communications and dispatch centers would do what they can to ensure adequate monitoring of on-scene radio transmissions. Even where the WERE or ESO does not have direct supervision or authority over the

communications and dispatch center, the WERE or ESO must still take all feasible steps to ensure adequate monitoring of on-scene radio, such as by notifying the communications and dispatch center of the need for monitoring and cooperating with them to facilitate such monitoring. Where a WERE or private ESO does not utilize the public emergency communications and dispatch center or knows that the center will not be monitoring on-scene radio transmissions, the WERE or ESO must ensure that their own means of communication with team members and responders are monitored in accordance with proposed paragraph (p)(5)(i). Monitoring of incident scene radio transmissions is important for relaying information, ensuring requests for additional resources are acknowledged and processed, and most importantly, ensuring Mayday calls are not missed.

Proposed paragraph (p)(5)(ii) would require the WERE and ESO ensure there is effective communication capability between team members or responders and the IC. This may involve providing each team member and responder their own portable, two-way radio. However, in many cases effective communication may be achieved by ensuring all team members and responders work with someone who has a radio.

Proposed paragraph (p)(5)(iii) would require the WERE and ESO ensure that communications equipment allows mutual aid team members and responders to communicate with the IC and other team members and responders. For mutual aid to be effective, WEREs and ESOs need to be able to communicate with each other on the incident scene. Radio technology has evolved through the years and continues to evolve such that some two-way radios used by team members and responders have communication capabilities across many radio channels and frequencies. OSHA is not proposing to require that WEREs and ESOs replace existing radio equipment with the latest equipment. Instead, the proposed provision would require the WERE or ESO to ensure communication capability, which could be that those WEREs or ESOs with mutual aid agreements be equipped with two-way radios that match or work with each other's frequency(ies), or that a separate mutual aid frequency be established and provided on their existing radios.

Under proposed paragraph (p)(6), OSHA would require the WERE and ESO to ensure that the personnel accountability system established in proposed paragraph (q)(2)(vii) is implemented at all incidents. As the name implies, the personnel accountability system is intended to keep track of team members and responders operating on the incident scene. Its primary purpose is to identify any missing team member or responder. For instance, if a WERE or ESO establishes that personnel accountability check be conducted at a certain time interval and at that time interval it is determined that someone is missing, the personnel accountability system should be able to identify the individual and where they were expected to be operating on the incident scene. Many WEREs and ESOs are accustomed to using some form of personnel accountability system. The proposed provision would require that a personnel accountability system be used at every incident.

Paragraph (p)(7) of the proposed rule would require the WERE and ESO to implement a Rapid Intervention Crew (RIC) at each structure fire incident where team members or responders are operating in an IDLH atmosphere, in accordance with the SOP established in paragraph (q)(2)(viii) of this section. Rescuing a team member or responder who is in trouble and in need of rescue is a difficult process. It is important that a properly staffed and equipped RIC be established at incidents where team members and responders are operating in IDLH atmospheres so that they can be deployed quickly when needed as team members and responders operating in an IDLH have a limited supply of air available in their SCBA.

Proposed paragraph (p)(8) would require the WERE and ESO ensure that medical monitoring and rehabilitation procedures are implemented, as needed, in accordance with the SOP established in paragraph (q)(2)(ix) of this section. The IC would need to consider the circumstances of each incident and make provisions for rest, medical monitoring, and rehabilitation of team members or responders operating at the scene. Requirements for on-scene rehabilitation were considered appropriate by several commenters to the 2007 RFI (Document ID 0022; 0032; 0037; 0041; 0044; 0046; 0047; 0049; 0051; 0052; 0060; 0063; 0071; 0072; 0083). Having preplanned medical monitoring and rehabilitation procedures that can be applied to a variety of incident types is essential for the health and safety of team members and responders.

Paragraph (p)(9) of the proposed rule would require that the WERE and ESO implement the traffic safety procedures, as needed, in accordance with the SOP established in paragraph (q)(2)(x) of this section. As noted in section II.A., *Need for the Standard,* many responders are injured and killed while operating at incidents on roadways and highways. To reduce the likelihood of injuries and fatalities, WEREs and ESOs would need to establish traffic safety procedures that could include using a large vehicle to block traffic lanes and the wearing of reflective PPE. Also, WEREs and ESO should consult with the appropriate authorities regarding procedures for the complete shutdown of traffic movement on the roadway or highway to protect team members and responders from moving vehicles on the scene of an emergency incident.

Some emergency incidents may necessitate the WERE and ESO to call upon the services of employers who do not typically provide emergency services. One example would be to call upon the services of a heavy-duty wrecker-rotator and operator to lift a tractor-trailer truck that has overturned unto a car with people trapped inside or calling a construction company to provide a bulldozer and operator to cut a fire line or access road for a wildland fire. Another example is calling a plumber with a sewer camera to search for trapped victims in a collapsed structure. These workers would provide their skills and equipment, when needed, to support team members and responders operating at an emergency incident. Known in the proposed rule as skilled support workers (SSW), they would potentially be exposed to some of the same hazards as team workers and responders.

Proposed paragraphs (p)(10)(i) through (v) would require the WERE and ESO to ensure that prior to participation at an incident scene, each SSW has and utilizes PPE appropriate to the task(s) to be performed; an initial briefing is provided to each SSW that includes, at a minimum, what hazards are involved, what safety precautions are to be taken, and what duties are to be performed by the SSW; an effective means of communication between the IC and each SSW is provided; where appropriate, a team member or responder is designated and escorts the SSW at the emergency incident scene; and all other appropriate on-scene safety and health precautions provided to team members and responders are used to ensure the safety and health of each SSW.

The SERs participating in the 2021 SBREFA panel generally agreed that SSWs did not need additional emergency response-specific PPE when responding to emergency incidents (Document ID 0115, p. 10). The SERs indicated that, even at emergency incidents, SSWs generally would need only the PPE they normally would use

on any job. Any additional PPE that the SSW would need to be protected at the incident scene would need to be provided by the WERE or ESO.

Paragraph (q) Standard Operating Procedures

Use of Standard Operating Procedures (SOPs) helps to reduce the risk of injuries and fatalities by providing written guidance to team members and responders with established safe procedures for actions to be taken during a wide variety of incident responses. They provide direction for team members and responders on what they need to do to safely perform job tasks that are routine and predictable. SOPs ensure consistent work performance, contribute to a safe work environment, and create a template for how to resolve issues and overcome obstacles. NIOSH, in its firefighter fatality investigation and prevention program, frequently cites a lack of, or inadequacy of, standard operating procedures as a contributing factor in firefighter fatalities (Document ID 0326; 0327; 0328; 0329; 0330).

Paragraph (q)(1) of the proposed rule would require that WEREs and ESOs develop and implement SOPs for emergency events they are likely to encounter, based on the type(s) and level(s) of service(s) established in paragraphs (c) and (d) of this section, and the community or facility vulnerability assessment developed in accordance with paragraphs (c) and (d) of this section. For example, many communities have single family dwellings. An appropriate SOP for firefighting ESOs might include the location for response vehicles to be positioned as they arrive at a house on fire, and the duties of responders arriving on the scene.

Paragraph (q)(2)(i) of the proposed rule would require that WEREs and ESOs establish SOPs that describe the actions to be taken by team members and responders in situations involving unusual hazards. Examples of unusual hazards include downed power lines, natural gas or propane leaks, flammable liquid spills, bomb threats, derailments of railroad and subway systems, fast-moving water, and floods. Team members and responders are sometimes dispatched to incident scenes with unusual hazards to evaluate the hazard, and a basic SOP may be to set up a security barrier to protect people from the hazard, request assistance from the resource provider such as a utility company, or initiate or assist with evacuation of people in the area. SOPs should also include additional key information to guide team members and responders in the appropriate action(s) to be taken in each of these scenarios to protect themselves and other responders from those hazards.

Proposed paragraph (q)(2)(ii) would require that each WERE and ESO establish SOPs that address how team members and responders are to operate at incidents that are beyond the capability of the WERT or ESO, as specified in paragraphs (c) and (d) of this section. Typically, this would include actions to preserve lives, stabilize the scene, and summon mutual aid resources to help resolve the situation or perform duties that the WERT or ESO is unable to perform, such as technical rescue.

Under paragraphs (q)(2)(iii) of the proposed rule, each WERE and ESO would be required to establish SOPs to provide a systemic approach for protecting team members and responders from contaminants and for decontamination of team members, responders, PPE, and equipment. The SOPs would need to include at a minimum: proper techniques for doffing contaminated PPE; on-scene gross decontamination and decontamination at the WERE's or ESO's facility of PPE, equipment, and team members and responders; encouraging team members and responders to shower with soap and water, as soon as reasonably practicable, and change into clean clothing; and protecting team members and responders from contaminated PPE after an incident. On-scene gross decontamination helps to remove combustion products which helps prevent further contamination of team members and responders and reduces cross-contamination of the transport vehicle.

Proposed paragraph (q)(2)(iv) would require that each WERE and ESO establish SOPs for vehicle operations that meet the requirements of paragraph (l)(2) of this section, and include procedures for safely driving vehicles during both non-emergency travel and emergency response; criteria for actions to be taken at stop signs and signal lights; vehicle speed; crossing intersections; driving on the opposite side of the road with oncoming traffic; use of cross-over/turnaround areas on divided highways; traversing railroad grade crossings; the use of emergency warning devices; and the backing of vehicles. For backing vehicles with obstructed views to the rear, the SOP would need to include the use of at least one of the following: a spotter, a 360-degree walk-around of the vehicle by the operator, or a back-up camera. Other than for backing vehicles with obstructed views to the rear, OSHA is not specifying the particular content of the vehicle-related SOPs. The agency is aware that State vehicle laws often permit exceptions for emergency vehicles which should be included in the SOPs; for example, an allowance to exceed the posted speed limit by a certain amount. WEREs and ESOs should consult the appropriate State laws when considering development of their SOPs. While OSHA intends to provide discretion to WEREs and ESOs in the crafting of most provisions of the SOPs, it does not intend to allow WEREs and ESOs to avoid the mandatory requirements in this proposal even if similar requirements are exempted at the state or local level. For example, if a state or local law exempts emergency vehicles from requirements related to addressing obstructed views to the rear, OSHA's requirement in proposed paragraph (q)(2)(iv) would still apply.

Under proposed paragraph (q)(2)(v), WEREs and ESOs would be required to establish SOPs to provide for the use of standard protocols and terminology for radio communications at all types of incidents. Standard protocols should include instructions on, for example: the operation of portable and mobile radios, with a preference for identifying the unit being called first (receiver), then identifying the sender; and the need for speaking in a calm voice and as clearly, concisely, and precisely as possible. Protocols should also include instructions on use of dispatch and incident scene/tactical radio frequencies, use of the emergency alert button, ''Mayday'' situations, and other special situations. The NIMS recommends, and OSHA agrees, that acronyms, unique jargon, and codes should not be used in radio communication (Document ID 0344, p. 57). NIMS and OSHA recommend, but do not require, the use of common terms, plain language, and clear text to help ensure all team members and responders can transmit and understand all information being communicated. This would be particularly helpful during incidents where multiple entities, such as mutual aid WERTs and ESOs, are participating.

Paragraph (q)(2)(vi) of the proposed rule would require that WEREs and ESOs establish procedures for operating at structures and locations that are identified as, or determined to be, vacant, structurally unsound, or otherwise unsafe for entry by team members or responders. Structures such as these are typically unsafe to enter under normal circumstances and are even more dangerous during an emergency incident, particularly when

on fire. They pose a serious risk to team members and responders should they enter, especially if there is a fire in the structure that could obstruct or conceal structurally unsafe conditions. Structural collapse and falls through unstable structures have been responsible for many injuries and fatalities to team members and responders, as explained in section II.A.I., *Fatality and Injury Analysis.* OSHA does not intend that WEREs and ESOs develop SOPs that prohibit entry to these structures (although WEREs and ESOs may choose to prohibit entry as they see fit), but the SOPs should establish protocols for minimizing risks and avoiding hazards during such entries.

Paragraph (q)(2)(vii) of the proposed rule would require each WERE and ESO to establish SOPs for maintaining accountability and coordinating evacuation of all team members and responders operating at an incident that includes periodic accountability checks and reports; procedures for orderly evacuation of team members and responders; and procedures for rapid evacuation of team members and responders from escalating situations, such as rapid growth of fire, impending collapse, impending explosion, and acts of active violence against team members and responders. Accountability means keeping track of each team member and responder on an incident scene. The sooner a team member or responder is identified as missing, the sooner efforts to find them could be initiated and the more likely harm could be avoided, so periodic accountability checks are important during incidents and evacuations. OSHA is aware that there are various methods already in use for maintaining accountability and performing periodic accountability checks to ensure all team members and responders are accounted for. Under this proposed provision, WEREs and ESOs would need to establish procedures that best fit their operations and use them at all incidents. The provision would also require SOPs for an orderly evacuation, which typically include instructions such as pulling back and regrouping, as well as procedures for rapid evacuation such as drop-and-run.

Proposed paragraph (q)(2)(viii) would require that each WERE and ESO establish SOPs for Mayday situations, such as when a team member or responder becomes lost, trapped, injured, or ill. These SOPs would need to cover the use of radio emergency alert buttons and implementation of a rapid intervention crew (RIC) for immediate deployment to search and rescue any missing, disoriented, injured, ill, lost, unaccounted-for, or trapped team members or responders. The establishment of a RIC is required by proposed paragraph (p)(7) of this section at each structural fire incident where team members or responders are operating in an IDLH atmosphere. The SOP would need to specify the minimum number of team members or responders needed for the RIC, based on the size and complexity of potential incidents; and a standard list of equipment to be assembled by the RIC, for foreseeable incidents.

Proposed paragraph (q)(2)(ix) would require that each WERE and ESO establish SOPs for a systematic approach to provide team members and responders with medical monitoring and rehabilitation at emergency incidents as needed, such as rest, medical treatment, rehydration (fluid replacement), active warming or cooling, and protection from extreme elements. While most emergency incidents are handled without the need for medical monitoring and rehabilitation, when it is needed procedures need to be in place to implement it quickly.

Provisions in proposed paragraph (q)(3) apply to ESOs only. Proposed paragraph (q)(3)(i) would require that each ESO establish SOPs for operating at an emergency incident on, or adjacent to, roadways and highways. The SOP would need to cover setting up a safe work zone beginning with proper placement of the first arriving ESO vehicle and subsequent ESO vehicles, a means of coordination with law enforcement and mutual aid WERTs or ESOs, and use of safety vests that have high visibility and are reflective. Consideration should be given to using a large vehicle, such as a fire engine/pumper or ladder truck, to position as a blocker to prevent vehicles from driving into or through an incident scene where team members or responders are operating. ESOs should coordinate with law enforcement regarding authority over closing travel lanes or the entire roadway or highway for the protection of team members and responders. High-visibility and reflective vests help drivers see team members and responders during daylight and at night, thus reducing the risk of striking those operating on an incident.

Proposed paragraph (q)(3)(ii) would require the ESO to establish SOPs for operating at incident scenes that are primarily related to law enforcement, such as crime scenes, active shooters, and civil disturbances. ESOs may be called upon to stand by at these types of incidents in case they are needed, and as such the SOP should provide direction for staging so that responders will not interfere with the law enforcement activities or be in harm's way. Paragraph (q)(3)(ii) identifies subjects that must each be addressed in the SOPs, but this is not a comprehensive list of everything that an employer could address in an SOP. For example, a typical SOP will prohibit team members and responders from approaching or entering an incident scene where there is ongoing violence, and require them to wait until law enforcement has secured the scene and indicated that it is safe for team members and responders to enter. Typical SOPs for these types of incident scenes will also address whether team members and responders need to be wearing identifying uniforms, ballistic vests, PPE, reflective vests or other apparel to differentiate team members and responders from law enforcement officers, bystanders and other citizens.

Under proposed paragraph (q)(3)(iii), ESOs would be required to establish a baseline set of procedures for conducting non-emergency services. Rather than just requiring the ESO to address certain subjects, these would be mandatory SOPs with specific minimum requirements that could then be supplemented with additional detail at the ESO's discretion: responders must present themselves in uniforms, PPE, vests, or other apparel that clearly identifies them as fire/rescue/EMS responders and must wear ballistic vests if they are provided by the ESO and appropriate for the type of incident. In non-emergency situations, team members and responders might not wear their usual, identifiable PPE. However, it is important for them to be identifiable by some means so as not to be confused with bystanders, appear to be trespassers or intruders, or be mistaken for law enforcement officers. Often, when family members or friends are unable to contact an individual, they call 911 and ask for assistance in checking on the well-being of the individual. These situations can pose a risk to the responders because if they are not wearing something that identifies them as responders, they may appear to be trespassers or intruders. In these situations, the same concerns would dictate that the SOP would need to require the wearing of ballistic vests if they are provided by the ESO.

OSHA is also concerned with workplace violence experienced by workers in various aspects of providing health care, both facility-based and home-based. In Question (q)–1, OSHA seeks input on whether the agency

should include requirements for SOPs regarding protections against workplace violence for team members and responders, and for any data or documentation to support or refute potential requirements. OSHA notes that its regulatory agenda includes a separate rulemaking addressing Workplace Violence against health care workers. While OSHA has not published a proposed rule in that rulemaking, OSHA welcomes comments on whether violence against health care emergency responders should be addressed in this emergency response proposal in addition to that Workplace Violence rulemaking, instead of in that rulemaking, or primarily in that other rulemaking.

Paragraph (r) Post-Incident Analysis

Paragraph (r) of the proposed rule contains requirements for Post-Incident Analysis (PIA). A PIA serves as a systematic review of incident operations and activities, and determines whether programs, plans, and procedures developed by the WERE or ESO perform as intended. The PIA should be fact-based and focus on strengths, weaknesses, lessons learned, and recommendations for improvement to enhance health and safety protections for team members and responders. The primary purpose of a PIA is to make improvements for the future.

Paragraph (r)(1) of the proposed rule would require the WERE and ESO to promptly conduct a PIA to determine the effectiveness of the WERT's or ESO's response after a significant event such as a large-scale incident involving multiple WERTs or ESOs; a significant near-miss incident; a team member, responder, or SSW injury or illness requiring off-scene treatment; or a team member, responder, or SSW fatality. OSHA believes that requiring a PIA after significant events will help WEREs and ESOs identify strengths and challenge points where improvements are needed in their systems, plans, and procedures. For example, large-scale incidents may test the ESO's or WERE's systems, plans, and procedures and reveal areas for improvement, while near-misses, injuries, illnesses, or fatalities may signal inadequacies. The requirement that the PIA take place promptly following the incident ensures important information and observations are relayed before team member's and responder's memories fade.

Proposed paragraph (r)(2) would require the WERE and ESO to include in the PIA, at a minimum, a review and evaluation of the RMP, IMS, PIPs, IAPs, and SOPs for accuracy and adequacy. The PIA would include evaluation of available information and resources relating to the significant event. It would include a basic review of the conditions present upon arrival at the incident scene and any changes during the incident, the actions taken by team members and responders, and any effect of the conditions and actions on the safety and health of team members or responders. The RMP would be evaluated for its effectiveness regarding anticipated outcomes and to identify flaws or shortcomings that need to be corrected. The IMS would be evaluated to determine if it functioned as intended. While proposed paragraphs (m) and (n) of this section would require the development of PIPs for certain types of locations, there are many locations where incidents occur where PIPs would not be required, and so would be non-existent. If a PIP was developed, it would be evaluated to ensure it is up to date and accurate, and if it functioned as intended or if revisions are needed. The PIA may also indicate that a PIP is needed for a particular type of location where one was not previously developed. SOPs would be reviewed to determine if they were followed and effective, or if changes are needed. IAPs are typically developed on the incident scene and may be documented. A review of the IAP would determine its effectiveness and whether different actions should be taken at future similar incidents. OSHA anticipates that during a post-incident analysis conducted under paragraph (r), WEREs and ESOs will involve team members and responders. In Question (r)–1, OSHA is considering adding to (r)(2) a requirement to permit team members, responders, and their representative to be involved in the review and evaluation of the relevant plans as part of the PIA and would like stakeholder input on whether to add this requirement.

Proposed paragraph (r)(3) would require the WERE and ESO to promptly identify and implement changes needed to the RMP, IMS, PIPs, IAPs, and SOPs based on the lessons learned as a result of the PIA; or if the recommended changes cannot be promptly implemented, the WERE or ESO would need to develop a written timeline for implementation. Where implementation cannot be done promptly, the proposed rule requires that any needed changes be implemented as soon as feasible. The purpose of the PIA is to determine what improvements are needed to the systems, plans, and procedures for future success, and not for finding fault with or to blame individuals. Changes and improvements would need to be implemented in a timely manner so that such changes are in place before the next significant incident. If prompt implementation is not possible, a timeline for implementation as soon as feasible must be followed to ensure protective measures for team members and responders are put into place.

Paragraph (s) Program Evaluation

The ERP is intended to be a dynamic program, with components that are periodically reviewed and updated. Periodic review and evaluation are key to ensure that the program functions appropriately, adapts to changing circumstances or new information as needed, and protects the health and safety of team members or responders.

Paragraphs (s)(1) through (3) of the proposed rule would require the WERE and ESO to evaluate the adequacy and effectiveness of the ERP at least annually, and upon discovery of deficiencies, and document when the evaluation(s) are conducted; determine if it was implemented as designed or if modifications are necessary to correct deficiencies; and identify and implement recommended changes to the ERP and provide a written timeline for correcting identified deficiencies as soon as feasible based on the program review, giving priority to recommendations that most significantly affect team member or responder safety and health. The agency recommends that all safety and health programs, such as the ERP, be reviewed at least annually to evaluate the program to ensure that it functions as intended, is effective in controlling identified hazards, and makes progress toward established safety and health goals and objectives (*https://www.osha.gov/safety-management/program-evaluation*). The proposed provisions would require a review of the ERP be conducted to identify any revisions or updates needed that had not been identified previously, such as a result of the PIA required by proposed paragraph (r) of this section. There may be discrepancies between how the ERP was designed and intended to function versus how it was implemented or functions during actual use. Another deficiency could be, for example, finding that a component of the ERP was overlooked during development. Periodic evaluations are one method of measuring how the program is being conducted. Any changes needed based on the review would need to be implemented with priority given to the recommendations that most significantly affect team member or responder safety and health.

Paragraph (t) Severability

The severability provision, paragraph (t) of the proposed rule, serves two purposes. First, it expresses OSHA's intent that the general presumption of severability should be applied to this standard; *i.e.,* if any section or provision of the proposed rule is held invalid or unenforceable or is stayed or enjoined by any court of competent jurisdiction, the remaining sections or provisions should remain effective and operative. Second, the severability provision also serves to express OSHA's judgment, based on its technical expertise, that each individual section and provision of the proposed rule can continue to sensibly function in the event that one or more sections or provisions are invalidated, stayed, or enjoined; thus, the severance of any provisions, sections, or applications of the standard will not render the rule ineffective or unlawful as a whole. Consequently, the remainder of the rule should be allowed to take effect.

With respect to this rulemaking, it is OSHA's intent that all provisions and sections be considered severable. In this regard, the agency intends that: (1) in the event that any provision within a section of the rule is stayed, enjoined, or invalidated, all remaining provisions within shall remain effective and operative; (2) in the event that any whole section of the rule is stayed, enjoined, or invalidated, all remaining sections shall remain effective and operative; and (3) in the event that any application of a provision is stayed, enjoined, or invalidated, the provision shall be construed so as to continue to give the maximum effect to the provision permitted by law.

Although OSHA always intends for a presumption of severability to be applied to its standards, the agency has opted to include an explicit severability clause in this standard to remove any potential for doubt as to its intent. OSHA believes that this clarity is useful because of the multilayered programmatic approach to risk reduction it proposes here. The agency has preliminarily determined that the suite of programmatic requirements described in the *Summary and Explanation of the Proposed Rule,* section V. of this preamble, is reasonably necessary and appropriate to protect emergency responders from the significant risks posed by their workplace activities. While OSHA preliminarily finds that these requirements substantially reduce emergency responders' risk of occupational injury and illness when implemented together, the agency also believes that each individual requirement will independently reduce this risk to some extent, and that each requirement added to the first will result in a progressively greater reduction of risk. Therefore, it is OSHA's intent to have as many protective measures implemented in as many workplaces as possible to reduce emergency responders' risk of occupational exposure to injury, illness, and death. Thus, should a court of competent jurisdiction determine that any provision or section of this standard is invalid on its face or as applied, the court should presume that OSHA would have issued the remainder of the standard without the invalidated provision(s) or application(s). Similarly, should a court of competent jurisdiction determine that any provision, section, or application of this standard is required to be stayed or enjoined, the court should presume that OSHA intends for the remainder of the standard to take effect. See, *e.g., Am. Dental Ass'n* v. *Martin,* 984 F.2d 823, 830–31 (7th Cir. 1993) (affirming and allowing most of OSHA's bloodborne pathogens standard to take effect while vacating application of the standard to certain employers).

E. Section 1910.157 Portable Fire Extinguishers

OSHA is proposing to update 29 CFR 1910.157, Portable Fire Extinguishers, to include Class K fires and Class K portable fire extinguishers, as defined in proposed 29 CFR 1910.155(c), and to update this standard, including revisions to Table L–1, to conform with the current national consensus standard. The existing standard was last updated in 2002, just as Class K was entering into consideration in the national consensus standard, NFPA 10, Portable Fire Extinguishers.

F. Section 1910.158 Standpipe Hose Systems

As discussed previously, proposed § 1910.156(i)(2) requires each WERE to ensure that fire hose connections and fittings are compatible with, or adapters are provided for, firefighting infrastructure such as fire hydrants, sprinkler system and standpipe system inlet connections, and fire hose valves (FHV). Existing 29 CFR 1910.158, which addresses standpipe and hose systems, does not require fire hose threads to be compatible with the hoses used by the local fire department. For the same reasons discussed in the summary and explanation for § 1910.156(i)(2), OSHA is proposing to add a new provision to 29 CFR 1910.158, at paragraph (c)(2)(iii), requiring the employer to ensure that standpipe system inlet connections and fittings are compatible with, or adapters are provided for, the fire hose couplings used by the fire department(s) or Workplace Emergency Response Team(s) that pump water into the standpipe system through the connections or fittings.

G. Section 1910.159 Automatic Sprinkler Systems

Existing 29 CFR 1910.159, which includes requirements for automatic sprinkler systems, does not require fire hose threads on inlet connections for automatic sprinkler systems to be compatible with the hoses used by the local fire department. For the same reasons discussed in the summary and explanation for § 1910.156(i)(2), OSHA is proposing to add a new provision, 29 CFR 1910.159(c)(12), requiring the employer to ensure that sprinkler system inlet connections and fittings are compatible with, or adapters are provided for, the fire hose couplings used by the fire department(s) or Workplace Emergency Response Team(s) that pump water into the sprinkler system through the connections or fittings.

VI. Technological Feasibility

As discussed in *Pertinent Legal Authority* (Section III), OSHA must prove, by substantial evidence in the rulemaking record, that its standards are technologically and economically feasible, which the Supreme Court has defined as ''capable of being done, executed, or effected'' (*American Textile Mfrs. Inst.* v. *Donovan* (Cotton Dust), 452 U.S. 490, 508–09 (1981)). A standard is technologically feasible if the protective measures it requires already exist, can be brought into existence with available technology, or can be created with technology that can reasonably be expected to be developed (*Am. Iron & Steel Inst.* v. *Occupational Safety & Health Admin.* (Lead II), 939 F.2d 975, 980 (D.C. Cir. 1991); *United Steelworkers* v. *Marshall* (Lead I), 647 F.2d 1189, 1272 (D.C. Cir, 1980), *cert. denied,* 453 U.S. 913 (1981)).

For this proposed rule, OSHA evaluated each proposed provision to identify those that required the implementation of protective measures or addressed facility and equipment-related aspects of emergency response, as opposed to those that established programs, processes, or procedures. OSHA also reviewed the emergency response safety practices currently in place across industry and the recommended practices of industry trade associations and standards-setting organizations, including NFPA standards. The NFPA standards provide

guidelines for industry and are generally compatible with current industry practices and technology. OSHA did not find any barriers to technological feasibility with regard to the protective measures, equipment, or facilities required to comply with these provisions. This subsection presents the details of this conclusion with regard to specific requirements for equipment and facilities.

The proposed rule contains requirements for ensuring that team members and responders who respond to emergency incidents are prepared for the wide variety of situations where they may be called upon to provide service. The provisions of the proposed rule are largely programmatic and require employers to implement a written Emergency Response Program (ERP) that describes the employer's basic organizational structure and outlines how the employer is addressing the provisions of the rule. As part of the ERP, the proposed rule requires employers to develop a Risk Management Plan (paragraph (f)), conduct pre-incident planning (paragraphs (m) and (n)), and develop standard operating procedures (paragraph (q)). Other provisions require employers to involve employees in various phases of the program (paragraph (e)), conduct a post-incident analysis after major incidents (paragraph (r)), and evaluate the program periodically (paragraph (s); or outline the requirements for medical and physical fitness (paragraph (g)). These provisions do not include protective measures requiring the use of specific equipment or technology and therefore do not pose a technological feasibility concern.

Paragraph (h) of the proposed rule requires that team members and responders receive training to establish the minimum knowledge and skills necessary to participate in emergency operations, based on the tiers of team members and responders and the type and level of service(s) established in paragraphs (c) and (d), including training on a number of specific topics. It also requires the employer to provide initial training, on-going training, refresher training, and professional development for each team member and responder, including periodic skills checks to verify the minimum proficiency of team members and responders. Proposed paragraph (h) does not mandate a particular form of training nor require the use of particular technology. Moreover, the proposed requirements are not substantially different from the requirements of existing NFPA consensus standards (NFPA 1001, NFPA 1002, NFPA 1005, NFPA 1006, NFPA 1021, NFPA 1081, NFPA 1140, NFPA 1407, NFPA 1500, NFPA 1581), demonstrating that the training required under the proposed standard has widespread acceptance throughout the industry. Accordingly, OSHA has preliminarily determined that such training will not present technological feasibility concerns.

Paragraph (i) of the proposed rule requires WEREs to ensure that their facilities comply with 29 CFR part 1910, subpart E—Exit Routes and Emergency Planning, provide facilities for decontamination, disinfection, cleaning and storage of PPE and equipment, and ensure that facilities are protected with fire protection systems in accordance with 29 CFR part 1910, subpart L—Fire Protection. This paragraph also contains requirements related to fire hose connections and fire hose valves. The majority of these provisions are already addressed by NFPA 1581 or required by existing OSHA standards. With regard to paragraphs (i)(1)(i) and (iii), and (i)(2), the proposed rule does not substantially modify existing requirements or create new requirements; compliance with the existing standards under subpart E and subpart L would generally also meet the requirements of the proposed standard. Paragraph (i)(1)(ii) requires facilities for decontamination, disinfection, cleaning, and storage of PPE and equipment. Similar requirements exist under the HAZWOPER standard (29 CFR 1910.120(k)(8)) and the sanitation standard (29 CFR 1910.141(e)). The latter requires employers to provide change rooms equipped with storage facilities whenever employees are required to wear protective clothing because of possible contamination with toxic materials. Employer compliance with these existing provisions demonstrates that this kind of facility is feasible for employers to provide. Furthermore, the proposed rule does not mandate which of a wide variety of currently used and readily available materials must be used to meet the performance-oriented criteria for decontamination and storage. Based on these considerations, OSHA has preliminary determined that the proposed requirements in paragraph (i) are technologically feasible.

Paragraph (j)(1) of the proposed rule similarly requires ESOs to provide facilities for decontamination, disinfection, cleaning, and storage of PPE and equipment, and to comply with 29 CFR part 1910, subpart E—Exit Routes and Emergency Planning and subpart L—Fire Protection. Paragraph (j)(1)(iii) also requires employers to ensure employees are protected from hazards associated with the use of slide poles. The requirements related to slide poles are based on NFPA 1500 section 10.1.8, which requires that openings around slide poles be secured by a cover, enclosure or other means to prevent someone from accidentally falling through the hole. As discussed above regarding paragraph (i), the majority of these provisions are already addressed in existing NFPA standards or required by existing OSHA standards.

Paragraph (j)(2) addresses sleeping and living areas of the ESO's facility and requires the use of interconnected hard-wired smoke alarms with battery back-up on all levels of the facility and in sleeping areas. In addition, it requires that all sleeping and living areas be equipped with a functioning carbon monoxide detector and be maintained free from the contamination of exhaust emissions, and that the new construction of sleeping quarters have sprinkler systems installed. Employers must also ensure that contaminated PPE is not worn or stored in sleeping and living areas. OSHA based the requirements in this paragraph on NFPA 1581, section 10. Because the requirements of the provision are not substantially different from those in the NFPA standard, and because the equipment required (smoke alarms, carbon monoxide detectors, and sprinkler systems) is readily available on the market, OSHA has preliminarily determined that these requirements are technologically feasible.

Paragraph (k)(1) of the proposed rule contains design, manufacturing, inspection, testing, and access requirements for equipment used in emergency operations. The requirements applicable to equipment in paragraph (k)(1) of the proposed rule reflect common industry safety practices, including those found in NFPA 1500, and currently available equipment meets these criteria. The proposed provisions generally do not require changes in current technology or practices for employers who use standard equipment and follow standard safety procedures.

Paragraph (k)(2) addresses PPE used by team members and responders. The provision expands on the existing requirements under 29 CFR part 1910, subpart I,Personal Protective Equipment by requiring the employer to ensure that PPE complies with certain relevant NFPA and ANSI consensus standards; pay for all required protective equipment without exceptions; implement procedures to ensure all protective equipment, not just respiratory protection, is

decontaminated, cleaned, cared for, inspected and maintained, in accordance with the manufacturer's instructions; and ensure air-purifying respirators are not used in IDLH atmospheres and are only used for those contaminants that NIOSH certifies them against. Paragraph (k)(3) requires decontamination or containment of contaminated PPE and equipment before leaving an incident scene, where feasible, as well as ensuring employees are not exposed to contaminated PPE in passenger compartments of vehicles.

The proposed rule's PPE requirements expand on existing OSHA requirements, incorporate widely accepted consensus standards and, as with the equipment requirements discussed above, do not require changes in current technology. The proposed rule allows the employer to choose any of a wide variety of currently used and readily available properly fitting equipment designs to meet the performance-oriented criteria, based on the hazards their team members and responders may encounter. With respect to the decontamination and cleaning requirements, the PPE must be decontaminated and cleaned according to the manufacturer's instructions. Such instructions are presumptively technologically feasible. Decontamination and cleaning typically involve methods such as rinsing with a hose to reduce or dilute liquid contaminants or rinsing and brushing to displace solid particulate matter. In any situation where PPE and equipment cannot be appropriately cleaned, it can be replaced. Based on these considerations, OSHA preliminarily concludes that the proposed requirements for equipment and PPE are technologically feasible.

Paragraph (l) includes requirements for the inspection, repair, and maintenance of vehicles in paragraph (l)(1) and operation of vehicles in paragraph (l)(2). All provisions contained in proposed paragraph (l) establish program elements with the exception of paragraph (l)(1)(iii), which requires the use of seats, and seatbelts or a vehicle safety harness where equipped; paragraph (l)(2)(vii), which requires the use of a safety harness when riding in a standing position; and paragraph (l)(2)(x), which requires a positive latching enclosure for storage of tools, equipment, or respiratory protection carried within enclosed seating areas of vehicles. OSHA drew the requirements for seats, seat belts, safety harnesses, and the securing of tools and equipment from NFPA 1500, 1901 and 1911; indicating that industry already adopted the requirements as a feasible industry practice using existing technology. The proposed requirements for use of seats and safety belts reflect basic safety considerations already adopted by manufacturers of equipment and by employers. Readily available and currently used technology is capable of meeting these requirements. Where vehicles are designed, built, and intended for use without seat belts or vehicle safety harnesses, the employer is not required to comply with the requirement in paragraph (l)(1)(iii).

Paragraph (p) of the proposed rule contains requirements for Emergency Incident Operations. In addition to outlining various roles and responsibilities, paragraph (p) requires employers to establish hazard control zones, implement traffic safety procedures, establish site communications, and establish incident safety procedures such as the use of protective equipment and minimum staffing levels for certain operations. Most of the provisions in paragraph (p) establish program and/or policy elements and procedures and compliance with these provisions does not require any additional or new technology.

Paragraph (p)(5) contains requirements for the use of effective communication equipment, which can be satisfied with currently available compatible communication devices or radio technology. Moreover, the requirements in paragraph (p) are similar to existing OSHA requirements for certain hazardous chemical response activities in the HAZWOPER standard (29 CFR 1910.120) and to NFPA consensus codes, indicating that industry has already adopted the requirements as an industry practice using existing technology. Therefore, OSHA has preliminarily determined that the requirements of paragraph (p) can be met with existing technology.

In conclusion, the proposed rule is largely programmatic and allows the employer to choose any of a wide variety of currently used and readily available materials, equipment, and procedures to meet the performance-oriented criteria. For the few provisions where OSHA has specified requirements for equipment, the requirements are based on existing consensus standards, incorporate existing OSHA standards, or are similar to existing OSHA requirements in other standards. Both existing and new requirements can be met with readily available and currently used equipment and technology. Accordingly, OSHA has preliminarily determined that the proposed rule is technologically feasible.

VII. Preliminary Economic Analysis

Introduction

OSHA has examined the impacts of this rulemaking as required by Executive Order 12866 on Regulatory Planning and Review (September 30, 1993), Executive Order 13563 on Improving Regulation and Regulatory Review (January 18, 2011), Executive Order 14094 entitled ''Modernizing Regulatory Review'' (April 6, 2023), the Regulatory Flexibility Act (RFA) (September 19, 1980, Pub. L. 96–354), section 202 of the Unfunded Mandates Reform Act of 1995 (March 22, 1995; Pub. L. 104–4), and Executive Order 13132 on Federalism (August 4, 1999).

Executive Orders 12866 and 13563 direct agencies to assess all costs and benefits of available regulatory alternatives and, if regulation is necessary, to select regulatory approaches that maximize net benefits (including potential economic, environmental, public health and safety effects, distributive impacts, and equity).[7] The Executive Order 14094 entitled ''Modernizing Regulatory Review'' (hereinafter, the Modernizing E.O.) amends section 3(f)(1) of Executive Order 12866 (Regulatory Planning and Review). The amended section 3(f) of Executive Order 12866 defines a ''significant regulatory action'' as an action that is likely to result in a rule: (1) having an annual effect on the economy of $200 million or more in any 1 year (adjusted every 3 years by the Administrator of OIRA for changes in gross domestic product), or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, territorial, or tribal governments or communities; (2) creating a serious inconsistency or otherwise interfering with an action taken or planned by another agency; (3) materially altering the budgetary impacts of entitlement grants, user fees, or loan programs or the rights and obligations of recipients thereof; or (4) raise legal or policy issues for which centralized review would meaningfully further the President's priorities or the principles set forth in this Executive order, as specifically authorized in a timely manner by the Administrator of OIRA in each case.

A regulatory impact analysis (RIA) must be prepared for major rules with significant regulatory action/s and/or with significant effects as per section

[7] While OSHA presents the following analysis under the requirements of Executive Orders 12866 and 13563, the agency ultimately cannot simply maximize net benefits due to the overriding legal requirements in the OSH Act.

3(f)(1) ($200 million or more in any 1 year). Based on our estimates, OMB's Office of Information and Regulatory Affairs has determined this rulemaking is significant per section 3(f)(1) as measured by the $200 million or more in any 1 year. Accordingly, OSHA has prepared this Preliminary Economic Analysis [8] that to the best of the agency's ability presents the costs and benefits of the rulemaking. Therefore, OMB has reviewed this proposed regulation, and the agency has provided the following assessment of its impact.

A. Market Failure and Need for Regulation

I. Introduction

Executive Order 12866 (58 FR 51735 (September 30, 1993)) and Executive Order 13563 (76 FR 3821 (January 18, 2011)) direct regulatory agencies to assess whether, from a legal or an economic view, a Federal regulation is needed to the extent it is not ''required by law.'' Executive Order 12866 states: ''Federal agencies should promulgate only such regulations as are required by law, are necessary to interpret the law, or are made necessary by compelling public need, such as material failures of private markets to protect or improve the health and safety of the public, the environment, or the well-being of the American people.'' This Executive order further requires that each agency ''identify the problem that it intends to address (including, where applicable, the failures of private markets or public institutions that warrant new agency action)'' and instructs agencies to ''identify and assess available alternatives to direct regulation.'' (58 FR 51735 (September 30, 1993)). This section addresses those issues of market failure and alternatives to regulation as directed by the Executive order.

OSHA is proposing to replace its existing Fire Brigades standard, 29 CFR 1910.156, with a new standard to fully address the workplace hazards faced by firefighters and other emergency responders because, based on the evidence in the record, there is a compelling public need for a stricter, comprehensive standard under OSH Act legal standards. OSHA presents the legal standards governing this rule and its preliminary findings and conclusions supporting the proposed rule in section II. of the Preamble, Pertinent Legal Authority, and throughout other sections of the Preamble. Even a perfectly functioning market maximizes efficient allocation of goods and services at the expense of other important social values to which the market (as reflected in the collective actions of its participants) is indifferent or undervalues. In such cases, government intervention might be justified to address a compelling public need. The history and enactment of the OSH Act indicate a Congressional view that American markets undervalued occupational safety and health when it set forth the Act's protective purposes and authorized the Secretary of Labor to promulgate occupational safety and health standards.

OSHA has preliminarily determined that emergency responders are exposed to occupational hazards that place them at a significant risk of serious injury, material impairment of health and functional capacity, and death. Emergency responders suffer higher incidence and death rates of heart attacks and some types of cancers than the general population, high rates of fatal and nonfatal injuries, and high rates of suicide and other adverse behavioral health outcomes. OSHA's proposed rule would reduce the number of fatalities from certain types of cancer, fatal injuries, and suicide by an estimated 61 deaths per year and would prevent approximately 11,015 nonfatal injuries per year. These benefits show the need to protect emergency responders from the hazards faced while on duty.

OSHA has preliminarily determined that the standard is technologically and economically feasible (see Section V of the preamble and Chapter VI of this PEA) and not only finds that this proposed rule is necessary and appropriate to ensure the safety and health of emergency responders, as required by the OSH Act, but also demonstrates, in this section, that this rulemaking corrects a market failure in which private and public labor markets fail to adequately protect human health. Although a majority of emergency responders are employed in the public sector, many are not, and OSHA is mandated to ensure, so far as possible, a critical minimum level of safety for these workers. In addition, as discussed, most of these issues pertain to the public sector labor market as well which, left unchecked, could undermine the efficiency of even the labor market as it affects government jobs. Further, in passing section 18 of the OSH Act, Congress determined that public sector employees in states with OSHA-approved State Plans should receive the same protections as private sector employees under those State Plans who, in turn, must receive protections at least as effective as those provided by Federal standards (29 U.S.C. 667(c)(2), (6)). In doing so, Congress determined that protections for these public sector workers should not be left solely to the public sector labor market.

As discussed in this chapter, OSHA concludes there is a demonstrable failure of labor markets to protect workers from exposure to unnecessary risks from emergency response activity. In making this statement, the agency recognizes that many firms and governments have responded to the risks to emergency responders by implementing control programs for their workers. In fact, some existing control programs go beyond the requirements of the proposed rule, and information that OSHA has collected suggests that a significant percentage of all employees in workplaces where emergency responder risks are present are currently receiving at least some level of protection against the risks posed by emergency response activities. For these organizations and these workers, the economic incentives provided by the current labor market appears to be working effectively. Nevertheless, the effectiveness of labor markets in providing the level of worker health and safety required by the OSH Act is not universal, as many other employers in the same sectors fail to provide their workers with equivalent levels of protection against emergency response hazards, as evidenced by the documented injuries, illnesses, and deaths discussed throughout this preamble. Accordingly, the general availability of adequate protections speaks to the feasibility of the standard, not necessarily to the lack of need.

In this case, OSHA has preliminarily determined that, despite existing OSHA standards, new protections are needed to ensure the safety and health of emergency responders. If markets worked efficiently there would be no need for either the existing standards or a new one. This section is devoted to showing that markets fail with respect to optimal risk for occupational exposure to emergency response hazards. Other sections of this preamble address whether, given that markets fail, a new regulation is needed to replace the existing regulation.

The discussion below considers why labor markets, as well as information dissemination programs, workers' compensation systems, and tort liability options, each may fail to protect workers from emergency response hazards, resulting in the need for a more

[8] OSHA historically has referred to their regulatory impact analyses as Economic Analyses in part because performing an analysis of economic feasibility is a core legal function of their purpose. But a PEA (or Final Economic Analysis) should be understood as including an RIA.

protective OSHA emergency response rule.

II. Labor Market Imperfections

Under suitable conditions, a market system is economically efficient in the following sense: resources are allocated where they are most highly valued; the appropriate mix of goods and services, embodying the desired bundle of characteristics, is produced; and further improvements in the welfare of any member of society cannot be attained without making at least one other member worse off.

Economic theory, supported by empirical data, argues that, in the job market, employers and workers bargain over the conditions of employment, including not only salary and other worker benefits, but also occupational risks to worker safety and health. Employers compete among themselves to attract workers. In order to induce workers to accept hazardous jobs, employers must offer a higher salary—termed a ''wage premium for risk'' or ''risk premium'' for short—to compensate for the additional job risk.[9] Because employers must pay higher wages for more hazardous work, they have an incentive to make the workplace safer by making safety-related investments in equipment and training or by using more costly but safer work practices. According to economic theory, the operation of the job market will provide the optimal level of occupational risk when each employer's additional cost for job safety just equals the avoided payout in risk premiums to workers. The theory assumes that each employer is indifferent to whether it pays the higher wage or pays for a safer or more healthful workplace but will opt for whichever costs less or improves productivity more.

For the job market to function in a way that leads to optimal levels of occupational risk, three conditions must be satisfied. First, workers and employers must have the same, perfect information—that is, they must be fully informed about their workplace options, including job hazards, or be able to less costly acquire such information. Second, participants in the job market must directly bear all the costs and obtain all the benefits of their actions. In other words, none of the direct impacts of job market transactions can be externalized to outside parties. Third, the relevant job market must be perfectly competitive, which means it must contain such a large number of employers and such a large number of workers that no individual economic agent is able to influence the risk-adjusted wage.

The discussion below examines (1) imperfect information, (2) externalities, and (3) imperfect competition in the job market in more detail, with particular emphasis on worker exposure to emergency response hazards, as appropriate.[10]

A. Imperfect Information

As described below, imperfect information about job hazards is present at several levels that reinforce each other: employers frequently lack knowledge about workplace hazards and how to reduce them; workers are often unaware of the workplace health and safety risks to which they are exposed; and workers typically have difficulty in understanding the risk information they are able to obtain. Imperfect information at these various levels has likely impeded the efficient operation of the job market regarding workplace risk because workers—unaware of job hazards—do not seek, or receive, full compensation for the risks they bear. As a result, even if employers have full knowledge about the risk, their employees do not. If employees do not have full knowledge about the risk, employers have less incentive to invest in safer working conditions than they would in the presence of full information since wages are suppressed below what full knowledge by the workers would yield.

(i) Lack of Employer Information

In the absence of regulation, employers may lack economic incentives to optimally identify the health risks that their workers face.[11] Furthermore, employers have an economic incentive to withhold the information they do possess about job hazards from their workers, whose response would be to demand safe working conditions or higher wages to compensate for the risk. Relatedly, in the absence of regulation, employers, as well as third parties, may have fewer incentives to develop new technological solutions to protect workers on the job. For evidence of regulatory stimuli inducing innovations to improve worker health and safety, see, for example, Ashford, Ayers, and Stone (1985) OSHA–2010–0034, Document ID 0536, as well as more recent evidence from OSHA's regulatory reviews under section 610 of the RFA (5 U.S.C. 610).

As a result, without regulation, many employers are unlikely to make themselves aware of the magnitude of emergency responder safety and health risks in the workplace or of the availability of effective ways of ameliorating or eliminating these risks.

(ii) Lack of Worker Information About Health Hazards

Although some of the safety risks in emergency response may be somewhat apparent to the employee because they are obvious (*e.g.,* a fire, a hole in the floor, or falling objects), the occupational *health* hazards are less obvious and well known to employers and employees. Whereas the relationship between a workplace accident and the resultant injury is usually both immediate and visible, the connection between exposure to an occupational health hazard and the resultant disease may not be. Even though falls and physical trauma occur in everyday life, it is easier to know when the injuries occurred on the job than to know the cause of a cancer that may be associated with occupational exposure to a toxic substance. Some diseases have multiple potential causes and may be the result of synergistic effects, thus creating difficulties in ascertaining whether, in some specific situations, a worker's disease is job-related rather than an ''ordinary disease of life'' resulting from genetic, physiological, lifestyle, or non-occupational environmental factors.[12]

Compounding this causation problem is the fact that there is frequently a long latency period between exposure to the occupational health hazard and the manifestation of the resultant disease. Consequently, without specialized knowledge, the connection between work conditions and a chronic disease is more easily missed than an acute injury and more easily attributed to non-occupational exposures. Furthermore, by the time that signs and symptoms of occupational health problems arise, it is often too late for workers to make use of that information. Therefore, any

[9] The concept of compensating wage differentials for undesirable job characteristics, including occupational hazards, goes back to Adam Smith's *The Wealth of Nations,* which was originally published in 1776.

[10] The section on workers' compensation insurance later in this chapter identifies and discusses other related market imperfections.

[11] Other private parties may lack sufficient incentives to invest resources to collect and analyze occupational risk data due to the public-good nature of the information. See Ashford and Caldart (1996), OSHA–2010–0034, Document ID 0538, p. 234.

[12] It is true that, in rare circumstances, the cause of a disease is unique or nearly so. Examples of such ''signature'' diseases include mesothelioma and angiosarcoma, which are caused by exposure to asbestos and vinyl chloride, respectively. In the case of exposure to combustion products the toxic exposure is almost inevitably a complex mixture of substances lacking any clear signature.

incentive an employer has to invest in occupational disease prevention is diluted by the lengthy passage of time between exposure and disease manifestation (by which time the employees may be working elsewhere or retired) and the various uncertainties regarding causation in any specific case. Markets cannot adequately address this risk of latent occupational disease if employees and employers are unaware of the changes in risk brought about by an employer's actions. Even if employees and employers are aware of a risk, the employer may have limited economic motivation to install controls unless the employees are able to accurately assess the effects of those controls on their occupational risks.

Accordingly, even if workers have general knowledge that they are at increased risk of disease from occupational exposure, it is unrealistic to expect, absent mandatory regulatory requirements, that they know the calculated risks associated with different exposure levels or the exposures they are experiencing or accumulated in the past, much less that they can use that knowledge to negotiate a significant reduction in exposures and other protections or (if more desirable) trade it for greater hazard pay. And without any way to enforce standards agreed to by an employer, employees would have no way to check that they are getting the benefit of their bargain or hold the employer to it. Another reason that imperfect information impairs a worker's decision-making ability is that workers are unlikely to know the workplace risks associated with their particular employer, or with one potential employer versus another, even if the types of work assignments are the same.

Both experimental studies and observed market behavior suggest that individuals have considerable difficulty rationally processing information about low-probability, high-consequence events such as occupational fatalities and long-term disabilities.[13] For example, many individuals may not be able to comprehend or rationally act on risk information when it is presented, as risk analysis often is, in mathematical terms—a 1⁄1,000 versus a 1/10,000 versus a 1/100,000 annual risk of death from occupational causes.

Of course, in the abstract, many of the problems that employers and workers face in obtaining and processing occupational risk can lead workers to overestimate as well as underestimate the risk. However, in the case of toxic exposure, the related diseases—including various forms of cancer—may be sufficiently unfamiliar and unobvious that many workers may be completely unaware of the risk, and therefore will underestimate it.

In addition, for markets to optimally address this risk, employees need to be aware of the changes in risk brought about by an employer's actions. Even if employees are aware of a risk, the employer may have limited economic motivation to install controls unless the employees are able to accurately assess the effects of those controls on their occupational risks. Furthermore, there is substantial evidence that most individuals are unrealistically optimistic, even in high-stakes, high-risk situations and even if they are aware of the statistical risks (Thaler and Sunstein, 2009, OSHA–2010–0034, Document ID 1697, pp. 31–33). Although the agency lacks specific evidence on the effect of these attitudes on assessing occupational safety and health risks, this suggests that some workers underestimate their own risk of work-related injury, disease, or fatality and, therefore, fail to demand adequate compensation for bearing those risks. Finally, the difficulty that workers have in distinguishing marginal differences in risk at alternative worksites, both within an industry and across industries, creates a disincentive for employers to incur the costs of reducing workplace risk.

B. Externalities

Externalities arise when an economic transaction generates direct positive or negative spillover effects on third parties not involved in the transaction. The resulting spillover effect, which leads to a divergence between private and social costs, undermines the efficient allocation of resources in the market because the market is imparting inaccurate cost and price signals to the transacting parties. Applied to the job market, when costs are externalized, they are not reflected in the decisions that employers and workers make—leading to allocative distortions in that market.

Negative externalities exist in the job market because many of the costs of occupational injury and illness are borne by parties other than individual employers or workers. The major source of these negative externalities, for chronic occupational diseases, is the occupational illness cost that workers' compensation does not cover.[14] Workers and their employers often bear only a portion of these costs. Outside of workers' compensation, workers incapacitated by an occupational injury or illness and their families often receive health care, rehabilitation, retraining, direct income maintenance, or life insurance benefits, much of which are paid for by society through Social Security and other social insurance and social welfare programs.[15] Moreover, specifically in the case of Emergency Response, volunteer responders may or may not be covered by Workers Compensation in any form.[16]

Furthermore, substantial portions of the medical care system in the United States are heavily subsidized by the government so that part of the medical cost of treating injured or ill workers is paid for by the rest of society (Nichols and Zeckhauser, 1977, Docket OSHA–2010–0034, Document ID 0834, pp. 44–45). To the extent that employers and workers do not bear the full costs of occupational injury and illness, they will ignore these externalized costs in their job-market negotiations. The result may be an inefficiently high level of occupational risk.

An extreme case of ''spillovers'' is one of a ''public good'': defined as a commodity such that if it is provided to one, it is zero cost for another individual to also ''consume'' the commodity. One classic example is national defense: a defense umbrella helps protect everyone in a country, though at no charge to any particular person. Marginal cost pricing can break down and there can be pressure for other institutional arrangements such as voting mechanisms and economic ''clubs.'' [17] OMB's circular A–4

[13] The literature documenting risk perception problems is extensive. See, in particular, the classic work of Tversky and Kahneman (1974), OSHA–2010–0034, Document ID 1675. For a recent summary of risk perception problems and their causes, see Thaler and Sunstein (2008), OSHA–2010–0034, Document ID 1697, pp. 17–37.

[14] Workers' compensation is discussed separately later in this chapter. As described there, in many cases (particularly for smaller firms), the premiums that an individual employer pays for workers' compensation are only loosely related, or unrelated, to the occupational risks that that employer's workers bear. However, workers' compensation does not cover chronic occupational diseases in most instances. For that reason, negative externalities tend to be a more significant issue in the case of occupational exposures that result in diseases.

[15] In addition, many occupational injuries and most occupational illnesses are not processed through the workers' compensation system at all. In these instances, workers receive care from their own private physician rather than from their employer's physician.

[16] This depends on the individual state law and how the ESO is organized. See *https://workinjurysource.com/workers-compensation-for-volunteer-firefighters/*.

[17] The original classic reference on public goods is ''The Pure Theory of Public Expenditure,'' Samuelson, Paul A., The Review of Economics and

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specifically notes that public good aspects can be a valid reason to turn to a regulation. That document discusses various types of market failure as being a possible reason for regulation, stating: '''Public goods,' such as defense or basic scientific research, are goods where provision of the good to some individuals cannot occur without providing the same level of benefits free of charge to other individuals'' (OMB Circular A–4, Regulatory Analysis (Sept. 17, 2003), p. 4, available at *https://www.whitehouse.gov/wp-content/uploads/legacy_drupal_files/omb/circulars/A4/a-4.pdf*).

With respect to this proposed rule, the specific nature of emergency response means that in this industry, even more so than in others, ordinary market mechanisms do not operate to ensure an optimal level of employee safety and health. Fires and other types of emergencies are by their nature unplanned, and there would be no opportunity, for example, for a fire department to bargain with the owner of a burning building about the level of toxicity of the burning materials. Accordingly, fire departments and other emergency response employers have a prima facie case that regulation can be a replacement for a missing private market.

(C) Imperfect Competition

In the idealized job market, the actions of large numbers of buyers and sellers of labor services establish the market-clearing, risk-compensated wage, so that individual employers and workers effectively take that wage as given. In reality, however, the job market is not one market but many markets differentiated by location, occupation, and other factors; entrants in the labor market face search frictions because of limited information on employment options; and, furthermore, in wage negotiations with their own workers, employers are typically in an advantageous position relative to all other potential employers. In these situations, discussed below, employers may have sufficient power to influence or to determine the wage their workers receive. This may undermine the conditions necessary for perfect competition and can result in inadequate compensation for workers exposed to workplace hazards. Significant unemployment levels, local or national, may also undermine the conditions necessary for adequate compensation for exposure to workplace hazards.

Beyond the classic—but relatively rare—example of a town dominated by a single company, there is significant evidence that some employers throughout the economy are not wage-takers but, rather, face upward-sloping labor supply curves and enjoy some market power in setting wages and other conditions of employment.[18] An important source of this phenomenon is the cost of a job search and the employer's relative advantage, from size and economies of scale, in acquiring job market information.[19] Another potentially noteworthy problem in the job market is that, contrary to the model of perfect competition, workers with jobs cannot without cost quit and obtain a similar job at the same wage with another employer. Workers leaving their current job may be confronted with the expense and time requirements of a job search, the expense associated with relocating to take advantage of better employment opportunities, the loss of firm-specific human capital (*i.e.,* firm-specific skills and knowledge that the worker possesses), the cost and difficulty of upgrading job skills, and the risk of a prolonged period of unemployment. In addition, employers derive market power from the fact that a portion of the compensation their workers receive is not transferable to other jobs. Examples include job-specific training and associated compensation, seniority rights and associated benefits, and investments in a pension plan.

Under the conditions described above, employers would not have to take the market-clearing wage as given but could offer a lower wage than would be observed in a perfectly competitive market,[20] including less than full compensation for workplace health and safety risks. As a result, relative to the idealized competitive job market, employers would have less incentive to invest in workplace safety. In any event, for reasons already discussed, an idealized wage premium is not an adequate substitute for a workplace that puts a premium on health and safety.

It is worth further noting that while there might be elements of competition in the labor market for emergency responders, the local fire department or EMS *does* in some ways approximate a monopolistic employer in many localities, for those individuals with emergency responder skills who choose to use them for the benefit of the community. Volunteers as well as career employees may have limited options as to which ESO they choose to join within a certain geographic area.

The following discussion considers whether non-market and quasi-market alternatives to the final rule would be capable of protecting emergency response workers from numerous workplace hazards. The alternatives under consideration are information dissemination programs, workers' compensation systems, and tort liability options.

(i) Information Dissemination Programs

One alternative to OSHA's proposed Emergency Response rule could be the dissemination of information, either voluntarily or through compliance with a targeted mandatory information rule, akin to OSHA's Hazard Communication standard (29 CFR 1910.1200), which would provide more information about the safety and health risks associated with workplace exposure to the physical hazards and toxic substances emergency responders might be exposed to. Better informed workers could more accurately assess the occupational risks associated with different jobs, thereby facilitating, through labor market transactions, higher risk premiums for more hazardous work and inducing employers to make the workplace less hazardous. The proposed rule recognizes the link between the dissemination of information and workplace risks by requiring that emergency response workers be provided with information and training about the risks they encounter and ways to prevent them. There are several reasons, however, why reliance on information dissemination programs alone would not yield the level of worker protection achievable through the proposed rule, which incorporates hazard communication as part of a comprehensive approach designed to control the hazard in addition to providing for the disclosure of information about it.

First, in the context of the Hazard Communication standard, which

Statistics, Nov. 1954. For related ''club theory,'' the original reference is ''An Economic Theory of Clubs,'' Buchanan, James M., Economica, Feb., 1965.

[18] See, for example, Borjas (2000) Docket OSHA–2010–0034, Document ID 0565. See also Ashenfelter, Farber, and Ransom (2010) and Boal and Ransom (1997), providing supplemental evidence. The term ''monopsony'' power is sometimes applied to this situation, but it does not necessarily require a single employer.

[19] See Borjas (2000), Docket OSHA–2010–0034, Document ID 0565. As supplemental authorities, Weil (2014) presents theory and evidence both in support of this proposition and to show that, in many situations, larger firms have more monopsony power than smaller firms, while Boal and Ransom (1997, p. 97) note that the persistent wage dispersion observed in labor markets is a central feature of equilibrium search models.

[20] For a graphical demonstration that an employer with monopsony power will pay less than the competitive market wage, see Borjas (2000), Docket OSHA–2010–0034, Document ID 0565, pp. 187–189.

requires employers to transmit information about hazardous substances, that standard alone does not require that sufficient information be provided to identify risks in specific workplaces. Emergency responder-related risks, for instance, are highly specific to individual tasks and work environments. More hazard-specific training required under the proposed standard would supplement that.

Second, in the case of voluntary information dissemination programs, absent a regulation, there may be significant economic incentives, for all the reasons discussed in the Labor Market Failure section above, for the employer *not* to gather relevant exposure data or distribute occupational risk information so that the workers would not change jobs or demand higher wages to compensate for their newly identified occupational risks.

Third, even if workers were better informed about workplace risks and hazards, all of the defects in the functioning of the private job market previously discussed—the limited ability of workers to evaluate risk information, externalities, and imperfect competition—would still apply. Because of the existence of these defects, better information alone would not lead to wage premiums for risk in accordance with efficient market theory.

Finally, as discussed in the Benefits chapter, a number of additional safety provisions under the proposal would complement information and training provided by other regulatory vehicles. For example, while it is useful to know about what toxic substances one would encounter on the job, proper use and maintenance of PPE are critical to protecting emergency responders.

Thus, while improved access to information about emergency response-related hazards can provide for more rational decision-making in the private job market, OSHA concludes that information dissemination programs would not, by themselves, produce an adequate level of worker protection.

(ii) Workers' Compensation Systems

Another theoretical alternative to OSHA regulation could be to determine that no rule is needed because State workers' compensation programs augment the workings of the job market to limit occupational risks to worker safety and health. After all, one of the objectives of the workers' compensation system is to shift the costs of occupational injury and disease from workers to employers in order to induce employers to improve working conditions. Two other objectives relevant to this discussion are to provide fair and prompt compensation to workers for medical costs and lost wages resulting from workplace injury and disease and, through the risk-spreading features of the workers' compensation insurance pool, to prevent individual employers from suffering a catastrophic financial loss (Ashford, 2007, Docket OSHA–2010–0034, Document ID 1702, p. 1712).

OSHA identifies three primary reasons, discussed below, why the workers' compensation system has fallen short of the goal of shifting to employers the costs of workplace injury and disease—including, in particular, the costs of worker exposure to emergency response related hazards. As a result, OSHA concludes that workers' compensation programs alone do not adequately protect workers. In addition, although not necessary to support this conclusion, OSHA takes notice of several studies highlighting the general decline in the adequacy and fairness of State workers' compensation programs, the significant variability among State workers' compensation programs, and the compensation inadequacies that ultimately shift these costs back to the workers or to the government (Docket OSHA–2010–0034, Document ID 0386. Document ID 0387).

(a) Failure To Provide Compensation for Most Occupational Diseases

The first, and most important, reason that workers' compensation is not an adequate alternative is that State workers' compensation programs tend not to provide benefits for most work-related diseases—including those resulting from exposure to combustion products and other hazards encountered in emergency response situations. Several related factors account for this:

- Most occupational diseases have multiple causes and are indistinguishable from ordinary diseases of life. Therefore, it is difficult for workers' compensation to trace the cause of these diseases to the workplace;
- Many occupational diseases have long latency periods, which tends to obscure the actual cause of disease or the place of employment where exposure occurred;
- Workers (as well as medical personnel) often do not realize that a disease is work-related and, therefore, fail to file a workers' compensation claim; and
- Most States have statutes of limitations that are 10 years or less for filing workers' compensation claims. This may preclude claims for illnesses involving long latency periods. Also, many States have a minimum exposure time period before a disease can be attributed to an occupational cause.

With the exception of musculoskeletal disorders, workers' compensation covers only 5 percent of occupational diseases (including emergency response-related occupational diseases) and 1.1 percent of occupational fatalities (Ashford, 2007, Docket OSHA–2010–0034 Document ID 1702, p. 1714).

(b) Limitations on Payouts

The second reason that employers do not fully pay the costs of work-related injuries and disease under the workers' compensation system is that, even for those claims that are accepted into the system, states have imposed significant limitations on payouts. Depending on the State, these limitations and restrictions include:

- Caps on wage replacement based on the average wage in the State rather than the injured workers' actual wage;
- Restrictions on which medical care services are compensated and the amount of that compensation;
- No compensation for non-pecuniary losses, such as pain and suffering or impairment not directly related to earning power;
- Either no, or limited, cost-of-living increases;
- Restrictions on permanent, partial, and total disability benefits, either by specifying a maximum number of weeks for which benefits can be paid or by imposing an absolute ceiling on dollar payouts; and
- A low absolute ceiling on death benefits.

The last two restrictions may be the most limiting for occupational diseases with long-term health effects and possible fatal outcomes, such as those associated with worker exposure to emergency response-related hazards.

(c) A Divergence Between Workers' Compensation Premiums and Workplace Risk

The third reason workers' compensation does not adequately shift the costs of work-related injuries and illnesses to employers is that the risk-spreading objective of workers' compensation conflicts with, and ultimately helps to undermine, the cost-internalization objective.[21] For the 99 percent of employers who rely on workers' compensation insurance,[22] the

[21] Recall from the earlier discussion of externalities that the failure to internalize costs leads to allocative distortions and inefficiencies in the market.

[22] Only the largest firms, constituting approximately 1 percent of employers and representing approximately 15 percent of workers,

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payment of premiums represents their primary cost for occupational injuries and illnesses, such as emergency response-related injuries and illnesses. However, the mechanism for determining an employer's workers' compensation insurance premium typically fails to reflect the actual occupational risk present in that employer's workplace.

Approximately 85 percent of employers have their premiums set based on a ''class rating,'' which is based on *industry* illness and injury history. Employers in this class are typically the smallest firms and represent only about 15 percent of workers (Ashford, 2007, Docket OSHA–2010–0034, Document ID 1702, p. 1713). Small firms are often ineligible for experience rating because of insufficient claims history or because of a high year-to-year variance in their claim rates. These firms are granted rate reductions only if the experience of the entire class improves. The remaining 14 percent of employers, larger firms representing approximately 70 percent of workers, have their premiums set based on a combination of ''class rating'' and ''experience rating,'' which adjusts the class rating to reflect a firm's individual claims experience. A firm's experience rating is generally based on the history of workers' compensation payments to workers injured at that firm's workplace, not on the quality of the firm's overall worker protection program or safety and health record. Thus, for example, the existence of circumstances that may lead to catastrophic future losses are not included in an experience rating—only actual past losses are included.[23] Insurance companies do have the right to refuse to provide workers' compensation insurance to an employer—and frequently exercise that right based on their inspections and evaluations of a firm's health and safety practices. However, almost all States have assigned risk pools that insist that any firm that cannot obtain workers' compensation policies from any insurer must be provided workers' compensation insurance at a State-mandated rate that reflects a combination of class and experience rating. Workers' compensation insurance does protect individual employers against a catastrophic financial loss due to work-related injury or illness claims. As a result of risk spreading, however, employers' efforts to reduce the incidence of occupational injuries and illnesses are not fully reflected in reduced workers' compensation premiums. Conversely, employers who devote fewer resources to promoting worker safety and health may not incur commensurately higher workers' compensation costs. This creates a type of moral hazard, in that the presence of risk spreading in workers' compensation insurance may induce employers to make fewer investments in equipment and training to reduce the risk of workplace injuries and illnesses.

In short, the premiums most individual employers pay for workers' compensation insurance coverage do not reflect the actual cost burden those employers impose on the worker's compensation system. Consequently, employers considering measures to lower the incidence of workplace injuries and illnesses can expect to receive a less-than-commensurate reduction in workers' compensation premiums. Thus, for all the reasons discussed above, the workers' compensation system does not provide adequate incentives to employers to control occupational risks to worker safety and health.

III. Tort Liability Options

Another alternative to OSHA regulation could be for workers to use the tort system to seek redress for work-related injuries and diseases, including emergency response-related ones. A tort is a civil wrong (other than breach of contract) for which the courts can provide a remedy by awarding damages. The application of the tort system to occupational injury and disease would allow workers to sue their employer, or other responsible parties (*e.g.,* ''third parties'' such as suppliers of hazardous material or equipment used in the workplace) to recover damages. In theory, the tort system could shift the liability for the direct costs of occupational injury and illness from the worker to the employer or to other responsible parties. In turn, the employer or third parties would be induced to improve worker safety and health.

With limited exceptions, the tort system has not been a viable alternative to occupational safety and health regulation because State statutes make workers' compensation the ''exclusive remedy'' for work-related injuries and illnesses. Workers' compensation is essentially a type of no-fault insurance. In return for employers' willingness to provide, through workers' compensation, timely wage-loss and medical coverage for workers' job-related injuries and diseases, regardless of fault, workers are barred from suing their employers for damages, except in cases of intentional harm or, in some States, gross negligence (Ashford and Caldart, 1996, Docket OSHA–2010–0034, Document ID 0538, p. 233). Practically speaking, in most cases, workers' compensation is the exclusive legal remedy available to workers for workplace injuries and illnesses.

Workers are thus generally barred from suing their own employers in tort for occupational injuries or disease but may attempt to recover damages for work-related injuries and disease from third parties through the tort system. However, the process may be lengthy, adversarial, and expensive. In addition, in tort cases involving chronic occupational disease, the likelihood of prevailing in court and ultimately obtaining compensation may be small because:

- In a tort action, the burden of proof is on the plaintiff (*i.e.,* the worker) to demonstrate by ''a preponderance of the evidence'' that the defendant (*i.e.,* the responsible third party) owed a duty to the plaintiff, that the defendant breached that duty, and that the breach caused the worker's injury or disease;
- To establish third-party liability the worker must typically show that the third party's products or equipment or instructions were defective or negligently designed. Liability is often in dispute and difficult to prove;
- In cases of chronic disease, especially those with long latency periods, it is typically even more difficult to prove that the third-party was causally responsible. The worker must prove that not only was the disease the result of occupational exposure and not an ordinary disease of life or the result of non-occupational exposure, but also the causal exposure was due to the defendant's product at the plaintiff's particular worksite rather than exposure to some other third party's product or exposure at some other worksite;
- For chronic diseases, the potentially lengthy latency period between worker exposure and manifestation of disease lowers the probability that the responsible third party will still be in business when tort claims are ultimately

are self-insured. These individual firms accomplish risk-spreading as a result of the large number of workers they cover. See Ashford (2007), Docket OSHA–2010–0034, Document ID 1702, p. 1712.

[23] In order to spread risks in an efficient manner, it is critical that insurers have adequate information to set individual premiums that reflect each individual employer's risks. As the preceding discussion has made clear, by and large, they do not. In that sense, insurers can be added to employers and workers as possessing imperfect information about job hazards.

filed and have sufficient assets to cover the claims; [24] and

• Workers may be deterred from filing tort actions because of the substantial costs involved—including attorney fees, court costs, and the costs of obtaining evidence and securing witnesses—and the lengthy period before a final decision is rendered.

In sum, the use of the tort system as an alternative to regulation is severely limited because of the ''exclusive remedy'' provisions in workers' compensation statutes; because of the various legal and practical difficulties in seeking recovery from responsible third parties, particularly in cases of occupational disease such as cancer; and because of the substantial costs associated with a tort action. The tort system, therefore, does not adequately protect workers from exposure to hazards in the workplace.

IV. Summary

OSHA's primary reasons for proposing this rule are based on the requirements of the OSH Act and are discussed in section II of the preamble, Pertinent Legal Authority. As shown in the preamble to the proposed rule and this PEA, OSHA has determined that emergency responders are exposed to numerous safety and health hazards in the workplace. This section has shown that labor markets—even when augmented by information dissemination programs, workers' compensation systems, and tort liability options—appear to still operate at a level of risk for these workers that is higher than socially optimal due to a lack of information about safety and health risks, the presence of externalities or imperfect competition, and other factors discussed above.

The following sections present OSHA's estimates of the costs, benefits, and other impacts anticipated to result from the proposed rule. The estimated costs are based on employers achieving full compliance with the requirements of the proposed rule. They do not include prior costs associated with firms whose current practices are already in compliance with the proposed rule requirements. The purposes of this analysis are to:

• Identify the establishments and industries affected by the proposed rule;

• Estimate and evaluate the costs and economic impacts that regulated establishments will incur to achieve compliance with the proposed rule;

• Evaluate the economic feasibility of the proposed rule for affected industries;

• Estimate the benefits resulting from employers coming into compliance with the proposed rule in terms of reductions in injuries and fatalities; and

• Assess the impact of the proposed rule on small entities through an Initial Regulatory Flexibility Analysis (IRFA), which includes an evaluation of significant regulatory alternatives to the proposed rule that OSHA has considered.

B. Profile of Affected Industries

I. Introduction

This chapter presents a profile of the entities and employees within the emergency response service sectors that would be affected by OSHA's proposed Emergency Response Standard. OSHA first identifies the types of organizations that provide emergency response services that would be subject to the standard. Next, OSHA provides summary statistics for the affected entities, including the number of affected entities and the number of affected workers. This information is provided for each affected emergency response service sector in total as well as for small entities as defined by the RFA and by the SBA.

II. Affected Industries and Responders

The proposed rule would apply to employers that provide one or more of the following emergency response services as a primary function: firefighting, emergency medical service, and technical search and rescue; or the employees perform the emergency service(s) as a primary duty for the employer. OSHA refers to these employers as Emergency Service Organizations (ESOs) and their employees as responders. The proposed rule also would apply to Workplace Emergency Response Employers (WEREs), which are defined as employers that have an emergency response team where employees, as a collateral duty to their regular daily work assignments, respond to emergency incidents to provide services such as fire suppression, emergency medical care, and technical search and rescue. The team is called a Workplace Emergency Response Team (WERT), and the employees assigned to the team are called team members.

The proposed rule would directly cover private ESOs and WERTs but would also impact a significant number of state and local government entities, as well as Federal Government entities under the Departments of Defense, Agriculture, and the Interior. Firefighting services, as well as technical search and rescue groups, are often part of state and local governments. These emergency response services are also prominent functions of the Federal Government. Emergency medical services (*e.g.,* ambulance services) are more commonly provided by private entities but may also be provided by state or local governments. While state and local government employees are not directly covered by Federal OSHA, they are covered by states with OSHA-approved State Plans because the OSH Act requires State Plans to cover government employees. Under Executive Order 12866, agencies must consider the likely effects of their rulemakings on state and local governments in their regulatory analyses. For this analysis, OSHA is assuming that State Plan states would adopt the requirements in this proposed rule as written. Emergency response activities undertaken by WERT members at private worksites are fully covered by Federal OSHA.

Another issue in determining the entities that would be affected by the proposed rule is that many emergency responders are volunteers. OSHA does not regulate volunteers, but some State Plan states, listed below, have laws that treat volunteers as employees for occupational safety and health purposes. Therefore, in those situations, State Plans would have to cover those volunteers.

The proposed rule would *not* cover employers performing disaster site clean-up or recovery duties following natural disasters such as earthquakes, hurricanes, tornados, and floods; and human-made disasters such as explosions and transportation incidents.

The specific types of organizations that would be covered by the proposed rule are as follows:

• Firefighting Services—These organizations include private and public entities engaged in structural, wildland, proximity, marine, and aerial firefighting. Employees of these entities may be volunteer or career team members or responders. This group represents the vast majority of entities, team members and responders potentially affected by the proposed rule.

• Emergency Medical Services (EMS)—These organizations include private and public entities engaged in provision of pre-hospital emergency medical service. Employees of these entities may be volunteer or career team members and responders, emergency

[24] The same qualification about the firm being in business and having sufficient assets to pay claims may also apply to liability insurers, in those cases where the firm has purchased liability insurance.

medical technicians (EMTs), paramedics, and registered nurses.

• Technical Search and Rescue—These organizations are involved in complex search and rescue situations, such as rope, vehicle/machinery, structural collapse, trench, and technical water rescue. Employees of these entities may be volunteer or career team members and responders.

Detailed descriptions of these organization types are provided in section 4.

III. Entities Not Covered by the Proposed Rule

As noted above, Federal OSHA does not cover public ESOs in States without OSHA-approved State Plans. Therefore, for the PEA, public ESOs and responders in States without OSHA-approved State Plans are excluded from the analysis. The following states and territories have State Plans [25]: Alaska, Arizona, California, Connecticut, Hawaii, Illinois, Indiana, Iowa, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Nevada, New Jersey, New Mexico, New York, North Carolina, Oregon, Puerto Rico, South Carolina, Tennessee, Utah, U.S. Virgin Islands, Vermont, Virginia, Washington, and Wyoming. The remaining states and territories that are assumed to classify volunteers as covered employees include Alaska, Arizona, California, Hawaii, Indiana, Iowa, Michigan, Minnesota, Nevada, Oregon, Puerto Rico, South Carolina, Washington, Connecticut, Illinois, Maine, Massachusetts, New Jersey, New York, and U.S. Virgin Islands.

Also noted above, many emergency responders are unpaid volunteers rather than paid employees. Some State Plans cover volunteers, and some do not. This analysis does not include volunteer responders in State Plan states where the State Plan does not cover volunteers. State Plan states do not define ''employee'' in a standard way. Therefore, determining which employees are covered is not straightforward. For example, some states may provide benefits in the form of insurance and tax benefits to volunteers that might affect whether they are considered employees. Additionally, some State Plans may extend OSHA protections to volunteer firefighters but not to volunteer EMS providers or other non-firefighting volunteers, while other State Plans extend OSHA protections to all volunteers or to no volunteers. OSHA has determined that the following State Plan states *do not* consider volunteers to be employees and therefore do not extend OSHA protections to volunteers.[26] As a result, volunteers in these states are *not* included in this analysis (although career responders for public entity ESOs are included): Kentucky, Maryland, New Mexico, North Carolina, Tennessee, Utah, Vermont, Virginia, and Wyoming.

OSHA welcomes feedback on why this is or is not an appropriate approach to estimating the number of affected responders. The agency welcomes additional data or information on how volunteer responders are treated regarding OSHA protections in State Plan states.

Some states utilize prison labor to fight wildfires. These inmate firefighters are either paid significantly less per hour than career firefighters or are not paid at all. While some state plans, such as California clearly extend OSH coverage to prison labor,[27] it is somewhat ambiguous whether all such states do. Therefore, for this PEA, OSHA assumed that State Plan states that extend OSH coverage to volunteers do the same for inmate firefighters.

Table VII–B–1 shows the number and percentage of volunteer ESOs and responders in State Plan states where volunteers are and are not covered. ESOs in State Plan states that do not cover volunteers, and which are entirely staffed by volunteer responders, would not be affected by the proposed rule. Approximately 60.2 percent of volunteer ESOs and 62.9 percent of volunteer responders in State Plan states are covered overall.

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[25] Seven of these—Connecticut, Illinois, Maine, Massachusetts, New Jersey, New York, and the Virgin Islands—only cover public sector employees. However, the comparatively limited number of private sector employees in those states are covered by Federal OSHA and have been included in this analysis.

[26] There are an additional three states (Connecticut, Minnesota, and South Carolina), plus the U.S. Virgin Islands, for which it was somewhat ambiguous and where OSHA was unable to determine whether volunteers are considered employees under their State Plans. For this analysis, OSHA assumed that these states do consider volunteers as employees, so as not to underestimate the impacts of the standard.

[27] The California Prison Industry Authority (CALPIA) was cited by the state Division of Occupational Safety and Health (Cal/OSHA) and fined for exposing prisoners employed in a metal fabrication and vehicle-outfitting facility at California State Prison-Solano to COVID–19. *https://www.prisonlegalnews.org/news/2021/apr/1/california-prison-factories-fined-exposing-unwitting-workers-covid-19/.*

Table VII-B-1. Volunteer ESOs & Responders in State Plan States that Cover and Do Not Cover Volunteers

Type of State Plan	Number		Percentage	
	ESOs	Responders	ESOs	Responders
Fire Departments				
Volunteers Covered	5,216	174,895	67.5%	71.6%
Volunteers not Covered	2,517	69,290	32.5%	28.4%
Total	**7,733**	**244,183**	**100.0%**	**100.0%**
Wildland Fire Services [a]				
Volunteers Covered	7	3,737	58.3%	82.1%
Volunteers not Covered	5	815	41.7%	17.9%
Total	**12**	**4,552**	**100.0%**	**100.0%**
Emergency Medical Services				
Volunteers Covered	221	15,379	69.5%	88.0%
Volunteers not Covered	97	2,092	30.5%	12.0%
Total	**318**	**17,471**	**100.0%**	**100.0%**
Technical Search and Rescue				
Volunteers Covered	1,572	60,106	43.7%	43.7%
Volunteers not Covered	2,028	77,570	56.3%	56.3%
Total	**3,600**	**137,676**	**100.0%**	**100.0%**
All Groups				
Volunteers Covered	7,015	254,117	60.2%	62.9%
Volunteers not Covered	4,467	149,766	39.8%	37.1%
Total	**11,662**	**403,883**	**100.0%**	**100.0%**

Source: OSHA derived from USFA, 2022; Office of the Arizona Governor, 2021; CDCR, 2023; Maddux, 2020; Nevada Division of Forestry, 2023; Biancolli, 2018; Stenvick, 2020; WA DOC, 2023; NAEMT, 2014, BLS, 2023; Brewster, 2022; USLA, 2022b; U.S. Census Bureau, 2017a; Miley, 2022; and Wildland Fire Jobs, 2022.

Note: The USFA data in this table does not include Federal entities. However, appendix A, which includes data on all fire departments whether or not they are included in the analysis, does include Federal entities.

[a] The count of wildland fire services ESOs and responders include inmate firefighters and the state governments that utilize prison labor for wildland fighting activities.

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IV. Affected WEREs, ESOs, and Responders

Emergency response services provided by WEREs and ESOs can overlap (*e.g.,* firefighters may also be trained to provide medical assistance and technical search and rescue). Additionally, OSHA assumes that WERTs will likely provide all emergency response services within each facility. Given the overlap among these groups, OSHA first profiles WEREs as one group (vs. separately for each emergency response activity) and then profiles each type of ESO (firefighter, EMS, technical search and rescue).

A. WEREs

OSHA's estimate of the number of WEREs was derived using data from the U.S. Fire Administration (USFA) registry on the number of ''private or industrial fire brigades.'' These entities include private companies that have indicated they have employees (team members) who, collateral to their normal duties, provide firefighting and other emergency response services at the workplace.[28] Upon examination, OSHA found that unlike ESOs, WEREs typically do not appear in the registry. OSHA asked the USFA how representative the National Fire Registry data is, with USFA stating that the number of fire departments in the Registry accounted for about 92% of U.S. fire departments. The National Fire Registry indicates there are 27,091 organizations in the fire registry with available counts on employees. Multiplying 27,091 by 1/0.92 yields an estimate of 29,447 total emergency response organizations overall in the United States. The agency made an additional adjustment for an undercount of private ESOs, estimating that there are 788 private ESOs in the U.S. (twice the official count of 394). This leaves a residual of approximately 1,582 emergency response teams unaccounted for. Based in part on this, the agency estimates that approximately 1,500 emergency response teams are unaccounted for and exist in the form of WEREs. Based on communications with SERs, OSHA believes these WEREs to be within larger establishments across a number of industries such as refineries, auto assembly plants, paper mills, chemical plants, hospitals, and airports, among others.

To account for potential underreporting of these types of entities to the registry as well as to account for other types of WEREs that may not be captured by this registry, OSHA adjusted the number of WEREs to 1,500 WEREs. OSHA scaled the number of WERT members that are captured in the Registry (1,548) by the ratio of adjusted

[28] Note that not all private firefighting organizations reported in the NFPA data are WEREs.

WEREs (1,500) to WEREs captured in the Registry (36). Using this ratio (1,500/36 = 41.7), OSHA estimates that there are 64,500 team members employed in total by 1,500 WEREs. The agency welcomes additional data about the number of WEREs and team members who would fall within the scope of the proposed rule.

B. Fire Departments

According to the USFA registry, in 2022 there were 27,144 fire departments; 52,177 fire stations; and approximately 1,232,980 firefighting and non-firefighting individuals employed by fire departments in the United States.[29] The registry data also include the fire department's organization type (*e.g.,* private, state, local, etc.), department type (*i.e.,* career, volunteer, mostly career, mostly volunteer), and firefighter type (*e.g.,* active career, paid per call, active volunteer, etc.). ''Mostly career'' and ''mostly volunteer'' departments are those with a majority of responders who are career or volunteer firefighters, respectively, and are considered to be ''mixed'' departments.

Table VII–B–2 provides an overview of the number of fire departments in the USFA (2022) registry data by type of department based on firefighter type. This estimate includes all fire departments, whether or not they would be covered by the proposed rule. Table VII–B–2 shows that the majority of fire departments (approximately 61 percent) are volunteer.[30]

Table VII-B-2. Summary Statistics by Fire Department Type

Department Type	ESOs	Percentage
Career	6,844	25%
Volunteer	16,541	61%
Mixed	3,759	14%
Total Fire Departments	**27,144**	**100%**

Source: OSHA derived from USFA (2022).
Notes: ESOs are designated as career if they employ 100 percent career and/or paid-per-call firefighters, and as volunteer if they employ 100 percent volunteer firefighters. Figures may not add to totals due to rounding.

The USFA data also enumerate responders by type at each department in the registry and characterize whether they are career, volunteer, ''paid per call'' (*i.e.,* firefighters employed on a per-incident basis), or non-firefighting employees and volunteers. (This estimate includes all firefighters and non-firefighters, whether or not they would be covered by the proposed rule.) Table VII–B–3 summarizes these data, showing that a plurality of fire department personnel are volunteer firefighters (approximately 47 percent), career firefighters (approximately 30 percent) being the next most common type and paid-per-call firefighters constituting 11 percent of all personnel.

Table VII-B-3. Summary Statistics by Personnel Type

Firefighter Type	Number	Percentage
Active Firefighters - Career	365,311	30%
Active Firefighters - Volunteer	578,565	47%
Active Firefighters - Paid per Call	131,177	11%
Non-Firefighting Personnel	157,927	13%
Total Firefighters	**1,232,980**	**100%**

Source: OSHA derived from USFA (2022).
Note: Figures may not add to totals due to rounding.

Table VII–B–4 shows the interplay between department and personnel types (including all departments and personnel, whether or not they would be covered by the proposed rule). As noted above, the numbers below have been adjusted so that the ''volunteer'' department type includes data for those departments comprising only volunteer firefighters.

[29] These statistics are based on the USFA registry database as of May 17, 2022. Registry data are voluntarily reported by fire departments.

[30] The fire registry data are self-reported by individual fire departments, and in some cases, departments have classified themselves as a ''volunteer'' department even though they also reported some career or paid-per-call responders. OSHA has reclassified these departments such that only those departments where all active firefighters are volunteers are listed as ''volunteer'' departments and only those where all active firefighters are either career or paid per call are ''career,'' with the remainder being ''mixed.''

Table VII-B-4. Summary Statistics by Department and Personnel Type

Department Type	Number of Stations	Active Firefighters - Career	Active Firefighters - Volunteer	Active Firefighters - Paid per Call	Non-Firefighting Personnel
Career	20,023	294,408	0	112,520	35,581
Volunteer	21,725	0	452,512	0	87,996
Mixed	10,429	70,903	126,053	18,657	34,350
Total	**52,177**	**365,311**	**578,565**	**131,177**	**157,927**

Source: OSHA derived from USFA (2022).
Notes: ESOs are designated as career if they employ 100 percent career and/or paid-per-call firefighters, and as volunteer if they employ 100 percent volunteer firefighters.

As shown in Table VII–B–5, the vast majority of fire departments (approximately 96 percent) are operated by local governments. When other public non-federal fire departments (state governments, tribal governments, transportation authority/airport fire departments, and ''other'' departments) are included, public fire departments account for about 97.6 percent of fire departments.

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Table VII-B-5. Summary Statistics by Fire Department Operator for All Fire Department

Organization Type	Departments		Responders	
	Number	Percent	Number	Percent
Local Government (includes career, mixed, and volunteer)	25,973	95.7%	1,019,599	94.8%
State Government	188	0.7%	15,951	1.5%
Transportation Authority or Airport Fire Department	85	0.3%	1,936	0.2%
Tribal Government	64	0.2%	2,595	0.2%
Other	183	0.7%	6,775	0.6%
Federal Government (Department of Defense)	190	0.7%	10,476	1.0%
Federal Government (Executive Branch)	63	0.2%	3,946	0.4%
Contract Fire Department	254	0.9%	8,939	0.8%
Private or Industrial Fire Brigade	144	0.5%	4,836	0.4%
Non-Federal Public (Local, State, Tribal, Transportation Authority/Airport, and Other)	**26,493**	**97.6%**	**1,046,856**	**97.4%**
Federal Government	**253**	**0.9%**	**14,422**	**1.3%**
Private (Contract, Private or Industrial Fire Brigade)[1]	**398**	**1.5%**	**13,775**	**1.3%**
Total	**27,144**	**100.0%**	**1,075,053**	**100.0%**

While OSHA is not using the term "Industrial Fire Brigade" in this standard, this term is used in the NFPA database which is being summarized here.
Source: OSHA derived from USFA (2022).
Note: Figures may not add to totals due to rounding.

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Not all fire departments and responders included in Table VII–B–5 would be covered by the proposed rule. OSHA does not estimate costs or impacts for fire departments reporting zero responders [31] and the non-firefighting personnel included in the USFA (2022) registry data. Further, the analysis excludes public fire departments in non-State Plan states, volunteers in State Plan states where volunteers are not covered by the State Plan, and all-volunteer fire departments in State Plan states that do not cover volunteers. OSHA thus limits the fire department profile to include all private fire departments, all public fire departments in State Plan states that cover volunteers, all public fire departments in State Plan states that do not cover volunteers except those departments that are 100 percent volunteer, and all Federal fire departments. In addition to *removing* some fire departments and responders that are not covered, OSHA checked to ensure that all fire departments operated by tribal governments were removed from this analysis for being out-of-

[31] There are 90 fire departments with no reported active firefighting personnel in the 2022 USFA Registry.

scope. After these adjustments, OSHA estimates that there are 12,096 fire departments and 534,599 responders (see Table VII–B–6) that would be affected by the proposed rule.

Table VII-B-6. Fire Departments and Firefighters in Scope by Department Type

Department Type	Departments	% Departments	Responders	% Responders
Career	4,266	35.3%	246,561	46.1%
Volunteer	5,674	46.9%	187,621	35.1%
Mixed	2,156	17.8%	100,417	18.8%
Total	**12,096**	**100.0%**	**534,599**	**100.0%**

Source: OSHA derived from USFA (2022).
Note: Excludes public ESOs in non-State Plan states, volunteer ESOs in State Plan states where volunteers are not covered, and ESOs with zero responders.

C. Wildland Firefighting Services

In addition to fire departments, many private-sector fire suppression organizations provide wildland firefighting and other emergency services, primarily to Federal, State, and local agencies. These services include direct firefighting as well as support services and are assumed to fall into NAICS 115310 Support Activities for Forestry.[32] The total number of such organizations and the associated personnel is unknown. However, the National Wildfire Suppression Association (NWSA) states that it represents 348 private wildland firefighting services contractors with 24,000 employees who operate on an as-needed basis to provide Federal, State, and local agencies with a variety of resources for wildland firefighting and other emergency incidents (such as hurricanes and other disasters) (Miley, 2022). These for-profit companies represent between 65 and 70 percent of for-profit wildland firefighting services (Miley, 2022). Taking the midpoint of NWSA's representativeness range (67.5 percent), OSHA estimates that 516 companies offer wildland firefighting services across the United States.

Using addresses for member companies as well as other contractor lists (*WildlandFireJobs.com*) and projecting to the total estimated number of organizations, OSHA calculated the percent and total wildland firefighting entities within each state.

Total employment was calculated by dividing the number of wildland firefighting service estimated above by the number of firms in NAICS 115310 and multiplying this percentage by the total number of employees in NAICS 115310, according to the 2021 Statistics of U.S. Businesses (SUSB). This calculation results in an estimated 35,556 employees. All wildland firefighting entities are private entities, according to the NWSA. All responders are considered career; none of these employees are volunteers.

In some states, prison labor is also employed to fight wildfires. To estimate the number of inmate firefighters, OSHA conducted internet searches regarding the number of state prison inmates participating in firefighting training and deployment programs, focusing on State Plan states. While there are non-State Plan states that have inmate firefighting programs, those inmates are not within OSHA's jurisdiction, since the state prisons are publicly owned and operated. OSHA used the search terms ''[state] inmate firefighters,'' ''[state] corrections forestry camps,'' ''[state] prisoner wildfires,'' and ''[state] corrections firefighter training.'' Among the 27 states and two territories that have State Plans, OSHA found evidence of inmate firefighting programs in 14 states. For this PEA, OSHA assumes that inmate firefighters are treated as volunteers within State Plan states. Therefore, only inmate firefighters in State Plan states where the State Plan covers volunteers would be affected. Of the 14 State Plan states for which OSHA found evidence of inmate firefighting programs, seven of them cover volunteers. The counts of inmate firefighters for each of these states are provided in Table VII–B–7. For some states, OSHA found more than one count of inmate firefighters. In these instances, OSHA uses the highest estimate.

[32] This industry comprises establishments primarily engaged in performing particular support activities related to timber production, wood technology, forestry economics and marketing, and forest protection. These establishments may provide support activities for forestry, such as estimating timber, forest firefighting, forest pest control, treating burned forests from the air for reforestation or on an emergency basis, and consulting on wood attributes and reforestation. (U.S. Census Bureau, 2021).

Table VII-B-7. State Wildland Firefighting Programs and Inmate Firefighters Affected

State	Inmate Firefighters	% Inmate Firefighters
Arizona	720	19.3%
California	1,600	42.8%
Indiana	17	0.5%
Nevada	720	19.3%
New York	5	0.1%
Oregon	345	9.2%
Washington	330	8.8%
Total	**3,737**	**100.0%**

Source: OSHA derived from Office of the Arizona Governor, 2021; CDCR, 2023; Maddux, 2020; Nevada Division of Forestry, 2023; Biancolli, 2018; Stenvick, 2020; WA DOC, 2023.

The Federal Government also employs wildland firefighters within the Forest Service. There are approximately 18,700 dedicated wildland firefighters (GAO, 2022) and an additional 50,000 reserve wildland firefighters (USDA, 2023).

D. Emergency Medical Services

The proposed rule, or its State Plan equivalent, would cover public and private ESOs that provide emergency medical services (EMS). However, detailed data for EMS providers similar to those for fire departments are not available. Available data on EMS providers are not captured adequately in the data sources typically used by OSHA that allow the agency to delineate affected entities by NAICS industry. OSHA combined data from several sources to construct a profile with similar parameters to the firefighter profile. OSHA welcomes information on additional or alternate data sources that would allow the agency to better estimate the universe of EMS providers.

First, statistics reported by the National Association of Emergency Medical Technicians (NAEMT, 2014) based on 2008 data suggest that there are an estimated 15,276 ambulance services ESOs in the United States, which NAEMT breaks down into detailed categories (see Table VII–B–8). NAEMT reported that an estimated 49 percent of EMS providers are fire departments with either cross-trained or separate EMS responders. Other ''government or third party'' providers represent an estimated 15 percent of the total, while private EMS providers account for 18 percent, and hospital-based services represent 7 percent.

The ESOs considered in this section exclude EMS responders that operate as part of a fire department (as they are already included in the fire department profile detailed above) and public ESOs located in non-State Plan states. OSHA combined all other public EMS ESOs to arrive at an estimated affected population of ambulance service providers. OSHA based the estimate of the percentages of public ESOs that are in State Plan and non-State Plan states on the ratio of employment in Standard Occupational Classification (SOC) codes 29–2042 Emergency Medical Technicians and 29–2043 Paramedics in State Plan states to employment of those two SOCs in all states in BLS (2023) Occupational Employment and Wage Statistics (OEWS) data for May 2022. Based on this calculation, OSHA assumes that 59.04 percent of public ESOs are based in State Plan states, with 40.96 percent of public ESOs based in non-State Plan states.

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Table VII-B-8. Ambulance Services by Detailed Type of Provider

	Ambulance ESOs	
	Percentage [d]	**Total [d]**
Total U.S.		
Fire Department with Cross-Trained EMS Personnel	40.0%	6,110
Fire Department with Separate EMS Personnel	9.0%	1,375
Private Company	18.0%	2,750
Other	8.0%	1,222
Hospital-Based Service	7.0%	1,069
Public Utility Model (Private Contractor)	2.0%	306
Government or Third Party	14.5%	2,215
Police Department with Cross-Trained EMS Personnel	0.5%	76
Police Department with Separate EMS Personnel	1.0%	153
Total Ambulance Services	**100%**	**15,276**
Total Excluding Fire Departments		
Private [a]	68.6%	5,347
Public, State Plan State [b] [c]	18.5%	1,443
Public, Non-State Plan State [b] [c]	12.9%	1,001
Total Ambulance Services	**100%**	**7,791**
Total Affected		
Private [a]	79.9%	5,347
Public, State Plan State [b] [c]	20.1%	1,346
Total Ambulance Services	**100%**	**6,693**

Sources: OSHA derived from NAEMT (2014) and BLS (2023).
Notes:
[a] The "private" category includes private company, other, hospital-based service, and public utility model (private contractor).
[b] The public category includes "government or third party" and police department ambulance services. This count excludes fire departments, which are profiled in the previous section.
[c] The portion of public services in state plan states is based on the ratio of employment in SOCs 29-2042 'Emergency Medical Technicians' and 29-2043 'Paramedics' in state plan states to employment of those two occupations in all states in BLS OEWS data for May 2022 (BLS, 2023), which equals 59.04%.
[d] Figures may not add to totals due to rounding.

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NAEMT (2014) estimates that ambulance services employ 840,669 responders, which includes first responders, EMTs, paramedics, and registered nurses. This analysis assumes that those responders are distributed proportionately among the ambulance services of each type, which yields an estimate of 360,957 responders at affected ESOs, with 66,723 of these responders at public ESOs in State Plan states and 294,234 responders at private ESOs nationwide.

NAEMT (2014) estimates that approximately 39 percent of ambulance service entities are staffed by career responders, 21 percent by volunteers, and 41 percent by both. Unlike the USFA (2022) data used for the firefighter profile, NAEMT does not specify responder types at ''mixed'' ambulance services (*e.g.,* how many career responders are at ESOs that are primarily staffed with volunteers). For the fire departments and firefighters analysis, OSHA identified different types of staffing arrangements for fire departments, including where departments were mostly, but not completely, staffed by volunteers and vice versa. Lacking any data to make similar determinations, this analysis of ambulance ESOs assumes that entities reported as staffed by career responders are staffed entirely by career responders, entities reported as volunteer services are staffed entirely by volunteers, and an unknown mix of career and volunteer responders staff services in the ''mixed'' category. The estimates of career, volunteer, and ''mixed'' services and responders are shown in Table VII–B–9.

As with fire departments and firefighters, volunteer responders and ESOs where 100 percent of responders are volunteers are excluded in OSHA State Plan states where the State Plan does not cover volunteers. Since the NAEMT and BLS data are not granular enough to allow an exact calculation of the percentage of volunteers in State Plan states that cover or do not cover volunteers, OSHA assumes that the percentage of volunteer emergency medical service ESOs and responders located in these states is the same as for firefighters.

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Table VII-B-9. Estimated Number of Ambulance Services and Personnel – Career, Volunteer, and Mixed

	Private [a]	Public, State Plan State [b] [c]	Total Affected [d]
Ambulance ESOs			
Number			
Career	2,032	548	**2,580**
Volunteer	1,176	221	**1,397**
Mixed	2,139	577	**2,716**
Total	**5,347**	**1,346**	**6,693**
Percent of Total Affected			
Career	30%	8%	**39%**
Volunteer	18%	3%	**21%**
Mixed	32%	9%	**41%**
Total	**80%**	**20%**	**100%**
Personnel			
Number			
Career	111,809	30,177	**141,986**
Volunteer	64,732	15,379	**80,111**
Mixed	117,694	21,166	**138,860**
Total	**294,234**	**66,723**	**360,957**
Percent of Total Affected			
Career	31%	8%	**39%**
Volunteer	18%	4%	**22%**
Mixed	33%	6%	**38%**
Total	**82%**	**18%**	**100%**

Sources: OSHA derived from NAEMT (2014), USFA (2022), and BLS (2023).

Notes:

[a] The "private" category includes private company, other, hospital-based service, and public utility model (private contractor).

[b] The public category includes "government or third party" and police department ambulance services. This count excludes fire departments, which are profiled in the previous section.

[c] The portion of public services in State Plan states is based on the ratio of employment in SOCs 29-2042 'Emergency Medical Technicians' and 29-2043 'Paramedics' in State Plan states to employment in those two occupations all states in BLS OEWS data for May 2022 (BLS, 2023), which equals 59.04%.

[d] Figures may not add to totals due to rounding.

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E. Technical Search and Rescue

The proposed rule covers technical search and rescue organizations using special knowledge, skills, and specialized equipment to resolve complex search and rescue situations, such as rope, vehicle/machinery, structural collapse, trench, and technical water rescue. The term covers a variety of activities and operations that may be performed by different types of team members and responders. (The proposed rule does not include technical search and rescue activities specifically covered by other OSHA standards, such as permit-required confined spaces covered by 29 CFR 1910.146.) OSHA specifically uses the term ''technical'' to limit the proposed rule's coverage to search and rescue activities that utilize special knowledge and skills and specialized equipment to resolve complex search and rescue situations because these activities are particularly hazardous for emergency responders. There are activities with the same or similar names that would not be covered by the proposed rule because they do not use specialized knowledge, skills, or equipment. For example, the term ''wilderness search and rescue'' could apply to both technical and non-technical operations. Hiking or riding horseback through the wilderness searching for a lost hiker does not necessarily require special skills, knowledge, or equipment. However, if it is mountainous terrain where rescuing the hiker requires rope rescue techniques, for example, then it is technical search and rescue.

These services are provided by a range of organizations that may focus on one or more skills (*e.g.,* trench, technical water rescue) or environments (*e.g.,* wilderness, urban) and may be provided by volunteers, private companies, fire departments, or law enforcement agencies. Employers that provide these services do not appear in any one defined NAICS industry. OSHA's research showed that these employers are many disparate industries and are frequently providing technical search and rescue services in conjunction with other lines of business (*e.g.,* they may primarily train people in occupational safety practices or rent equipment but also provide technical search and rescue). To profile these organizations,

OSHA obtained information from several sources including the National Association for Search and Rescue (NASAR) and the Mountain Rescue Association (MRA). OSHA supplemented the MRA and NASAR information with data on private companies offering specialized skills and equipment, such as rope/high angle rescue, estimates of Federal Park Rangers who can perform technical rescue, and U.S. lifeguarding entities providing specialized skills and equipment to better estimate the total number of entities and employees involved in technical search and rescue. OSHA assumed that all WEREs whose WERT members perform technical search and rescue also perform firefighting operations. Therefore, all WERE and WERT members were captured above and none are profiled in this section as providing only technical search and rescue.

According to NASAR, there are between 4,000 and 6,000 search and rescue organizations in the United States. Information was not available on the total number of individuals involved in search and rescue. NASAR estimates that 90 percent of these organizations are focused on wilderness search and rescue and the other 10 percent are urban search and rescue organizations (Boyer, 2022). Urban search and rescue groups are sponsored by fire departments and run by FEMA. Given the overlap with fire departments, which are accounted for above, urban search and rescue organizations are excluded from the count of affected technical search and rescue groups estimated below. Wilderness search and rescue organizations are typically under the purview of law enforcement agencies (*e.g.,* police departments, sheriff's offices, etc.) and are staffed by volunteers.

An estimated 80 percent of wilderness search and rescue groups use special skills or equipment during search and/or rescue (Boyer, 2022) and are therefore considered to be technical search and rescue groups. Combining the midpoint (5,000) of NASAR's estimate of total search and rescue organizations with these estimates, OSHA estimates that there are approximately 3,600 wilderness search and rescue groups that use technical skills or equipment during missions (5,000 search and rescue organizations × 90 percent wilderness × 80 percent using technical skills or equipment). OSHA distributed these 3,600 groups across each state based on the proportion of the population within each state according to the U.S. Census Bureau (2022b). Accounting only for groups in State Plan states where volunteers are considered employees, OSHA estimates a total of 1,572 affected technical search and rescue groups.

Based on the number of MRA member organizations and individuals, OSHA assumed that there are 30 volunteers per technical search and rescue group (Miraglia, 2022). After multiplying the number of technical search and rescue groups within each state by this estimate, OSHA distributed these employees across employee class sizes using ratios of employees within specific employee class sizes compared to the total number of employees derived from Government Units Survey data. OSHA made a further adjustment to account for instances where the number of technical search and rescue groups exceeded the number of volunteers estimated. These instances can occur since the relationships between MRA's estimates, the Government Units Survey data, and U.S. Census population data are not uniform from one state to another. In instances where the number of technical search and rescue groups exceeded the number of volunteers, the number of entities was capped at half of the number of employees.[33] OSHA then calculated the ratio between the original number of technical search and rescue groups (3,600) and the new adjusted number of technical search and rescue groups (2,824) to scale the number of entities and employees to reflect the original estimate of technical search and rescue groups. This process results in a preliminary estimate of 3,600 technical search and rescue groups and 137,675 technical search and rescue responders. All of these technical search and rescue groups are public entities and all associated responders are considered volunteers. After accounting for State Plan status and whether or not a State Plan state covers volunteers, the number of affected technical search and rescue responders is adjusted to 60,106. OSHA welcomes comment on the estimates and assumptions presented here. The agency also encourages anyone with additional data that could be used to refine these estimates to submit those data to the rulemaking record.

OSHA separately researched private companies offering technical search and rescue services using internet searches. However, given the range of industrial sectors to which these companies appear to belong, OSHA was not able to identify a comprehensive list of all such companies in the U.S. Therefore, OSHA assumes that the number of private companies involved in technical search and rescue is equal to the number of FEMA Urban Search and Rescue Task Force locations (28).[34] OSHA requests additional data on private technical search and rescue service providers that would allow the agency to better estimate the universe of these employers.

To estimate the number of responders at these private technical search and rescue companies, OSHA used the sample of companies it identified via internet searches. Using Demographics Now (2023), OSHA obtained the number of employees associated with each company. OSHA also searched for employment numbers for each company through Manta and ZoomInfo. OSHA then aggregated the companies and their respective employee estimates into employment class sizes (<25, 25–49, 50–99, 100–249, 250–499, and 500+). Using the percentage of companies that fell into each employee class size, OSHA then scaled the number of employees within each employee class size to reflect expected employment figures for the estimated 28 companies. With this method, OSHA estimated 1,304 employees across private technical search and rescue companies.

OSHA used publicly available information to estimate approximately 15,000 Park Rangers employed in the United States (Zippia, 2023). OSHA assumes that a third of these Park Rangers have technical rescue skills, resulting in 5,000 additional technical search and rescue responders, which are included in this industry profile.

To calculate the number of technical water rescue entities and responders affected by the proposed rule, OSHA developed estimates of the total number of public and private lifeguard agencies that use specialized knowledge and skills using data from the USLA (USLA, 2022a). While pool and waterpark lifeguards would be excluded because they do not use specialized equipment, beach and open water lifeguard employees may be included, depending on whether or not they use specialized equipment such as SCUBA, boats, personal watercraft, and ATVs. There are other emergency responders, notably firefighters, who also provide technical water rescue, but their numbers are already accounted for elsewhere in the analysis. For the purposes of this analysis, OSHA assumed that use of

[33] OSHA assumes that there are at least 2 volunteer responders per technical search and rescue group.

[34] *https://www.fema.gov/emergency-managers/national-preparedness/frameworks/urban-search-rescue/task-force-locations.*

rescue vehicles [35] was linked to the provision of specialized equipment and skills among lifeguards. Using USLA data on ownership of rescue vehicles by lifeguard agencies, OSHA determined how many of these employees might use rescue vehicles and therefore be potentially subject to the proposed rule. The U.S. has 144 USLA-certified lifeguard agencies (USLA, 2022b). According to USLA, 70 percent of all public lifeguard agencies are USLA-certified (Brewster, 2022). OSHA, therefore, estimates that there are 206 public lifeguard agencies nationwide. USLA also indicated that 95 percent of all lifeguard entities are public, which translates to an estimated 217 total (public and private) lifeguard entities nationwide (Brewster, 2022), all of which are assumed to have the potential to use rescue vehicles.

OSHA counted the number of USLA-certified agencies in each state in the USLA data and then proportionally distributed the remaining lifeguard agencies based on the percentage of all USLA-certified agencies within the state. Based on the statistics presented above, 95 percent of all agencies were assumed to be public and the remaining 5 percent private. Accounting only for public groups in State Plan States and all private entities, OSHA estimates a total of 134 additional affected technical water rescue entities.

OSHA used the same approach as used for the other technical search and rescue organizations to distribute public and private agencies among each employee class size for technical water rescue organizations. Partial data on the number of full-time and part-time employees at each lifeguard agency by year was available from USLA. However, employment data for some currently certified lifeguard agencies was unavailable. To fill in these gaps, OSHA calculated the average number of full-time and part-time employees among the currently certified lifeguard agencies with recorded employment data. OSHA then calculated the average number of full-time and part-time employees per agency in each state. These estimates were then multiplied by the number of public and private entities in each state to estimate total full-time and part-time employees within public and private entities. OSHA then used USLA data on ownership of rescue vehicles by lifeguard agency to determine how many of these employees might use rescue vehicles and therefore be providing specialized equipment and skills. OSHA calculated the average number of employees per rescue vehicle across currently USLA-certified lifeguard entities and multiplied it by the number of rescue vehicles per entity to estimate the number of employees potentially operating rescue vehicles per entity. Next, OSHA took the difference between total employment at each entity and the expected number of employees given the number of rescue vehicles to determine ''excess'' employees, or the employees at an entity that may not operate a rescue vehicle. OSHA divided the total number of ''excess'' employees by total employment to determine the percentage of all employees that do not use rescue vehicles. Then the percentage of employees that do use rescue vehicles was multiplied by total public and private employment within each employee class size to determine the number of affected employees within each state. As a final step, OSHA used the same approach as outlined above for the search and rescue organizations, capping the number of entities at half the number of employees estimated given the number of entities originally estimated exceeded the number of employees. The number of entities and employees was then scaled back up so that the total number of entities estimated matched the original estimate. As shown in Table VII–B–10, there are an estimated 8,275 affected technical water rescuers.

[35] USLA defines rescue vehicles as lifeguard emergency vehicles described as four-wheel-drive motor vehicles which are legally permitted to drive on streets and highways.

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Table VII-B-10. Technical Water Rescue Entities and Employees Affected

Size Class	ESOs	% ESOs	Responders	% Responders
Total				
Public – State Plan State	123	56.7%	7,676	64.1%
Public – Non-State Plan State	83	38.2%	3,699	30.9%
Private	11	5.1%	599	5.0%
Total	**217**	**100.0%**	**11,974**	**100.0%**
Total Affected				
Public – State Plan State	123	91.8%	7,676	92.8%
Public – Non-State Plan State	0	0.0%	0	0.0%
Private	11	8.2%	599	7.2%
Total	**134**	**100.0%**	**8,275**	**100.0%**

Source: OSHA derived from Brewster (2022), USLA (2022b), and U.S. Census Bureau (2017a).
Note: Figures may not add to totals due to rounding.

In summary, the total number of affected technical search and rescue organizations and responders is presented in Table VII–B–11.

Table VII-B-11. Estimated Number of Technical Search and Rescue Organizations and Responders – Career and Volunteer

	Private	Public, State Plan State	Federal	Total in Scope [a]
Technical Search and Rescue Organizations				
Number				
Career	28	0	1	**29**
Volunteer	0	1,572	0	**1,572**
Total	**28**	**1,572**	**1**	**1,601**
Percent of Total in Scope				
Career	2%	0%	0%	**2%**
Volunteer	0%	98%	0%	**98%**
Total	**2%**	**98%**	**0%**	**100%**
Technical Search and Rescue Responders				
Number				
Career	1,304	0	5,000	**6,304**
Volunteer	0	60,106	0	**60,106**
Total	**1,304**	**60,106**	**5,000**	**66,409**
Percent of Total in Scope				
Career	2%	0%	8%	**9%**
Volunteer	0%	91%	0%	**91%**
Total	**2%**	**91%**	**8%**	**100%**
Technical Water Rescue Organizations				
Number				
Career	11	123	0	**134**
Volunteer	0	0	0	**0**
Total	**11**	**123**	**0**	**134**
Percent of Total in Scope				
Career	8%	92%	0%	**100%**
Volunteer	0%	0%	0%	**0%**
Total	**8%**	**92%**	**0%**	**100%**
Technical Water Rescue Responders				
Number				
Career	599	7,676	0	**8,275**
Volunteer	0	0	0	**0**

	Private	Public, State Plan State	Federal	Total in Scope [a]
Total	**599**	**7,676**	**0**	**8,275**
Percent of Total in Scope				
Career	7%	93%	0%	**100%**
Volunteer	0%	0%	0%	**0%**
Total	**7%**	**93%**	**0%**	**100%**
Total Technical Search and Rescue Organizations				
Number				
Career	39	123	1	**163**
Volunteer	0	1,572	0	**1,572**
Total	**39**	**1,695**	**1**	**1,735**
Percent of Total in Scope				
Career	2%	7%	0%	**9%**
Volunteer	0%	91%	0%	**91%**
Total	**2%**	**98%**	**0%**	**100%**
Technical Search and Rescue Responders				
Number				
Career	1,902	7,676	5,000	**14,579**
Volunteer	0	60,106	0	**60,106**
Total	**1,902**	**67,782**	**5,000**	**74,685**
Percent of Total in Scope				
Career	3%	10%	7%	**20%**
Volunteer	0%	80%	0%	**80%**
Total	**3%**	**91%**	**7%**	**100%**

Sources: OSHA derived from Boyer (2022), Brewster (2022), Demographics Now (2023), Manta (2023a-b), USLA (2022b), U.S. Census Bureau (2017a-b), U.S. Census Bureau (2022b), and Zippia (2023).
Notes:
[a] Figures may not add to totals due to rounding.

F. Summary of Affected WEREs, ESOs, Responders, and Team Members

Table VII–B–12 summarizes the total estimated number of organizations and responders affected by the proposed rule, drawing from the profiles for WEREs, firefighters (Table VII–B–6), wildland firefighters, emergency medical services (Table III–9), and technical search and rescue groups (Table VII–B–11).

Table VII-B-12. Combined Profile of WEREs, Fire Departments, Emergency Medical Services, and Technical Search and Rescue Entities – Summary

Group Type	Total in Scope	
	Organizations	Responders
WEREs		
Career	1,500	64,500
Total	**1,500**	**64,500**
Fire Departments		
Career	4,266	246,561
Volunteer	5,674	187,621
Mixed	2,156	100,417
Total	**12,096**	**534,599**
Wildland Fire Services [a]		
Career	521	54,256
Volunteer	8	53,737
Total	**529**	**107,993**
Emergency Medical Services		
Career	2,580	141,986
Volunteer	1,397	80,111
Mixed	2,716	138,860
Total	**6,693**	**360,957**
Technical Search and Rescue		
Career	163	14,579
Volunteer	1,572	60,106
Total	**1,735**	**74,685**
All Groups		
Career	9,030	521,881
Volunteer	8,650	381,574
Mixed	4,872	239,277
Total	**22,552**	**1,142,733**

Sources: OSHA derived from USFA (2022), NAEMT (2014), BLS (2022a), Firehouse Magazine (2018, 2022), U.S. Census Bureau (2021), Miley (2022), Wildland Fire Jobs (2022), Government Accountability Office (2022), USDA (2023), Boyer (2022), U.S. Census Bureau (2022b), U.S. Census Bureau (2017b), Brewster (2022), USLA (2022b), Demographics Now (2023), Manta (2023a-b), U.S. Census Bureau (2017a), and Zippia (2023).

Note: Excludes public ESOs in non-State Plan states, volunteer ESOs in State Plan states where volunteers are not covered, and ESOs with zero responders.

[a] The count of wildland fire services ESOs and responders includes inmate firefighters captured in Table VII-B-7.

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V. Potentially Affected Small Entities

A. Determining Entity Size

Under the RFA, small governmental jurisdictions (sometimes referred to as ''small governments'' in this analysis) are defined as ''governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand.'' 5 U.S.C. 601(5). For this PEA, fire departments, EMS providers, and technical search and rescue groups that are part of state and local governments are referred to as small entities if the government they are part of meets this definition of a small governmental jurisdiction. For private entities, the RFA uses the definition of ''small business'' found in the Small Business Act, which authorizes the SBA to define ''small business'' by regulation. This analysis uses the SBA's definition of a small business for each industry sector (according to NAICS code) as defined in the SBA table of size standards (SBA, 2019).

The available data on small governmental jurisdictions does not allow OSHA to identify the number of fire departments or EMS providers that serve these jurisdictions, or the number of firefighters and EMS providers employed by small governments. To derive these estimates, OSHA estimated the median population served per fire department employee and used that to estimate how many workers a department would need to employ to serve a population greater than 50,000. OSHA used data from multiple Firehouse Magazine surveys to determine the median population served per employee for career, volunteer, and mixed fire departments at various employment size classes to extrapolate to the entire universe of fire

departments. Part 1 of Firehouse Magazine's (2022) 2021 National Run Survey presents data from 229 career fire departments' statistics about population and staffing. Similarly, Firehouse Magazine has volunteer and mixed fire department data from the 2021 Volunteer Fire Department Run Survey and 2021 Combination Fire Department Run Survey, respectively. Estimates of the median population served per employee derived from each survey are multiplied by the number of employees for each department in the U.S. Fire Administration's (USFA, 2022) registry data (used for the Fire Department profile (see Section VII.B.IV.B)) within each employee size class to determine how many departments serve populations of fewer than 50,000.

No comparable data are available for publicly operated EMS or technical search and rescue groups. Therefore, OSHA calculated the number of fire departments serving various population sizes compared to the total number of fire departments and applied this ratio to the total number of each of these other responder groups. This approach estimates the number of government-operated EMS providers and technical search and rescue groups serving populations of each size.

As mentioned above, private entities are defined as small pursuant to the SBA's regulations at 13 CFR 121.201, which include different definitions for each NAICS industry. For private fire departments, the USFA (2022) registry data do not include the NAICS code of each department, and these entities represent several industries, each with a unique SBA definition.[36] Most private firefighting entities are in NAICS 561000 Administrative and Support Services, but WEREs can be found across a wide variety of manufacturing, oil and gas, petrochemical, and other industries and each 6-digit NAICS industry can define small entities differently. As a simplifying assumption, OSHA used an employment size class definition of 500 employees or fewer to classify private fire departments as small. On balance, this approach likely overestimates the number of affected small entities. While some SBA size class definitions within NAICS 561000 use revenue definitions of ''small'' that approximate to 500 employees, more industries' definitions of ''small'' within this NAICS code approximate to 100 employees. OSHA uses the 500-employee definition of small fire departments for this analysis—a method that would pull more ESOs into the scope of this analysis than a lower threshold would.

Wildland firefighting services may also be distributed across several NAICS codes given that many of these entities provide other forestry support services such as logging, earth moving, and planting. To estimate the number of wildland firefighting services for the small entity analysis, OSHA used the proportion of firms in NAICS 115310 (Support Activities for Forestry) that are classified as SBA small to distribute total wildland firefighting services into an SBA classification. The SBA small entity definition for NAICS 115310 is $8,000,000 in receipts, which OSHA converted to 100 employees.[37]

For private emergency medical services (NAICS 621910 Ambulance Services), SBA defines a small entity as one with annual revenues of $16.5 million or less. To use this definition in conjunction with the U.S. Census data used to profile this industry, OSHA converted the revenue data to an employment size class-based definition.[38] The result is that entities with fewer than 500 employees are determined to meet the SBA definition of a small entity.

This PEA examines costs by entity employment size class including the six employment size classes used to estimate unit costs for entities of various sizes (fewer than 25, 25–49, 50–99, 100–249, 250–499, and 500-plus employees). For state prison inmate populations engaged in wildfire fighting, the state is assumed to be the affected entity, where all affected states are assumed to be large based on the RFA definition.

For fire departments, the USFA (2022) registry data used for the profile provides an estimate of the number of employees of various types at each department, and departments are allotted to employment size classes using the total number of employees. For wildland firefighting services, OSHA combined data on the number of these entities represented by the NWSA with the distribution of entities and associated employees in NAICS 115310 Support Activities for Forestry to estimate the number of wildland firefighting service employees per employment size class.

For emergency medical services, OSHA allocated the NAEMT (2014) data on the total number of responders and ESOs into employment size classes using the distribution in the U.S. Census Bureau's (2021) SUSB data for NAICS 621910 Ambulance Services for 2017, which includes data on the number of entities and employees by detailed size class.

For the public technical search and rescue services, OSHA estimated the total number of organizations from NASAR and MRA and adjusted this estimate for the percent that use specialty skills or equipment during search and rescue. Because there were no available data on these organizations' location or size characteristics, OSHA distributed these groups across each state using the percent of the overall U.S. population residing in a given state (U.S. Census Bureau, 2022b). Next, OSHA distributed the entities by employee class size using the Government Units Survey (GUS) data from U.S. Census Bureau (U.S. Census Bureau, 2017b) as a proxy for local government law enforcement agencies. OSHA then calculated the proportion of all local government entities that fall within each employee class size using the GUS data and multiplied these proportions by the total number of search and rescue groups in each state. The same approach was used to distribute total employees (developed from MRA data on the average number of employees per organization) by employee class size. As outlined in section VII.B.VI.E, OSHA made a further adjustment to cap the number of entities to half of the number of employees and then scaled the number of entities and employees back up to reflect the number of entities originally estimated.

For private technical search and rescue companies, OSHA used employment and revenue figures for the sample of companies it identified via internet searches and their respective SBA definitions. Each of the identified technical search and rescue companies has a unique SBA definition of a small entity, with some based on employment and others on revenues. Based on the varying definitions for these companies, OSHA determined that seven of the eight companies are considered small based on their SBA definition. OSHA then scaled up to obtain an estimated total of 25 small technical search and rescue companies.

[36] Some information on the NAICS distribution of private firefighting services is available from the BLS employment data, but these are not at the 6-digit NAICS level needed to determine small entity status using the SBA definitions.

[37] This conversion was made by finding the largest employment size class with revenue less than $8.0 million per entity in the U.S. Census Bureau's (2021) Statistics of U.S. Businesses data for 2017, with revenue adjusted to 2022$ using the Bureau of Economic Analysis (BEA, 2023) implicit price deflators for gross domestic product.

[38] This conversion was made by finding the largest employment size class with revenue less than $16.5 million per entity in the U.S. Census Bureau's (2021) Statistics of U.S. Businesses data for 2017, with revenue adjusted to 2022$ using the Bureau of Economic Analysis (BEA, 2023) implicit price deflators for gross domestic product.

Finally, for the additional group of technical water rescuers, OSHA used data on lifeguarding entities in the U.S., limiting the affected employees to those using rescue vehicles in their activities to indicate those individuals using specialized equipment or skills. OSHA used the same process for allocating entities and employees to employee class sizes as outlined above for technical search and rescue.

B. WEREs

In the absence of data specific enough to identify the industry sector associated with each of the 1,500 WEREs, OSHA assumed that all 1,500 WEREs are small under SBA definitions, with all 64,500 WERT members working at these small WEREs.

C. Fire Departments and Responders by Population Served

As noted above, the population served by each fire department is estimated using the number of firefighters in the USFA (2022) registry data and the ratio of the population served to firefighters in Firehouse Magazine's (2022) surveys for career, volunteer, and mixed departments. Table VII–B–13 presents the number of public fire departments estimated to serve a population of 50,000 people or fewer affected by the proposed rule, accounting for the adjustments noted earlier in this chapter (removing public entities in non–State Plan states, removing volunteers in State Plan states that do not cover volunteers, and removing non-firefighting volunteers and civilians).

Table VII-B-13. Small Fire Departments Affected

	SBA/RFA Definition Small		
	Private	**Public**	**Total**
Career	218	3,297	3,515
Volunteer	450	5,199	5,649
Mixed	118	1,839	1,957
Total	**786**	**10,335**	**11,121**

Source: OSHA derived from USFA (2022) and Firehouse Magazine (2022).

Table VII–B–14 shows the number of firefighters estimated to serve a population of 50,000 people or fewer.

Table VII-B-14. Affected Firefighters at Small Fire Departments

	SBA/RFA Definition Small		
	Private	**Public**	**Total**
Career	8,252	100,612	108,864
Volunteer	12,624	169,019	181,643
Mixed	5,340	56,096	61,436
Total	**26,216**	**325,727**	**351,943**

Source: OSHA derived from USFA (2022) and Firehouse Magazine (2022).

D. Wildland Firefighting Services

As mentioned in section VII.B.V.A, OSHA used the proportion of firms in NAICS 115310 that are small from the Census Bureau's SUSB dataset (2021) based on that NAICS' SBA definition ($8,000,000 in receipts, which OSHA converted to 100 employees) to determine the number of small wildland firefighting entities. Table VII–B–15 shows the number of wildland firefighting entities that are small based on the SBA definition, as well as the responders at those small entities.

Table VII-B-15. Small Wildfire Fighting Entities and Responders Affected

	SBA Definition Small
ESOs	
Career	507
Responders	
Career	25,816

Source: OSHA derived from Miley (2022), Wildland Fire Jobs (2022), and U.S. Census Bureau (2021).

E. Emergency Medical Services

As outlined in section VII.B.V.A, small entity determinations for private EMS entities are based on the SBA definition for NAICS 621910 Ambulance Services ($16.5 million or less in revenue, which OSHA converted to 500 employees or less). Public EMS entities are small if they serve a

population of fewer than 50,000 people. Table VII–B–16 presents the number of small EMS entities based on both definitions. Table VII–B–16 also shows the number of responders at these small EMS entities.

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Table VII-B-16. Small Emergency Medical Service Entities and Responders Affected

	SBA/RFA Definition Small		
	Private	**Public**	**Total**
ESOs			
Career	1,971	524	2,495
Volunteer	1,141	211	1,352
Mixed	2,075	552	2,626
Total	**5,186**	**1,287**	**6,473**
Responders			
Career	99,185	28,843	128,028
Volunteer	57,423	14,699	72,122
Mixed	104,405	20,231	124,636
Total	**261,013**	**63,773**	**324,786**

Sources: OSHA derived from NAEMT (2014) and BLS (2023).
Note: Figures may not add to totals due to rounding.

F. Technical Search and Rescue

As described above, OSHA's method for estimating the technical search and rescue universe included data from wilderness and urban search and rescue organizations, lifeguard agencies, and private companies. Table VII–B–17 presents the estimated number of affected small technical search and rescue groups, as well as the number of responders among those affected entities.

Table VII-B-17. Small Technical Search and Rescue Groups and Responders Affected

	SBA/RFA Definition Small		
	Private	**Public**	**Total**
Wilderness and Urban Search and Rescue			
ESOs			
Career	25	0	25
Volunteer	0	1,502	1,502
Total	**25**	**1,502**	**1,527**
Responders			
Career	954	0	954
Volunteer	0	57,448	57,448
Total	**954**	**57,448**	**58,402**
Additional Technical Water Rescue			
ESOs			
Career	10	118	128
Volunteer	0	0	0
Total	**10**	**118**	**128**
Responders			
Career	197	7,337	7,534
Volunteer	0	0	0
Total	**197**	**7,337**	**7,534**
Total Technical Search and Rescue			
ESOs			
Career	35	118	152
Volunteer	0	1,502	1,502
Total	**35**	**1,620**	**1,655**
Responders			
Career	1,151	7,337	8,488
Volunteer	0	57,448	57,448
Total	**1,151**	**64,786**	**65,937**

Source: OSHA derived from Boyer (2022), U.S. Census Bureau (2022b), and U.S. Census Bureau (2017b).
Note: Figures may not add to totals due to rounding.

G. Summary of Affected Small Entities

Table VII–B–18 summarizes the number of small organizations and responders according to either RFA definitions (for public ESOs) or SBA definitions (for private ESOs and WEREs).[39]

[39] See section V for a discussion of how entity size was determined.

Table VII-B-18. Combined Profile of Fire Departments, Emergency Medical Services, and Technical Search and Rescue Groups - RFA/SBA Small

	RFA/SBA Small	
	Organizations	**Responders**
WEREs		
Career	1,500	64,500
Subtotal	**1,500**	**64,500**
Fire Departments		
Career	3,515	108,864
Volunteer	5,649	181,643
Mixed	1,957	61,436
Subtotal	**11,121**	**351,943**
Wildland Fire Services		
Career	507	25,816
Subtotal	**507**	**25,816**
Emergency Medical Services		
Career	2,495	128,028
Volunteer	1,352	72,122
Mixed	2,626	124,636
Subtotal	**6,473**	**324,786**
Technical Search and Rescue		
Career	152	8,488
Volunteer	1,502	57,448
Subtotal	**1,655**	**65,937**
All Groups		
Career	8,169	335,696
Volunteer	8,503	311,214
Mixed	4,583	186,072
Total	**21,256**	**832,982**

Sources: OSHA derived from USFA (2022), NAEMT (2014), BLS (2022a), Firehouse Magazine (2018, 2022), U.S. Census Bureau (2021), Miley (2022), Wildland Fire Jobs (2022), Government Accountability Office (2022), USDA (2023), Boyer (2022), U.S. Census Bureau (2022b), U.S. Census Bureau (2017b), Brewster (2022), USLA (2022b), Demographics Now (2023), Manta (2023a-b), U.S. Census Bureau (2017a), and Zippia (2023).

Note: Excludes public ESOs in non-State Plan states, volunteer ESOs in State Plan states where volunteers are not covered, and ESOs with zero responders.

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C. Costs of Compliance

I. Introduction

This chapter presents OSHA's preliminary analysis of the compliance costs associated with the proposed emergency response standard.

OSHA estimates that the proposed rule would cost $661 million per year in 2022 dollars.[40] All costs were annualized using a discount rate of 3 percent, which—along with 7 percent and 0 percent—is one of the discount rates recommended by OMB.[41] A 10-year period is used to annualize one-time costs. Note that the benefits of the standard, discussed in section D of this PEA, were annualized over a 50-year period to reflect the time needed to sufficiently capture the full benefits of the proposal. Therefore, the time horizon of OSHA's complete analysis of this rule is 50 years. Employment and production in affected sectors are implicitly held constant over this time horizon for purposes of the analysis. All non-annual costs are implicitly estimated to repeat every ten years over the 50-year time horizon, including one-time costs that recur because of changes in operations over time or because of new entrants that must comply with the standard.[42]

The remainder of this chapter is organized as follows: first, OSHA discusses cost assumptions used in the analysis, followed by the derivation of the wage information used in the analysis. Next OSHA presents unit and total costs by affected emergency response service sectors and by applicable provision of the proposed rule. The final section presents the total costs of the proposed rule for all affected entities and responders as well as those that meet the SBA/RFA definitions of small entities and those with fewer than 20 employees.

II. Cost Assumptions

This section describes the cost assumptions used in this analysis including those relevant to baseline conditions and type and frequency of medical exams for certain responders (*i.e.,* firefighters).

A. Baseline Non-Compliance Rates

The estimated costs of the proposed rule are measured against the baseline activities of the affected emergency services sectors. The baseline for this analysis includes existing conformity with the provisions of the proposed rule, which is discussed in terms of entities with practices that currently do not conform with the proposed rule and would therefore incur costs to comply with it.

Table VII–C–1 shows the estimated baseline non-compliance rate for each provision of the proposed rule by entity size, for WEREs, fire departments, wildland firefighting services, EMS providers, and technical search and rescue groups. OSHA has estimated that few to no small WEREs and ESOs currently have many of the plans required by the proposed rule while the majority of very large ESOs are doing much of what this proposed rule would require. This conclusion is consistent with comments made by SERs during the SBREFA process suggesting that larger organizations are likely to have more resources to implement consensus standards like NFPA 1582 (Document ID 0115). OSHA's estimates of baseline non-compliance rates were based on consultation with emergency response organizations and the professional expertise of OSHA personnel. Non-compliance rates were first estimated for organizations with 250–499 responders and then scaled to the other size classes.

For both structural and wildland fire departments, the percentage of firefighters in each group that currently do not receive a full medical exam as defined in the proposed rule is presented in Table VII–C–1. For structural firefighters, the estimates of non-compliance for the full medical exam are broken out by the department

[40] Any adjustments to the price year reflect the use of the GDP Deflator (*https://www.bea.gov/data/prices-inflation/gdp-price-deflator*).

[41] Table VII–C–16 provides estimated costs using a 7% discount rate, while Table VII–C–17 provides undiscounted costs.

[42] To the extent one-time costs do not recur, OSHA's cost estimates, when expressed as an annualization over a 10-year period, will overstate the cost of the proposed standard.

type in which firefighters serve (career, volunteer, or mixed). These estimates are derived from a 2016 survey conducted by the IAFC's Safety, Health and Survival Section (LeDuc, 2018). The non-compliance rate for professional wildland firefighters is assumed to be the same as for career firefighters, while the non-compliance rate for inmate firefighters is assumed to be the same as for volunteer firefighters.

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Table VII-C-1. Baseline Non-Compliance Rate by Provision of the Proposed Rule and Organization Size

Provision of the Proposed Rule	Organization Size by Number of Responders					
	<25	25-49	50-99	100-249	250-499	500+
Rule Familiarization	100%	100%	100%	100%	100%	100%
Organization of the WERT and Establishment of ERP, Paragraph (c)	93%	88%	75%	63%	50%	38%

Provision of the Proposed Rule	Organization Size by Number of Responders					
	<25	25-49	50-99	100-249	250-499	500+
ESO Establishment of ERP and Emergency Service(s) Capability, Paragraph (d)	93%	88%	75%	63%	50%	38%
Team Member and Responder Participation, Paragraph (e)	19%	18%	15%	13%	10%	8%
WERT and ESO Risk Management Plan, Paragraph (f)	93%	88%	75%	63%	50%	38%
Medical and Physical Requirements, Paragraph (g)	93%	88%	75%	63%	50%	38%
Additional ESO Surveillance (Full NFPA Medical Exam) - Career, Paragraph (g)(3) [a]	20%	20%	20%	20%	20%	20%
Additional ESO Surveillance (Full NFPA Medical Exam) - Volunteer, Paragraph (g)(3) [a]	55%	55%	55%	55%	55%	55%
Additional ESO Surveillance (Full NFPA Medical Exam) - Mixed, Paragraph (g)(3) [b]	36%	36%	36%	36%	36%	36%
Training, Paragraph (h)	9%	9%	8%	6%	5%	4%
WERE Facility Preparedness, Paragraph (i)	37%	35%	30%	25%	20%	15%
ESO Facility Preparedness, Paragraph (j)	37%	35%	30%	25%	20%	15%
Equipment and PPE, Paragraph (k)	37%	35%	30%	25%	20%	15%
Vehicle Preparedness and Operation, Paragraph (l)	28%	26%	23%	19%	15%	11%
WERE Pre-Incident Planning, Paragraph (m)	100%	100%	100%	88%	70%	53%
ESO Pre-Incident Planning, Paragraph (n)	100%	100%	100%	88%	70%	53%
Incident Management System Development, Paragraph (o)	28%	26%	23%	19%	15%	11%
Emergency Incident Operations, Paragraph (p)	19%	18%	15%	13%	10%	8%
Standard Operating Procedures, Paragraph (q)	100%	100%	100%	88%	70%	53%
Post Incident Analysis, Paragraph (r)	100%	100%	100%	100%	80%	60%
Program Evaluation, Paragraph (s)	100%	100%	100%	100%	90%	68%

Source: OSHA; LeDuc, 2018.

[a] The full NFPA 1582 medical exam is only applicable to responders who meet or exceed the combustion products exposure threshold outlined in the standard. Only structural and wildland firefighters are assumed to have any responders meeting that threshold, therefore these provisions are only applicable to structural and wildland fire departments.

[b] It is assumed that there are no "mixed" wildland firefighting services, therefore this specific non-compliance rate for additional ESO medical surveillance is only applicable to structural fire departments.

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B. Type and Frequency of Medical Exams

(i) Exposure Threshold Adjustments

The proposed rule requires all team members and responders, except those in a support tier, to receive a basic medical exam, with additional screening required in certain circumstances. This exam must be given once initially and repeated at least biennially. In addition, team members and responders who are, or based on experience may be, exposed to combustion products 15 or more times a year without regard to the use of respiratory protection must be provided an expanded medical exam that is at least equivalent to the criteria specified in a national consensus standard (like NFPA 1582). Therefore, OSHA made additional adjustments to the population of responders for which ESOs would incur the cost of each medical exam based on how many times per year responders are exposed to combustion products. Table VII–C–2 presents the percentage of responders within each responder group that would be required to undergo each type of medical exam. WERT members are all expected to undergo the minimum medical exam, with 12.5 percent of those team members estimated to also require additional heart screening tests.[43] OSHA assumes that no WERT members will reach the 15-times-a-year exposure threshold for expanded medical exams.

For responders at EMS and technical search and rescue ESOs, OSHA assumed that no responders would meet the 15-combustion product exposure event threshold that would require an expanded medical exam. Therefore, responders in these groups all undergo the minimum medical evaluation, with 12.5 percent estimated to undergo further heart screening tests. In order to estimate the percentage of firefighters that would meet the 15-combustion product exposure event threshold, OSHA obtained data from the NFPA on the number of firefighters and fire calls responded to categorized by department type (all-career, mostly career, mostly volunteer, and all-volunteer) and population served size brackets. OSHA extrapolated the NFPA data to represent a national estimation of firefighters and fire calls by each department type and population served bracket. Assuming that an average of eight firefighters respond to a single fire call, OSHA determined that 96.4 percent of firefighters at career fire departments within the 250–499 employee class size, 21.9 percent at mixed fire departments, and 0.2 percent at volunteer fire departments would meet the 15-combustion product exposure event threshold. OSHA scaled these percentages to reflect an assumption that the percentage of firefighters meeting the exposure threshold would decrease as the department size decreased. Firefighters with more than 15 exposures, plus a subset of firefighters that do not exceed the threshold but have medically indicated health risks warranting more medical evaluation (assumed to be 2 percent of firefighters within each department type), are estimated to undergo an expanded medical exam (referred to as additional ESO surveillance in the proposed rule and in Table VII–C–2). Firefighters who do not meet the event threshold would undergo the minimum medical exam, with 12.5 percent of those firefighters also undergoing the additional heart screening.

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[43] Le Duc 2018 indicated approximately 12.5 percent of firefighters had some type of underlying, significant cardiovascular issues such as hypertension, elevated cholesterol levels, or abnormal stress that indicated a need for additional screening.

Table VII-C-2. Percentage of Responders and Team Members by Employment Size Class Needing Medical Exams

	Employment Size Class					
	<25	25-49	50-99	100-249	250-499	500+
WEREs						
Minimum Medical Surveillance - Career	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Minimum Medical Surveillance - Volunteer	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Minimum Medical Surveillance - Mixed	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Additional Heart Screening - Career	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
Additional Heart Screening - Volunteer	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
Additional Heart Screening - Mixed	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
Additional ESO Surveillance (Full NFPA Medical Exam) - Career	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Additional ESO Surveillance (Full NFPA Medical Exam) - Volunteer	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Additional ESO Surveillance (Full NFPA Medical Exam) - Mixed	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Fire Departments and Firefighters						
Minimum Medical Surveillance - Career [a]	51.8%	42.2%	42.2%	27.7%	3.6%	0.0%
Minimum Medical Surveillance - Volunteer [a]	99.9%	99.9%	99.9%	99.8%	99.8%	99.7%
Minimum Medical Surveillance - Mixed [a]	89.0%	86.9%	86.9%	83.6%	78.1%	67.1%
Additional Heart Screening - Career	6.5%	5.3%	5.3%	3.5%	0.5%	0.0%
Additional Heart Screening - Volunteer	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
Additional Heart Screening - Mixed	11.1%	10.9%	10.9%	10.5%	9.8%	8.4%
Additional ESO Surveillance (Full NFPA Medical Exam) - Career [a]	50.2%	59.8%	59.8%	74.3%	98.4%	100.0%
Additional ESO Surveillance (Full NFPA Medical Exam) - Volunteer [a]	2.1%	2.1%	2.1%	2.2%	2.2%	2.3%
Additional ESO Surveillance (Full NFPA Medical Exam) - Mixed [a]	13.0%	15.1%	15.1%	18.4%	23.9%	34.9%
Wildland Firefighting Services						
Minimum Medical Surveillance - Career [a]	51.8%	42.2%	42.2%	27.7%	3.6%	0.0%
Minimum Medical Surveillance - Volunteer [a]	99.9%	99.9%	99.9%	99.8%	99.8%	99.7%

	Employment Size Class					
	<25	25-49	50-99	100-249	250-499	500+
Additional Heart Screening - Career	6.5%	5.3%	5.3%	3.5%	0.5%	0.0%
Additional Heart Screening - Volunteer	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
Additional ESO Surveillance (Full NFPA Medical Exam) - Career [a]	50.2%	59.8%	59.8%	74.3%	98.4%	100.0%
Additional ESO Surveillance (Full NFPA Medical Exam) - Volunteer [a]	2.1%	2.1%	2.1%	2.2%	2.2%	2.3%
Emergency Medical Services						
Minimum Medical Surveillance - Career	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Minimum Medical Surveillance - Volunteer	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Minimum Medical Surveillance - Mixed	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Additional Heart Screening - Career	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
Additional Heart Screening - Volunteer	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
Additional Heart Screening - Mixed	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
Additional ESO Surveillance (Full NFPA Medical Exam) - Career	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Additional ESO Surveillance (Full NFPA Medical Exam) - Volunteer	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Additional ESO Surveillance (Full NFPA Medical Exam) - Mixed	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Technical Search and Rescue Groups						
Minimum Medical Surveillance - Career	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Minimum Medical Surveillance - Volunteer	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Additional Heart Screening - Career	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
Additional Heart Screening - Volunteer	12.5%	12.5%	12.5%	12.5%	12.5%	12.5%
Additional ESO Surveillance (Full NFPA Medical Exam) - Career	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Additional ESO Surveillance (Full NFPA Medical Exam) - Volunteer	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Sources: OSHA based on ERG estimate; LeDuc, 2018; NFPA, 2022; NFPA, 2023a; and NFPA, 2023b.
[a] Adding the minimum and additional groups will exceed 100% because 2% of firefighters are estimated to receive both exams, as some of the <15 annual combustion exposure group will require a full NFPA examination due to signs and symptoms revealed under minimum medical surveillance.

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(ii) Frequency of Medical Exams

Unlike most provisions of the proposed rule, the number of responders undergoing each medical exam type changes each year due to new hires needing a medical exam. Other established employees may need to be reexamined, since the minimum medical exam is required every other year. OSHA calculated the number of responders and team members expected to undergo each medical exam based on the hire rates for each responder group, the percentage of responders needing each medical exam based on the event threshold of 15 or more combustion product exposure events per year, and how often the exam is required under this standard.

OSHA derived a formula (shown below in Equation 1) for the number of responders requiring a medical exam n_t in a given year t. Initially, a very large cohort would receive their first medical exam together in the first year after implementation of the proposed rule. In subsequent years, new hires would require their initial exam, and those who are not new hires would be re-examined periodically. However, the initial cohort would continue to have a large effect, as they would all be re-examined together every k years. During years when this initial cohort is not up for re-examination, the number receiving an exam will be smaller and limited to individuals who were hired later and entered the workforce when the initial cohort was not being re-examined. As time passes, the imbalance produced by this initial cohort will gradually reduce, and the initial cohort will decrease in size due to turnover. The number of exams given per year will approach a long-run value n_{equil}.

Equation 1, explained in detail below, accounts for all of these effects associated with the initial cohort, its re-examination years, and new hires. The number of responders requiring a medical exam n_t in year t takes one of three forms depending on whether the year t in question (a) is re-examination year for the first large cohort, (b) immediately follows a re-examination year for the first large cohort, or (c) is more than one year after a re-examination year for the first large cohort.

$$n_t = \begin{cases} n_{\text{equil}} + \left(N - n_{\text{equil}}\right)p^{t-1} & \text{if re-examination year for initial cohort,} \\ n_{\text{equil}} + \left(N(1-p) + n_{\text{equil}}\right)(p^{t-2}) & \text{if initial cohort was re-examined in the preceding year,} \\ n_{t-1} & \text{if initial is not being re-examined that year or in the preceding year} \end{cases} \quad (1)$$

Where:

- n_t is the number of responders requiring a medical exam in year t.
- N is the total number of responders.
- p is the retention rate, which could alternatively be defined as 1 minus the hire rate.
- n_{equil} is the long-run number of medical exams per year.
- n_{t-1} is the number of exams given in the preceding year $t-1$.

The long-run number of medical exams per year n_{equil} is calculated in the following way and depends on the time between exams k. For example, if an exam is required every 5 years, then $k = 5$.

$$n_{\text{equil}} = N\frac{1-p}{1-p^k} = N\frac{H}{1-(1-H)^k} \quad (2)$$

Based on the hiring rates for similar jobs with EMS providers reported in Patterson et al., 2010 and BLS job growth projections, OSHA estimated that the annual hire rate for fire departments is 10 percent. For EMS providers, the annual hire rate is estimated to be 10.7 percent (Patterson et al., 2010). OSHA assumed wildland fire services, search and rescue groups, and technical water rescue entities have a similar hire rate to firefighters for this analysis.

III. Wage Estimates Used in the Analysis

Labor costs associated with the proposed rule were derived using wage data from BLS' cross-industry OEWS for May 2022 (BLS, 2023). Table VII–C–3 shows the loaded hourly wages used in the analysis. To the extent possible, OSHA employed the relevant occupational wage category. As discussed below, for example, OSHA used SOC code 33–2011 *Firefighters* to estimate the wage for career firefighters.

Volunteer firefighters, volunteer EMS providers, and volunteer technical search and rescue group members, however, do not receive wages for their services, and the career emergency responder wages may not be an accurate characterization of the opportunity cost of volunteers' time. The same is true for inmate firefighters, who are typically paid very little or nothing for their work.[44] Therefore, OSHA is not using career responder wages to estimate compliance costs for volunteer responders and inmate firefighters. For these responders, OSHA believes it is more appropriate to use the overall private industry median hourly wage, $21.42, because volunteers come from a broad spectrum of the workforce; their primary occupational wage is a proxy for the opportunity cost of their time. OSHA recognizes that compliance costs related to inmate firefighters are likely an overestimate since the opportunity cost of their time is different from the average non-incarcerated individual. Accordingly, OSHA created a weighted average for responders of all types using the number of volunteer[45] and non-volunteer responders who would be covered by the proposed rule. For firefighters, the weighted average is calculated with 332,658 career and paid-per-call firefighters making the BLS OEWS median hourly wage for SOC 33–2011 *Firefighters* ($24.85) and 187,519 volunteer firefighters making

[44] *https://www.prisonpolicy.org/blog/2017/04/10/wages/*.

[45] For the purposes of this PEA, inmate firefighters are treated the same as volunteer responders.

the private industry median hourly wage ($21.42), for a weighted average base hourly wage of $23.61. These estimates are also used to represent wildland firefighter wages, including inmate wildland firefighters. For WEREs, OSHA used the cross-industry, private sector median wage for SOC code 11–1021 General and Operations Managers to represent the wage of WERT leaders and the cross-industry, private sector median wage of all occupations to represent the wage of WERT members. These wages equal $46.65 and $21.42, respectively. For EMS providers, the weighted average is calculated with 280,846 responders in career and mixed (career and volunteer) ESOs making the BLS OEWS median hourly wage for SOC 29–2040 Emergency Medical Technicians and Paramedics ($18.95) and 80,111 responders in volunteer ESOs making the private industry median hourly wage ($21.42), for a weighted average base hourly wage of $19.50. Note that while the median wage used for volunteers is higher than the BLS OEWS wage for EMS providers, OSHA uses that median wage for volunteer EMS providers as well as for volunteer firefighters in this analysis to maintain consistency. OSHA solicits comments on these estimates and, in particular, is interested in whether the valuation of volunteers' time and incarcerated individuals' time is reasonable. The agency welcomes suggestions and thoughts on different wage rates that commenters feel might better capture the value of these responders' time.

OSHA developed separate wage estimates for wilderness and urban search and rescue and additional technical water rescue groups. For wilderness and urban search and rescue responders, the weighted average is calculated with 1,304 responders in career ESOs making the BLS OEWS median hourly wage for SOC 33–9092 Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers ($13.11) and 60,106 responders in volunteer ESOs making the private industry median hourly wage ($21.42), for a weighted average base hourly wage of $21.24. There are no volunteer technical water rescuers in the industry profile, so the BLS OEWS median hourly wage for SOC code 33–9092 Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers ($13.11) is used in this analysis for technical water rescuers.

OSHA applied a fringe benefits rate of 31.0 percent to the base wages, drawn from BLS' Employer Costs for Employee Compensation for December 2022 (BLS, 2023) to account for the value of fringe benefits provided by the employer. OSHA then calculated total compensation as wages plus benefits. There are also indirect expenses that cannot be tied to producing a specific product or service, called overhead costs. Common examples include rent, utilities, and office equipment. There is no general consensus on the cost elements that fit this definition and the lack of a common definition has led to a wide range of overhead estimates. Consequently, the treatment of overhead costs needs to be case-specific. In this analysis, OSHA used an overhead rate of 17 percent of base wages (EPA, 2002; Rice, 2002). This 17 percent rate is based on an estimate of overhead costs for safety and health professionals in large private organizations. This overhead rate is consistent with, for example, the overhead rate used for sensitivity analyses in the Final Economic Analysis (FEA) in support of the 2017 final rule delaying the deadline for electronic submission of certain injury and illness data (82 FR 55761) and the FEA in support of OSHA's 2016 final standard on Occupational Exposure to Respirable Crystalline Silica [46] (83 FR at 36501). OSHA expects that this rate may be an overestimate in this context, as this reflects a component of *average* overhead; in this case, however, the agency anticipates that, for example, emergency responders will be able to work within the general physical infrastructure they currently operate in. A rate of 17 percent of base wages is equivalent to 11.73 percent of the hourly wage rate with fringe applied.[47] To calculate the fully loaded hourly labor cost, OSHA added the three components together: base wages + fringe benefits (31.0 percent of base wages) + applicable overhead (17 percent of base wages).

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[46] See the sensitivity analyses in the Improved Tracking FEA (*https://www.gpo.gov/fdsys/pkg/FR-2017-11-24/pdf/2017-25392.pdf,* page 55765) and the FEA in support of OSHA's 2016 final standard on Occupational Exposure to Respirable Crystalline Silica (81 FR 16285) (*https://www.gpo.gov/fdsys/pkg/FR-2016-03-25/pdf/2016-04800.pdf pp.16488-16492*.). The methodology was modeled after an approach used by the Environmental Protection Agency. More information on this approach can be found at: U.S. Environmental Protection Agency, ''Wage Rates for Economic Analyses of the Toxics Release Inventory Program,'' June 10, 2002 (Ex. 2066). This analysis itself was based on a survey of several large chemical manufacturing plants: Heiden Associates, *Final Report: A Study of Industry Compliance Costs Under the Final Comprehensive Assessment Information Rule,* Prepared for the Chemical Manufacturers Association, December 14, 1989, Ex. 2065.

[47] This is calculated as 69 percent × 17 percent, *i.e.,* the percent of wages that are the base hourly rate exclusive of fringe (69 percent) multiplied by the overhead rate as a percentage of base hourly wages (17 percent).

Table VII-C-3. Wage Rates Used in the Analysis

Labor Category	SOC	Occupation	Median Hourly Wage [a]	Fringe [b]	Overhead [c]	Loaded Hourly Wage [d]
Private Industry Median	00-0000	All Occupations	$21.42	31.0%	17.00%	$34.69
WERE Leader	11-1021	General and Operations Managers	$46.65	31.0%	17.00%	$75.54
WERT Member	00-0000	All Occupations	$21.42	31.0%	17.00%	$34.69
Fire Chief	33-1021	First-Line Supervisors of Firefighting and Prevention Workers	$38.53	31.0%	17.00%	$62.39
Firefighter (OEWS)	33-2011	Firefighters	$24.85	31.0%	17.00%	$40.24
Firefighter (Weighted Average)	00-0000/33-2011	All Occupations/Firefighters	$23.61	31.0%	17.00%	$38.24
EMD	11-9160	Emergency Management Directors	$38.07	31.0%	17.00%	$61.65
EMT/Paramedic (OEWS)	29-2040	Emergency Medical Technicians and Paramedics	$18.95	31.0%	17.00%	$30.69
EMT/Paramedic (Weighted Average)	00-0000/29-2040	All Occupations/Emergency Medical Technicians and Paramedics	$19.50	31.0%	17.00%	$31.57
Search and Rescue Supervisor	33-1012	First-Line Supervisors of Police and Detectives	$46.29	31.0%	17.00%	$74.96
Search and Rescue Worker (OEWS)	33-9092	Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers	$13.11	31.0%	17.00%	$21.23
Search and Rescue Worker (Weighted Average)	00-0000/33-9092	All Occupations/Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers	$21.24	31.0%	17.00%	$34.40
Technical Water Rescue Supervisor	33-1099	First-Line Supervisors of Protective Service Workers, All Other	$29.34	31.0%	17.00%	$47.51
Technical Water Rescuer (OEWS)	33-9092	Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers	$13.11	31.0%	17.00%	$21.23
Technical Water Rescuer (Weighted Average)	00-0000/33-9092	All Occupations/Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers	$13.11	31.0%	17.00%	$21.23

Sources: OSHA derived from BLS (2023), BLS (2023), EPA (2002) and Rice (2002).

Note: All dollar figures are presented in 2022$.

[a] Median hourly wage rates are drawn from BLS' cross-industry OEWS for May 2022. For all responders, a weighted average of the private industry median and BLS OEWS wage, weighted by the number of volunteer and non-volunteer responders in scope is used.

[b] The fringe rate is drawn from BLS' Employer Costs for Responder Compensation for December 2022.

[c] The overhead rate is derived from EPA (2002) and Rice (2002).

[d] The loaded hourly wage is derived by dividing the median hourly wage by (1 - the fringe rate) and then multiplying by (1 + the fringe-adjusted overhead rate).

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IV. Estimated Compliance Costs

This section presents the unit and total costs of the proposed rule by emergency services sector and provision. First, the components of each provision as they pertain to fire departments and wildland fire services are detailed, followed by a description of any differences in requirements or approaches to deriving estimates for WEREs, emergency medical services ESOs, and technical search and rescue ESOs. Where appropriate, to account for variations in unit costs by size of entity, OSHA first estimated the labor hours per provision for establishments in the 250–499 employee size class. Using that estimate as the base, OSHA scaled the estimates proportionally for the unit time estimates for establishments in the other size classes. Generally, where an activity is estimated to take less than an hour, the same estimate is used across organization sizes since scaling down very small time estimates would result in unreasonably low time estimates for smaller establishments.

Unless otherwise noted in this section, the time estimates for complying with proposed provisions are based on OSHA's professional expertise, considering what the proposed rule requires and estimates of the hours necessary to comply with similar requirements in other OSHA rules.

A. Firefighting

As described in the Profile of Affected Industries, these organizations include private and public entities engaged in structural and wildland firefighting. Responders at these entities may be volunteer or career. This group represents the vast majority of entities and responders who would be affected by the proposed rule.

Wildland firefighting services providers include private sector ESOs that provide less common types of firefighting services, primarily to state and Federal agencies. These services typically support wildland fire suppression and include direct firefighting as well as support services such as transportation and food supply services. There are also some states that utilize prison labor as supplementary personnel for state wildfire fighting programs.[48]

(i) Rule Familiarization

All ESOs and WEREs affected by the proposed rule would need to review the requirements under the proposed rule. OSHA estimates that rule familiarization would take an organization leader two hours to complete.

(ii) ESO Establishment of ERP and Emergency Service(s) Capability

Under paragraph (d) of the proposed rule, ESOs would be required to develop, update, and revise an emergency response program. They would have to conduct a community and/or facility vulnerability assessment to establish their emergency response capabilities, develop mutual aid agreements with other ESOs as necessary to ensure adequate resources are available to safely mitigate foreseeable incidents, evaluate resources needed, and establish tiers of responders. Except for the ERP revision and update, all of these tasks are one-time activities, and all would be carried out by an organization leader. See Table VII–C–5 for the specific labor hours OSHA estimates would be incurred for each activity at ESOs in all employment size classes. Table VII–C6 presents the associated unit costs.

(iii) Team Member and Responder Participation

Under paragraph (e) of the proposed rule, ESOs would be required to involve team members and responders in the process of developing, updating, implementing, and evaluating the ERP and in inspections and incident investigations at their own facilities. ESOs would also have to encourage responders to report safety and health concerns and respond to those concerns within a reasonable timeframe. In addition, they would be required to post signs explaining procedures in place for reporting on safety and health concerns. Both of these activities would occur annually, with labor hours incurred by firefighters for all activities except the posting of signs, which would be carried out by an organization leader. See Table VII–C–5 for the specific labor hours OSHA estimates would be incurred for each activity at ESOs in all employment size classes. Table VII–C–6 presents the associated unit costs.

(iv) WERT and ESO Risk Management Plan

Under paragraph (f) of the proposed rule, ESOs would be required to prepare and annually update a comprehensive risk management plan (RMP). The minimum requirements to be covered in the plan are itemized in paragraph (f)(1) of the proposed rule. Development of the plan is a one-time activity while updating should occur annually.[49] Both of these activities would be carried out by an organization leader. See Table VII–C–5 for the specific labor hours OSHA estimates would be incurred for each activity at ESOs in all employment size classes. Table VII–C–6 presents the associated unit costs.

(v) Medical and Physical Requirements

Under paragraph (g) of the proposed rule, and as discussed in detail in the Summary and Explanation, ESOs must establish minimum medical requirements for responders, have responders medically evaluated (at no cost to the responder), and have their fitness for duty evaluated. Exposures to combustion products would be tracked and all medical information would be maintained in a confidential record for each responder. Beyond these requirements, ESOs would be required to establish and implement a health and fitness program that enables responders to develop and maintain a level of physical fitness that allows them to safely perform their assigned functions, as well as a behavioral health and wellness program to maintain mental fitness to safely perform their duties and to address occupational risk factors for behavioral health. Developing the plan for the health and fitness program is a one-time activity, while a fitness assessment would take place every three years and would involve both the time of a responder and organization leader, one hour each (this estimate may overstate the amount of time necessary for the fitness assessment if groups of responders can be evaluated at the same time). OSHA assumes that fitness for duty assessments and fitness education and counseling will coincide with periodic refresher training or similar events, which are already captured in the training provision (see Section IV.I.E.).

The proposed rule would provide a framework for encouraging responders to maintain fitness levels commensurate with their responsibilities including, for example, providing exercise training. However, the agency believes that the proposed rule would not require an increase in responder compensation by their organizations. For example, fitness exercises are routine among firefighters

[48] Note that in this analysis, the seven State Plan states with inmates potentially engaged in wildfire fighting are assumed to incur the costs of the proposed rule. This approach means that state governments would be the organization and would incur organization level costs once. It may be possible that organization level costs are incurred for each conservation camp (the minimum-security camps that house inmates serving as firefighters) that has inmates potentially engaged in wildfire fighting. OSHA welcomes comment on this issue.

[49] For this analysis, OSHA estimates that as-needed plan updates will occur infrequently enough that assuming annual updates for all entities will be representative of the average firm.

during downtime (see Poston, et al. (2013), which found that between 80 and 95 percent of firefighters surveyed reported engaging in exercise at least ''some days'' while at the fire station). The agency welcomes comment on this aspect of the analysis. Table VII–C–5 presents estimates of the labor hours incurred for each activity at ESOs by employment size class. Table VII–C–6 presents the associated unit costs.

The proposed rule would require that responders receive, at a minimum, a medical evaluation every two years that includes a medical and work history, physical examination, spirometry, and assessment of heart disease risk (includes assessment of blood pressure, cholesterol levels, and relevant heart disease risk factors such as blood glucose). Note that OSHA's estimated cost of these services accounts for the fact that some individuals may already be receiving them (see Section C.II.A on Baseline Non-Compliance Rates). Responders who show signs of heart disease risk or who are, or may be, exposed to combustion products 15 or more times a year will require additional screening. To estimate the percentage of responders needing each type of exam, OSHA relied on the frequencies in the 2018 NFPA 1582 standard's recommendations for occupational medical programs. In addition, since some tests are only recommended or needed for firefighters of certain ages or sex, OSHA also used NFPA's (2022) estimate of the number of firefighters by age and sex. The percentage of firefighters needing each exam is multiplied by the unit cost for each exam to derive a weighted average unit cost for initial and periodic medical surveillance (for example, if only half of all firefighters needed a given test, the weighted average per firefighter for all firefighters would be 50 percent of the cost of the test). Table VII–C–4 presents the derivation of the weighted average unit costs for medical surveillance.

The proposed rule would require additional medical screening for responders if determined by the ESO or WERE to be appropriate for the particular type and level of service provided or if deemed appropriate by the PLHCP conducting the baseline screening. OSHA assumed that this additional screening would include an electrocardiogram (EKG), a coronary artery calcium (CAC) score test, and an exercise stress test (EST).

The proposed rule would also require that responders who are either exposed to combustion products 15 times or more a year or show signs or symptoms that may have resulted from exposure to combustion products receive a medical evaluation that is at least equivalent to the criteria outlined by a national consensus standard. For this PEA, OSHA uses the NFPA 1582 medical exam to represent the estimated costs of this additional medical evaluation. As outlined above, not every responder would need every component of the NFPA 1582 exam since certain medical components are age- and/or sex-specific. The unit costs and percentages of responders undergoing each medical component are presented in Table VII–C–4.

The unit costs for medical surveillance are drawn from the Centers for Medicare & Medicaid Services (CMS, 2022a) Physician Fee Schedule data for 2022, CMS (2022b) Clinical Laboratory Fee Schedule data for 2022, the Centers for Disease Control and Prevention (CDC, 2023) Adult Vaccine Price List, GoodRx's (Khan, 2023) estimate of the cost of a colonoscopy, HealthInsurance.com's (2022) estimate of the cost to receive a vision test, and Tatar et al.'s (2020) estimate of the cost of Hepatitis C screening. The unit costs are applied per exam per employee. The cost of the exam is added to the per hour cost for the employee to undergo the exam.

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Table VII-C-4. Medical Surveillance Unit Costs - Structural and Wildland Fire Services and Firefighters

	Percent / Unit Cost	Frequency
Minimum Medical Surveillance		
% Receiving Each Exam		
Office Visit [a]	100.0%	Biennial
Spirometry	100.0%	Biennial
Blood Cholesterol Test	100.0%	Biennial
Blood Glucose Test	100.0%	Biennial
Blood Pressure	100.0%	Biennial
Unit Medical Costs		
Office Visit [a]	$84	Biennial
Spirometry	$27	Biennial
Blood Cholesterol Test	$4	Biennial
Blood Glucose Test	$3	Biennial
Blood Pressure	$15	Biennial
Weighted Average Unit Cost - Minimum Medical Surveillance	**$135**	**Biennial**
Additional Heart Screening		
% Receiving Each Exam		
EKG	100.0%	Biennial
CAC	100.0%	Biennial
EST	100.0%	Biennial
Unit Medical Costs		
EKG	$15	Biennial
CAC	$266	Biennial
EST	$348	Biennial
Weighted Average Unit Cost - Additional Heart Screening	**$629**	**Biennial**
Additional ESO Surveillance (Full NFPA Medical Exam)		
% Receiving Each Exam		
Office Visit	100.0%	Annual

	Percent / Unit Cost	Frequency
Audiogram	100.0%	Annual
Chest X–Ray	100.0%	Annual
Vision Test	100.0%	Annual
Misc. Testing	0.0%	Annual
EKG	50.0%	Annual
Mammography	3.3%	Annual
Colonoscopy	2.7%	Annual
Lung Cancer Screening Using Low-Dose CT	1.3%	Annual
Blood Tests	66.7%	Annual
Urinalysis	100.0%	Annual
PSA Testing	24.4%	Annual
HIV Screening	25.0%	Annual
Hepatitis C screening	100.0%	Annual
Heavy Metal Screening	100.0%	Annual
Immunization – Influenza	80.0%	Annual
Immunization – TDAP	10.0%	Annual
Immunization – MMR	5.0%	Annual
Immunization – Varicella	5.0%	Annual
Immunization – Hepatitis A/Hepatitis B	5.0%	Annual
Immunization – Polio	100.0%	Annual
Immunization – Administration	10.0%	Annual
Unit Medical Costs		
Office Visit	$84	Annual
Audiogram	$38	Annual
Chest X–Ray	$48	Annual
Vision Test	$95	Annual
Misc. Testing	$0	Annual
EKG	$15	Annual
Mammography	$133	Annual
Colonoscopy	$2,750	Annual
Lung Cancer Screening Using Low-Dose CT	$147	Annual
Blood Tests	$62	Annual
Urinalysis	$4	Annual
PSA Testing	$18	Annual
HIV Screening	$18	Annual
Hepatitis C screening	$140	Annual
Heavy Metal Screening	$43	Annual
Immunization – Influenza	$18	Annual
Immunization – TDAP	$52	Annual
Immunization – MMR	$90	Annual
Immunization – Varicella	$160	Annual
Immunization – Hepatitis A/Hepatitis B	$121	Annual
Immunization – Polio	$41	Annual
Immunization – Administration	$17	Annual
Weighted Average Unit Cost - Additional ESO Surveillance (Full NFPA Medical Exam)	**$670**	**Annual**

Sources: OSHA based on ERG estimate; CMS, 2022a; CMS, 2022b; Khan, 2023; eHealthInsurance.com, 2022; Tatar et al., 2020; CDC, 2023; and NFPA, 2022.

Note: All dollar figures are presented in 2022$. Unit costs are shown with zero decimal places, but unrounded figures are used in the underlying calculations.

[a] The medical history and physical examination are both covered by the "Office Visit" item.

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(vi) Training

Under paragraph (h) of the proposed rule, ESOs would be required to establish the minimum knowledge and skills required for each responder to perform emergency response operation activities. ESOs would be required to provide initial, ongoing, and refresher trainings, as well as professional development for each responder. The hours necessary to complete trainings can vary significantly by state and by type of firefighter (career, volunteer, or paid per call).

While most emergency responders already receive vocational training for their duties, the PEA estimates the cost of bringing the remainder up to minimum requirements. OSHA used the time needed to complete an NFPA-approved volunteer firefighter course (estimated at 110 hours) (*VolunteerFD.org,* 2018) to represent initial responder training labor time for volunteers at fire departments. For career firefighters, OSHA identified a selection of state firefighter training programs and their estimated completion times (CA OSFM, 2019a; CA OSFM, 2019b; Florida Department of Financial Services, 2022; MFSI, 2017; MFRI, 2023a; MFRI, 2023b; New Hampshire Fire Academy and EMS, 2023a; New Hampshire Fire Academy and EMS, 2023b; Ohio EMS, 2023; Washington State Patrol, 2023). OSHA calculated the average time to complete these training programs and used this labor time estimate (308 hours) to represent initial responder training for career firefighters. For mixed fire departments, OSHA calculated the weighted average of the initial training time estimates using the percentages of volunteer and career (or paid-per-call) firefighters within mixed fire departments according to the National Fire Registry. Using this method, OSHA estimates that, for the 250–499 employee class size, a ''typical'' firefighter would complete about 245.5 hours of initial responder training. On-going refresher training time estimates reflect OSHA's estimation that firefighters work 10 shifts per month, with firefighter training occurring during two of those shifts. Under this assumption, firefighters are training during six shifts per quarter, or 24 shifts per year. Assuming firefighters train for two hours per training session, OSHA estimates 48 hours of training annually. To estimate the annual time spent on refresher training courses, OSHA multiplied the maximum time for NREMT cognitive exams (two hours) by the number of certifications that responders need, which OSHA estimated was three (NREMT, 2018). This calculation yields six hours every two years, or three hours every year. OSHA determined that the use of EMT re-certification estimates was also appropriate for firefighters given that most career firefighters are also EMTs (Unitek EMT, 2022). OSHA assumes that other training required by the proposed rule, including that on various policies developed under this standard, training on PPE, training to an awareness level on confined spaces, and others, are either costed under another OSHA standard (*i.e.,* the PPE standard) or are included in the training times estimated here.

ESOs would also be required to ensure each responder maintains proficiency in the skills commensurate with their respective emergency response activities. Organization leaders would need to document responders' professional qualifications to ensure proficiency.

Aside from the requirement to establish minimum knowledge and skills, which occurs once, all other training labor hours would be incurred annually. OSHA expects an organization leader to establish minimum knowledge and skills and document professional qualifications, while firefighters would need labor hours to be trained. Of note, initial training would only apply to new hires, so the unit cost is only multiplied by a percentage (the hire rate) of the number of firefighters in the estimation of total costs for this provision. See Table VII–C–5 for the specific labor hours OSHA estimates would be incurred for each activity at ESOs by employment size class. Table VII–C–6 presents the associated unit costs.

(vii) ESO Facility Preparedness

Under paragraph (j) of the proposed rule, ESOs would be required to ensure that each facility complies with 29 CFR part 1910, subpart E—Exit Routes and Emergency Planning; provide facilities for the decontamination, disinfection, cleaning, and storage of PPE and equipment; and ensure that fire detection, suppression, and alarm systems, and occupant notification systems are installed, tested, and maintained. Additional requirements are directed at ensuring the safety of firehouse slide poles and sleeping and living areas, including requirements for smoke alarms, sprinkler systems, carbon monoxide detectors, vehicle exhaust emissions, and properly handling contaminated PPE. These activities would be conducted annually by an organization leader. See Table VII–C–5 for the specific labor hours OSHA estimates would be incurred for each activity at ESOs in all employment size classes. Table VII–C–6 presents the associated unit costs.

(viii) Equipment and PPE

Under paragraph (k) of the proposed rule, ESOs would be required to provide access to equipment that is compliant with applicable existing standards as well as to inspect, maintain, and test equipment at prescribed intervals. Additionally, ESOs would be required to conduct a hazard assessment to select appropriate PPE; provide PPE to responders that is compliant with 29 CFR part 1910, subpart I, Personal Protective Equipment; and ensure SCBA meet applicable requirements, and maintain all PPE. OSHA expects that equipment and PPE inspection and maintenance would be conducted by firefighters annually. Organization leaders are expected to expend labor hours annually to ensure new equipment meets design and manufacturing requirements, as well as on a one-time basis to conduct the hazard assessment and provide the PPE. Firefighters would be expected to annually inspect, maintain, and test equipment, as well as perform maintenance of PPE. See Table VII–C–5 for the specific labor hours OSHA estimates would be incurred for each activity at ESOs by employment size class. Table VII–C–6 presents the associated unit costs.

(ix) Vehicle Preparedness and Operation

Under paragraph (l) of the proposed rule, ESOs would be required to ensure that vehicles are prepared for safe use by inspecting, maintaining, and repairing their vehicles and associated parts (*e.g.,* aerial devices, water pumps). ESOs would be required to develop written SOPs for operating their own and other vehicles as necessary. OSHA assumes that an organization leader would perform these activities with the development of the SOPs being a one-time activity and all others occurring annually. See Table VI–5 for the specific labor hours OSHA estimates would be incurred for each activity at ESOs by employment size class. Table VI–6 presents the associated unit costs.

(x) ESO Pre-Incident Planning

Under paragraph (n) of the proposed rule, ESOs would be required to develop pre-incident plans (PIPs) for facilities where responders may be called to provide service, based on the community or facility vulnerability assessment and other factors. ESOs would need to review their PIPs annually and update them as needed.

Additionally, ESOs would have to prepare a PIP for any facility in their response area that is subject to the Emergency Planning and Community Right-to-Know Act (EPCRA). OSHA expects that organization leaders will conduct these one-time activities. See Table VII–C–5 for the specific labor hours OSHA estimates would be incurred each activity at ESOs by employment size class. Table VII–C–6 presents the associated unit costs.

(xi) Incident Management System Development

Under paragraph (o) of the proposed rule, ESOs would be required to develop and implement an Incident Management System (IMS) to manage all emergency incidents. OSHA expects that organization leaders would establish a procedural template for such activities one time initially. See Table VII–C–5 for the specific labor hours OSHA estimates would be incurred at ESOs by employment size class. Table VII–C–6 presents the associated unit costs.

(xii) Emergency Incident Operations

Under paragraph (p) of the proposed rule, ESOs would be required to ensure that the IMS is employed at each emergency incident. OSHA expects that organization leaders would conduct this activity, including developing an Incident Action Plan (IAP) for every incident. While overseeing responder operations at an emergency incident is underlying job duty for organization leaders, the PEA nonetheless assumes a limited incremental amount of time at each incident for implementing the requirements set forth in paragraph (p) of the proposal. See Table VII–C–5 for the specific labor hours OSHA estimates would be incurred at WEREs and ESOs by employment size class. Table VII–C–6 presents the associated unit costs.

(xiii) Standard Operating Procedures

Under paragraph (q) of the proposed rule, ESOs would be required to develop and implement SOPs for emergency events that they are likely to encounter, based on the community or facility vulnerability assessments they have developed as well as SOPs for unusual hazards, responder protection from contaminants and for decontamination, vehicle operations, radio communication, Mayday situations, and others. OSHA expects that organization leaders would conduct this one-time activity. See Table VII–C–5 for the specific labor hours OSHA estimates would be incurred at ESOs by employment size class. Table VII–C–6 presents the associated unit costs.

(xiv) Post Incident Analysis

Under paragraph (r) of the proposed rule, ESOs would be required to conduct a Post-Incident Analysis (PIA) to determine the effectiveness of the ESO's response to an incident after any significant event such as, for example, a large-scale incident, significant near-miss incident, serious injury, or responder fatality. ESOs would be required to implement changes to the RMP, IMS, PIPs, IAPs, and SOPs based on lessons learned. OSHA estimates that organization leaders would spend five minutes per incident to conduct these activities. OSHA recognizes that the number of significant events is less than the number of incidents and adjusted the per-incident time estimate accordingly. OSHA estimated the number of incidents an organization would respond to based on whether the organization is composed of career responders, volunteer responders, or a mix of career and volunteer responders, as well as the employment class size of the organization. See Table VII–C–5 for the specific labor hours OSHA estimates would be incurred for each activity at ESOs by employment size class. Table VII–C–6 presents the associated unit costs.

(xv) Program Evaluation

Under paragraph (s) of the proposed rule, ESOs would be required to conduct annual evaluations of the adequacy and effectiveness of their ERP. They must also identify and implement changes to the ERP based on the review of the program. OSHA expects that organization leaders would conduct these annual activities. See Table VII–C–5 for the specific labor hours OSHA estimates would be incurred for each activity at ESOs in all employment size classes. Table VII–C–6 presents the associated unit costs.

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Table VII-C-5. Unit Labor Hours for Labor-Based Costs by Employment Size Class – Structural and Wildland Fire Services and Firefighters

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
Rule Familiarization									
Rule Familiarization	2.00	2.00	2.00	2.00	2.00	2.00	Organization	Fire Chief	One-time
ESO Establishment of ERP and Emergency Service(s) Capability									
ESO Develop ERP	20.00	24.00	24.00	30.00	40.00	60.00	Organization	Fire Chief	One-time
ESO Update and Revise ERP	4.00	5.00	5.00	6.00	8.00	12.00	Organization	Fire Chief	Annual
ESO Establishment of Service(s) Capability	12.00	14.00	14.00	18.00	24.00	36.00	Organization	Fire Chief	One-time
ESO Community or Facility Vulnerability and Risk Assessment	40.00	48.00	48.00	60.00	80.00	120.00	Organization	Fire Chief	One-time
ESO Develop Mutual Aid Agreements	1.00	1.00	1.00	1.00	1.00	2.00	Organization	Fire Chief	One-time
Team Member and Responder Participation									
Responder Participation-Meetings	8.00	10.00	10.00	12.00	16.00	24.00	Organization	Firefighter	Annual
Responder Participation-Post Sign	0.05	0.05	0.05	0.05	0.05	0.05	Organization	Fire Chief	Annual
WERT and ESO Risk Management Plan									
Prepare Written RMP	12.00	14.00	14.00	18.00	24.00	36.00	Organization	Fire Chief	One-time
Update Written RMP	5.00	6.00	6.00	8.00	10.00	15.00	Organization	Fire Chief	Annual
Medical and Physical Requirements									
Minimum Medical Requirement - Statement	8.00	10.00	10.00	12.00	16.00	24.00	Organization	Fire Chief	One-time
Confidential Records System	0.08	0.08	0.08	0.08	0.08	0.08	Responder	Fire Chief	One-time
Establish Health and Fitness Program - Written Plan	8.00	10.00	10.00	12.00	16.00	24.00	Organization	Fire Chief	One-time
Minimum Medical Surveillance	2.50	2.50	2.50	2.50	2.50	2.50	Responder	Firefighter	Varies
Additional Heart Screening	1.25	1.25	1.25	1.25	1.25	1.25	Responder	Firefighter	Varies
Additional ESO Surveillance (Full NFPA Medical Exam)	2.50	2.50	2.50	2.50	2.50	2.50	Responder	Firefighter	Varies
Implement Fitness Assessment	1.00	1.00	1.00	1.00	1.00	1.00	Responder	Fire Chief	Varies
Undergo Fitness Assessment	1.00	1.00	1.00	1.00	1.00	1.00	Responder	Firefighter	Varies
Behavioral Health & Wellness Program	1.00	1.00	1.00	2.00	2.00	3.00	Organization	Fire Chief	Annual
Document Combustion Product Exposures - Career Fire Departments [a]	3.59	4.31	4.31	5.39	7.18	10.77	Organization	Fire Chief	Annual
Document Combustion Product Exposures - Volunteer Fire Departments [a]	0.31	0.38	0.38	0.47	0.63	0.94	Organization	Fire Chief	Annual

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
Document Combustion Product Exposures - Mixed Fire Departments [a]	1.74	2.08	2.08	2.61	3.47	5.21	Organization	Fire Chief	Annual
Document Combustion Product Exposures - All Wildland Fire Services [a]	0.42	0.08	0.28	1.06	7.35	10.27	Organization	Fire Chief	Annual
Training									
Establish Minimum Knowledge and Skills	8.00	10.00	10.00	12.00	16.00	24.00	Organization	Fire Chief	One-time
Initial New Responder Training - Career	308.00	308.00	308.00	308.00	308.00	308.00	Responder	Firefighter	Annual
Initial New Responder Training - Volunteer	110.00	110.00	110.00	110.00	110.00	110.00	Responder	Firefighter	Annual
Initial New Responder Training - Mixed	192.00	198.87	212.76	207.67	245.46	282.04	Responder	Firefighter	Annual
Ongoing Responder Training	24.00	29.00	29.00	36.00	48.00	72.00	Responder	Firefighter	Annual
Refresher Responder Training	2.00	2.00	2.00	2.00	3.00	5.00	Responder	Firefighter	Annual
Professional Development	20.00	24.00	24.00	30.00	40.00	60.00	Responder	Firefighter	Annual
Document Professional Qualifications	20.00	24.00	24.00	30.00	40.00	60.00	Organization	Fire Chief	Annual
ESO Facility Preparedness									
ESO Facility Preparedness	40.00	48.00	48.00	60.00	80.00	120.00	Organization	Fire Chief	Annual
Equipment and PPE									
Equipment Preparedness	40.00	48.00	48.00	60.00	80.00	120.00	Organization	Fire Chief	Annual
Inspect, Maintain, and Test Equipment	40.00	48.00	48.00	60.00	80.00	120.00	Organization	Firefighter	Annual
PPE Hazard Assessment	8.00	10.00	10.00	12.00	16.00	24.00	Organization	Fire Chief	One-time
PPE Provision	8.00	10.00	10.00	12.00	16.00	24.00	Organization	Fire Chief	One-time
PPE Maintenance	40.00	48.00	48.00	60.00	80.00	120.00	Organization	Firefighter	Annual
Vehicle Preparedness and Operation									
Written SOPs - Vehicle Preparedness and Operation	8.00	10.00	10.00	12.00	16.00	24.00	Organization	Fire Chief	One-time
Vehicle Inspection and Maintenance	40.00	48.00	48.00	60.00	80.00	120.00	Organization	Fire Chief	Annual
ESO Pre-Incident Planning									
ESO Pre-Incident Planning	20.00	24.00	24.00	30.00	40.00	60.00	Organization	Fire Chief	One-time
ESO PIP Annual Review	4.00	5.00	5.00	6.00	8.00	12.00	Organization	Fire Chief	Annual
Incident Management System Development									
Incident Management System Development	12.00	14.00	14.00	18.00	24.00	36.00	Organization	Fire Chief	One-time
Emergency Incident Operations									
Emergency Incident Operations - Career Fire Departments [a]	8.98	10.77	10.77	13.46	17.95	26.93	Organization	Fire Chief	Annual

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
Emergency Incident Operations - Volunteer Fire Departments [a]	0.79	0.94	0.94	1.18	1.57	2.36	Organization	Fire Chief	Annual
Emergency Incident Operations - Mixed Fire Departments [a]	4.34	5.21	5.21	6.52	8.69	13.03	Organization	Fire Chief	Annual
Emergency Incident Operations - All Wildland Fire Services [a]	1.04	0.21	0.69	2.65	18.38	25.68	Organization	Fire Chief	Annual
Standard Operating Procedures									
SOPs	20.00	24.00	24.00	30.00	40.00	60.00	Organization	Fire Chief	One-time
Post Incident Analysis									
Post Incident Analysis - Career Fire Departments [a]	8.98	10.77	10.77	13.46	17.95	26.93	Organization	Fire Chief	Annual
Post Incident Analysis - Volunteer Fire Departments [a]	0.79	0.94	0.94	1.18	1.57	2.36	Organization	Fire Chief	Annual
Post Incident Analysis - Mixed Fire Departments [a]	4.34	5.21	5.21	6.52	8.69	13.03	Organization	Fire Chief	Annual
Post Incident Analysis - All Wildland Fire Services [a]	1.04	0.21	0.69	2.65	18.38	25.68	Organization	Fire Chief	Annual
ID/Implement Changes to Pre-Incident Plan	1.00	1.00	1.00	1.00	1.00	2.00	Organization	Fire Chief	Annual
Program Evaluation									
ERP Program Evaluation	20.00	24.00	24.00	30.00	40.00	60.00	Organization	Fire Chief	Annual
ID and Implement Changes to ERP	1.00	1.00	1.00	1.00	1.00	2.00	Organization	Fire Chief	Annual
More Frequent ID and Implement Changes to ERP	1.00	1.00	1.00	1.00	1.00	2.00	Organization	Fire Chief	Annual

Source: OSHA, unless otherwise noted in text.

[a] These estimates are calculated using the expected number of events/incidents for a given responder group type and employee class size. The expected number of events/incidents does not always follow the expected pattern of smaller employment class sizes incurring lower numbers of events/incidents. This is why some unit labor hour estimates do not go in order from smallest to largest by employee class size.

Table VII-C-6. Labor-Based Unit Costs by Employment Size Class - Structural and Wildland Fire Services and Firefighters

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
Rule Familiarization									
Rule Familiarization	$125	$125	$125	$125	$125	$125	Organization	Fire Chief	One-time
ESO Establishment of ERP and Emergency Service(s) Capability									
ESO Develop ERP	$1,248	$1,497	$1,497	$1,872	$2,496	$3,744	Organization	Fire Chief	One-time

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
ESO Update and Revise ERP	$250	$312	$312	$374	$499	$749	Organization	Fire Chief	Annual
ESO Establishment of Service(s) Capability	$749	$874	$874	$1,123	$1,497	$2,246	Organization	Fire Chief	One-time
ESO Community or Facility Vulnerability and Risk Assessment	$2,496	$2,995	$2,995	$3,744	$4,991	$7,487	Organization	Fire Chief	One-time
ESO Develop Mutual Aid Agreements	$62	$62	$62	$62	$62	$125	Organization	Fire Chief	One-time
Team Member and Responder Participation									
Responder Participation-Meetings	$306	$382	$382	$459	$612	$918	Organization	Firefighter	Annual
Responder Participation-Post Sign	$3	$3	$3	$3	$3	$3	Organization	Fire Chief	Annual
WERT and ESO Risk Management Plan									
Prepare Written RMP	$749	$874	$874	$1,123	$1,497	$2,246	Organization	Fire Chief	One-time
Update Written RMP	$312	$374	$374	$499	$624	$936	Organization	Fire Chief	Annual
Medical and Physical Requirements									
Minimum Medical Requirement - Statement	$499	$624	$624	$749	$998	$1,497	Organization	Fire Chief	One-time
Confidential Records System	$5	$5	$5	$5	$5	$5	Responder	Fire Chief	One-time
Establish Health and Fitness Program - Written Plan	$499	$624	$624	$749	$998	$1,497	Organization	Fire Chief	One-time
Minimum Medical Surveillance [a]	$96	$96	$96	$96	$96	$96	Responder	Firefighter	Varies
Additional Heart Screening [a]	$48	$48	$48	$48	$48	$48	Responder	Firefighter	Varies
Additional ESO Surveillance (Full NFPA Medical Exam) [a]	$96	$96	$96	$96	$96	$96	Responder	Firefighter	Varies
Implement Fitness Assessment	$62	$62	$62	$62	$62	$62	Responder	Fire Chief	Varies
Undergo Fitness Assessment	$38	$38	$38	$38	$38	$38	Responder	Firefighter	Varies
Behavioral Health & Wellness Program	$62	$62	$62	$125	$125	$187	Organization	Fire Chief	Annual
Document Combustion Product Exposures - Career Fire Departments	$224	$269	$269	$336	$448	$672	Organization	Fire Chief	Annual
Document Combustion Product Exposures - Volunteer Fire Departments	$20	$24	$24	$29	$39	$59	Organization	Fire Chief	Annual
Document Combustion Product Exposures - Mixed Fire Departments	$108	$130	$130	$163	$217	$325	Organization	Fire Chief	Annual

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
Document Combustion Product Exposures - All Wildland Fire Services	$26	$5	$17	$66	$459	$641	Organization	Fire Chief	Annual
Training									
Establish Minimum Knowledge and Skills	$499	$624	$624	$749	$998	$1,497	Organization	Fire Chief	One-time
Initial New Responder Training - Career	$11,777	$11,777	$11,777	$11,777	$11,777	$11,777	Responder	Firefighter	Annual
Initial New Responder Training - Volunteer	$4,206	$4,206	$4,206	$4,206	$4,206	$4,206	Responder	Firefighter	Annual
Initial New Responder Training - Mixed	$7,342	$7,604	$8,135	$7,941	$9,386	$10,785	Responder	Firefighter	Annual
Ongoing Responder Training	$918	$1,109	$1,109	$1,377	$1,835	$2,753	Responder	Firefighter	Annual
Refresher Responder Training	$76	$76	$76	$76	$115	$191	Responder	Firefighter	Annual
Professional Development	$765	$918	$918	$1,147	$1,530	$2,294	Responder	Firefighter	Annual
Document Professional Qualifications	$1,248	$1,497	$1,497	$1,872	$2,496	$3,744	Organization	Fire Chief	Annual
ESO Facility Preparedness									
ESO Facility Preparedness	$2,496	$2,995	$2,995	$3,744	$4,991	$7,487	Organization	Fire Chief	Annual
Equipment and PPE									
Equipment Preparedness	$2,496	$2,995	$2,995	$3,744	$4,991	$7,487	Organization	Fire Chief	Annual
Inspect, Maintain, and Test Equipment	$1,530	$1,835	$1,835	$2,294	$3,059	$4,589	Organization	Firefighter	Annual
PPE Hazard Assessment	$499	$624	$624	$749	$998	$1,497	Organization	Fire Chief	One-time
PPE Provision	$499	$624	$624	$749	$998	$1,497	Organization	Fire Chief	One-time
PPE Maintenance	$1,530	$1,835	$1,835	$2,294	$3,059	$4,589	Organization	Firefighter	Annual
Vehicle Preparedness and Operation									
Written SOPs - Vehicle Preparedness and Operation	$499	$624	$624	$749	$998	$1,497	Organization	Fire Chief	One-time
Vehicle Inspection and Maintenance	$2,496	$2,995	$2,995	$3,744	$4,991	$7,487	Organization	Fire Chief	Annual
ESO Pre-Incident Planning									
ESO Pre-Incident Planning	$1,248	$1,497	$1,497	$1,872	$2,496	$3,744	Organization	Fire Chief	One-time
ESO PIP Annual Review	$250	$312	$312	$374	$499	$749	Organization	Fire Chief	Annual
Incident Management System Development									
Incident Management System Development	$749	$874	$874	$1,123	$1,497	$2,246	Organization	Fire Chief	One-time

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
Emergency Incident Operations									
Emergency Incident Operations - Career Fire Departments	$560	$672	$672	$840	$1,120	$1,680	Organization	Fire Chief	Annual
Emergency Incident Operations - Volunteer Fire Departments	$49	$59	$59	$74	$98	$147	Organization	Fire Chief	Annual
Emergency Incident Operations - Mixed Fire Departments	$271	$325	$325	$406	$542	$813	Organization	Fire Chief	Annual
Emergency Incident Operations - All Wildland Fire Services	$65	$13	$43	$166	$1,147	$1,602	Organization	Fire Chief	Annual
Standard Operating Procedures									
SOPs	$1,248	$1,497	$1,497	$1,872	$2,496	$3,744	Organization	Fire Chief	One-time
Post Incident Analysis									
Post Incident Analysis - Career Fire Departments	$560	$672	$672	$840	$1,120	$1,680	Organization	Fire Chief	Annual
Post Incident Analysis - Volunteer Fire Departments	$49	$59	$59	$74	$98	$147	Organization	Fire Chief	Annual
Post Incident Analysis - Mixed Fire Departments	$271	$325	$325	$406	$542	$813	Organization	Fire Chief	Annual
Post Incident Analysis - All Wildland Fire Services	$65	$13	$43	$166	$1,147	$1,602	Organization	Fire Chief	Annual
ID/Implement Changes to Pre-Incident Plan	$62	$62	$62	$62	$62	$125	Organization	Fire Chief	Annual
Program Evaluation									
ERP Program Evaluation	$1,248	$1,497	$1,497	$1,872	$2,496	$3,744	Organization	Fire Chief	Annual
ID and Implement Changes to ERP	$62	$62	$62	$62	$62	$125	Organization	Fire Chief	Annual
More Frequent ID and Implement Changes to ERP	$6	$6	$6	$6	$6	$12	Organization	Fire Chief	Annual

Sources: OSHA based on BLS (2023), BLS (2023), EPA (2002) and Rice (2002).

Note: All dollar figures are presented in 2022$. Unit costs are shown with zero decimal places, but unrounded figures are used in the underlying calculations.

[a] These costs to undergo medical exams are only inclusive of the labor costs. The cost of the medical exam components are presented in Table VII-C-4.

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B. WEREs

WEREs potentially affected by the proposed rule are private organizations whose employees, as a collateral duty to their regular daily work assignments, are part of a workplace emergency response team (WERT) and respond to emergency incidents to provide services such as fire suppression, emergency medical care, and technical search and rescue. These organizations would be required to comply with many provisions of the proposed rule, with some requirements taking less time for WEREs compared to ESOs. OSHA's methods for estimating labor hours and costs by provision and employee size class are the same as for firefighters for the following provisions:

- Rule Familiarization;
- Team Member and Responder Participation;
- WERT and ESO Risk Management Plan;
- Equipment and PPE;
- Vehicle Preparedness and Operation;
- Incident Management System Development;
- Standard Operating Procedures; and
- Program Evaluation.

There are two provisions that, while specific to WEREs, have the same labor hour estimates as the corresponding ESO-specific provisions:

- Organization of the WERT and Establishment of the ERP and Emergency Service(s) Capability (this provision has the same labor hour estimates as the ESO Establishment of ERP and Emergency Service(s) Capability provision); and
- WERE Pre-Incident Planning (this provision has the same labor hour estimates as the ESO Pre-Incident Planning provision).

Estimation methods differ for the following provisions:

- Medical and Physical Requirements;
- Training;
- WERE Facility Preparedness;
- Emergency Incident Operations; and
- Post-Incident Analysis.

The methods specific to WEREs are described below.

(i) Medical and Physical Requirements

Under paragraph (g) of the proposed rule, WEREs are not required to establish or implement a health and fitness program, whereas ESOs are. Team members must receive the same minimum medical evaluation that responders receive and must also receive any additional screening determined to be appropriate by the WERE or the PLHCP. Team members are not required to receive the full NFPA 1582 screening required for responders exposed to combustion materials. OSHA assumes that all WERT members would undergo each component of the minimum medical exam, and all WERT members that exhibit signs and symptoms warranting additional heart screening (12.5 percent of all WERT members, as shown in Table VII–C–2) would undergo all components of the additional heart screening.[50] The percentage needing each exam is multiplied by the unit cost for each exam to derive a weighted average unit cost for the minimum medical evaluation and additional heart screening. Table VII–C–7 shows the derivation of the weighted average unit cost for medical surveillance.

The unit costs for medical surveillance are drawn from the Centers for Medicare & Medicaid Services' (CMS, 2022a) Physician's Fee Schedule for 2022 and CMS (2022b) Clinical Laboratory Fee Schedule. The unit costs are applied per exam per employee. The cost of the exam is added to the per hour cost for the employee to undergo the exam.

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[50] Le Duc, 2018 indicated approximately 12.5 percent of firefighters had some type of underlying, significant cardiovascular issues such as hypertension, elevated cholesterol levels, or abnormal stress.

Table VII-C-7. Medical Surveillance Unit Costs - WEREs

	Percent / Unit Cost	Frequency
Minimum Medical Surveillance		
% Receiving Each Exam		
Office Visit [a]	100.0%	Biennial
Spirometry	100.0%	Biennial
Blood Cholesterol Test	100.0%	Biennial
Blood Glucose Test	100.0%	Biennial
Blood Pressure	100.0%	Biennial
Unit Medical Costs		
Office Visit [a]	$84	Biennial
Spirometry	$27	Biennial
Blood Cholesterol Test	$4	Biennial
Blood Glucose Test	$3	Biennial
Blood Pressure	$15	Biennial
Weighted Average Unit Cost - Minimum Medical Surveillance	**$135**	**Biennial**
Additional Heart Screening		
% Receiving Each Exam		
EKG	100.0%	Biennial
CAC	100.0%	Biennial
EST	100.0%	Biennial
Unit Medical Costs		
EKG	$15	Biennial
CAC	$266	Biennial
EST	$348	Biennial
Weighted Average Unit Cost - Additional Heart Screening	**$629**	**Biennial**

Sources: OSHA based on CMS, 2022a and CMS, 2022b.
Note: All dollar figures are presented in 2022$. Unit costs are shown with zero decimal places, but unrounded figures are used in the underlying calculations.
[a] The medical history and physical examination are both covered by the "Office Visit" item.

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(ii) Training

The time estimate used to determine initial team member training for WEREs is assumed to be equal to the time estimate for responders in volunteer fire departments (110 hours). All other training-related items are the same as for fire departments.

(iii) WERE Facility Preparedness

WEREs are assumed to take less time than ESOs to meet facility preparedness requirements, since these facilities would not have to account for elements such as firepoles or sleeping areas. However, under paragraph (i) of the proposed rule, WEREs have some additional requirements that ESOs do not have, such as ensuring readiness for prompt support from mutual aid groups and identifying fire hose valves. WEREs are estimated to take half the time of fire departments to prepare their facilities.

(iv) Emergency Incident Operation

OSHA assumes that WEREs would spend the same amount of time (five minutes) as all other ESOs performing emergency incident operations. OSHA further assumes that the number of incidents that WERT members would respond to in a given year equals the number of incidents to which volunteer fire departments respond.

(v) Post-Incident Analysis

Similar to emergency incident operations, OSHA assumes that WEREs would spend the same amount of time (five minutes) as all other ESOs conducting a post-incident analysis after each incident. OSHA has adjusted this time estimate to be based on the number of incidents, as the expectation is that organizations would need to conduct a post-incident analysis only when a significant event occurs. OSHA further assumes that the number of incidents for which WERT members conduct post-incident analyses in a given year equals the number of incidents for which volunteer fire departments conduct post-incident analyses.

Table VII–C–8 shows the specific labor hours that OSHA estimates would be incurred at WEREs by employment size class. Table VII–C–9 shows the estimated unit costs for each requirement in the proposed rule for WEREs by employee class size.

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Table VII-C-8. Unit Labor Hours for Labor-Based Costs by Employment Size Class – WEREs

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
Rule Familiarization									
Rule Familiarization	2.00	2.00	2.00	2.00	2.00	2.00	Organization	WERE Leader	One-time
Organization of the WERT and Establishment of the ERP and Emergency Service(s) Capability									
WERE Develop ERP	20.00	24.00	24.00	30.00	40.00	60.00	Organization	WERE Leader	One-time
WERE Update and Revise ERP	4.00	5.00	5.00	6.00	8.00	12.00	Organization	WERE Leader	Annual
WERE Establishment of Service(s) Capability	12.00	14.00	14.00	18.00	24.00	36.00	Organization	WERE Leader	One-time
WERE Community or Facility Vulnerability and Risk Assessment	40.00	48.00	48.00	60.00	80.00	120.00	Organization	WERE Leader	One-time
WERE Develop Mutual Aid Agreements	1.00	1.00	1.00	1.00	1.00	2.00	Organization	WERE Leader	One-time
Team Member and Responder Participation									
Responder Participation-Meetings	8.00	10.00	10.00	12.00	16.00	24.00	Organization	WERT Members	Annual
Responder Participation-Post Sign	0.05	0.05	0.05	0.05	0.05	0.05	Organization	WERE Leader	Annual
WERT and ESO Risk Management Plan									
Prepare Written RMP	12.00	14.00	14.00	18.00	24.00	36.00	Organization	WERE Leader	One-time
Update Written RMP	5.00	6.00	6.00	8.00	10.00	15.00	Organization	WERE Leader	Annual
Medical and Physical Requirements									
Minimum Medical Requirement - Statement	8.00	10.00	10.00	12.00	16.00	24.00	Organization	WERE Leader	One-time
Confidential Records System	0.08	0.08	0.08	0.08	0.08	0.08	Responder	WERE Leader	One-time
Minimum Medical Surveillance	2.50	2.50	2.50	2.50	2.50	2.50	Responder	WERT Members	Varies
Additional Heart Screening	1.25	1.25	1.25	1.25	1.25	1.25	Responder	WERT Members	Varies
Additional ESO Surveillance (Full NFPA Medical Exam)	2.50	2.50	2.50	2.50	2.50	2.50	Responder	WERT Members	Varies

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
Behavioral Health & Wellness Program	1.00	1.00	1.00	2.00	2.00	3.00	Organization	WERE Leader	Annual
Document Combustion Product Exposures	0.31	0.38	0.38	0.47	0.63	0.94	Organization	WERE Leader	Annual
Training									
Establish Minimum Knowledge and Skills	8.00	10.00	10.00	12.00	16.00	24.00	Organization	WERE Leader	One-time
Initial New Responder Training	110.00	110.00	110.00	110.00	110.00	110.00	Responder	WERT Members	Annual
Ongoing Responder Training	24.00	29.00	29.00	36.00	48.00	72.00	Responder	WERT Members	Annual
Refresher Responder Training	2.00	2.00	2.00	2.00	3.00	5.00	Responder	WERT Members	Annual
Professional Development	20.00	24.00	24.00	30.00	40.00	60.00	Responder	WERT Members	Annual
Document Professional Qualifications	20.00	24.00	24.00	30.00	40.00	60.00	Organization	WERE Leader	Annual
WERE Facility Preparedness									
WERE Facility Preparedness	20.00	24.00	24.00	30.00	40.00	60.00	Organization	WERE Leader	Annual
Equipment and PPE									
Equipment Preparedness	40.00	48.00	48.00	60.00	80.00	120.00	Organization	WERE Leader	Annual
Inspect, Maintain, and Test Equipment	40.00	48.00	48.00	60.00	80.00	120.00	Organization	WERT Members	Annual
PPE Hazard Assessment	8.00	10.00	10.00	12.00	16.00	24.00	Organization	WERE Leader	One-time
PPE Provision	8.00	10.00	10.00	12.00	16.00	24.00	Organization	WERE Leader	One-time
PPE Maintenance	40.00	48.00	48.00	60.00	80.00	120.00	Organization	WERT Members	Annual
Vehicle Preparedness and Operation									
Written SOPs - Vehicle Preparedness and Operation	8.00	10.00	10.00	12.00	16.00	24.00	Organization	WERE Leader	One-time
Vehicle Inspection and Maintenance	40.00	48.00	48.00	60.00	80.00	120.00	Organization	WERE Leader	Annual
WERE Pre-Incident Planning									

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
WERE Pre-Incident Planning	10.00	12.00	12.00	15.00	20.00	30.00	Organization	WERE Leader	One-time
WERE PIP Annual Review	2.00	2.00	2.00	3.00	4.00	6.00	Organization	WERE Leader	Annual
Incident Management System Development									
Incident Management System Development	12.00	14.00	14.00	18.00	24.00	36.00	Organization	WERE Leader	One-time
Emergency Incident Operations									
Emergency Incident Operations	0.79	0.94	0.94	1.18	1.57	2.36	Organization	WERE Leader	Annual
Standard Operating Procedures									
SOPs	20.00	24.00	24.00	30.00	40.00	60.00	Organization	WERE Leader	One-time
Post Incident Analysis									
Post Incident Analysis	0.79	0.94	0.94	1.18	1.57	2.36	Organization	WERE Leader	Annual
ID/Implement Changes to Pre-Incident Plan	1.00	1.00	1.00	1.00	1.00	2.00	Organization	WERE Leader	Annual
Program Evaluation									
ERP Program Evaluation	20.00	24.00	24.00	30.00	40.00	60.00	Organization	WERE Leader	Annual
ID and Implement Changes to ERP	1.00	1.00	1.00	1.00	1.00	2.00	Organization	WERE Leader	Annual
More Frequent ID and Implement Changes to ERP	1.00	1.00	1.00	1.00	1.00	2.00	Organization	WERE Leader	Annual

Source: OSHA, unless otherwise noted in text.

Table VII-C-9. Labor-Based Unit Costs by Employment Size Class - WEREs

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
Rule Familiarization									
Rule Familiarization	$151	$151	$151	$151	$151	$151	Organization	WERE Leader	One-time
Organization of the WERT and Establishment of the ERP and Emergency Service(s) Capability									

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
WERE Develop ERP	$1,511	$1,813	$1,813	$2,266	$3,022	$4,533	Organization	WERE Leader	One-time
WERE Update and Revise ERP	$302	$378	$378	$453	$604	$907	Organization	WERE Leader	Annual
WERE Establishment of Service(s) Capability	$907	$1,058	$1,058	$1,360	$1,813	$2,720	Organization	WERE Leader	One-time
WERE Community or Facility Vulnerability and Risk Assessment	$3,022	$3,626	$3,626	$4,533	$6,043	$9,065	Organization	WERE Leader	One-time
WERE Develop Mutual Aid Agreements	$76	$76	$76	$76	$76	$151	Organization	WERE Leader	One-time
Team Member and Responder Participation									
Responder Participation-Meetings	$277	$347	$347	$416	$555	$832	Organization	WERT Members	Annual
Responder Participation-Post Sign	$4	$4	$4	$4	$4	$4	Organization	WERE Leader	Annual
WERT and ESO Risk Management Plan									
Prepare Written RMP	$907	$1,058	$1,058	$1,360	$1,813	$2,720	Organization	WERE Leader	One-time
Update Written RMP	$378	$453	$453	$604	$755	$1,133	Organization	WERE Leader	Annual
Medical and Physical Requirements									
Minimum Medical Requirement - Statement	$604	$755	$755	$907	$1,209	$1,813	Organization	WERE Leader	One-time
Confidential Records System	$6	$6	$6	$6	$6	$6	Responder	WERE Leader	One-time
Minimum Medical Surveillance [a]	$87	$87	$87	$87	$87	$87	Responder	WERT Members	Varies
Additional Heart Screening [a]	$43	$43	$43	$43	$43	$43	Responder	WERT Members	Varies
Additional ESO Surveillance (Full NFPA Medical Exam) [a]	$87	$87	$87	$87	$87	$87	Responder	WERT Members	Varies
Behavioral Health & Wellness Program	$76	$76	$76	$151	$151	$227	Organization	WERE Leader	Annual
Document Combustion Product Exposures	$24	$29	$29	$36	$47	$71	Organization	WERE Leader	Annual
Training									

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
Establish Minimum Knowledge and Skills	$604	$755	$755	$907	$1,209	$1,813	Organization	WERE Leader	One-time
Initial New Responder Training	$3,815	$3,815	$3,815	$3,815	$3,815	$3,815	Responder	WERT Members	Annual
Ongoing Responder Training	$832	$1,006	$1,006	$1,249	$1,665	$2,497	Responder	WERT Members	Annual
Refresher Responder Training	$69	$69	$69	$69	$104	$173	Responder	WERT Members	Annual
Professional Development	$694	$832	$832	$1,041	$1,387	$2,081	Responder	WERT Members	Annual
Document Professional Qualifications	$1,511	$1,813	$1,813	$2,266	$3,022	$4,533	Organization	WERE Leader	Annual
WERE Facility Preparedness									
WERE Facility Preparedness	$1,511	$1,813	$1,813	$2,266	$3,022	$4,533	Organization	WERE Leader	Annual
Equipment and PPE									
Equipment Preparedness	$3,022	$3,626	$3,626	$4,533	$6,043	$9,065	Organization	WERE Leader	Annual
Inspect, Maintain, and Test Equipment	$1,387	$1,665	$1,665	$2,081	$2,775	$4,162	Organization	WERT Members	Annual
PPE Hazard Assessment	$604	$755	$755	$907	$1,209	$1,813	Organization	WERE Leader	One-time
PPE Provision	$604	$755	$755	$907	$1,209	$1,813	Organization	WERE Leader	One-time
PPE Maintenance	$1,387	$1,665	$1,665	$2,081	$2,775	$4,162	Organization	WERT Members	Annual
Vehicle Preparedness and Operation									
Written SOPs - Vehicle Preparedness and Operation	$604	$755	$755	$907	$1,209	$1,813	Organization	WERE Leader	One-time
Vehicle Inspection and Maintenance	$3,022	$3,626	$3,626	$4,533	$6,043	$9,065	Organization	WERE Leader	Annual
WERE Pre-Incident Planning									
WERE Pre-Incident Planning	$755	$907	$907	$1,133	$1,511	$2,266	Organization	WERE Leader	One-time
WERE PIP Annual Review	$151	$151	$151	$227	$302	$453	Organization	WERE Leader	Annual
Incident Management System Development									

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
Incident Management System Development	$907	$1,058	$1,058	$1,360	$1,813	$2,720	Organization	WERE Leader	One-time
Emergency Incident Operations									
Emergency Incident Operations	$59	$71	$71	$89	$119	$178	Organization	WERE Leader	Annual
Standard Operating Procedures									
SOPs	$1,511	$1,813	$1,813	$2,266	$3,022	$4,533	Organization	WERE Leader	One-time
Post Incident Analysis									
Post Incident Analysis	$59	$71	$71	$89	$119	$178	Organization	WERE Leader	Annual
ID/Implement Changes to Pre-Incident Plan	$76	$76	$76	$76	$76	$151	Organization	WERE Leader	Annual
Program Evaluation									
ERP Program Evaluation	$1,511	$1,813	$1,813	$2,266	$3,022	$4,533	Organization	WERE Leader	Annual
ID and Implement Changes to ERP	$76	$76	$76	$76	$76	$151	Organization	WERE Leader	Annual
More Frequent ID and Implement Changes to ERP	$8	$8	$8	$8	$8	$15	Organization	WERE Leader	Annual

Sources: OSHA based on BLS (2023), BLS (2023), EPA (2002) and Rice (2002).

Note: All dollar figures are presented in 2022$. Unit costs are shown with zero decimal places, but unrounded figures are used in the underlying calculations.

[a] These costs to undergo medical exams are only inclusive of the labor costs. The cost of the medical exam components are presented in Table VII-C-7.

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C. Emergency Medical Services (EMS)

Emergency medical services subject to the proposed rule, or its State Plan equivalent, include private and public entities engaged in first response and provision of emergency medicine. Employees of EMS ESOs may be volunteer or career and include first responders, emergency medical technicians (EMTs), paramedics, and registered nurses. These organizations would be required to comply with all provisions of the proposed rule, as described in section D.IV.A. OSHA's methods for estimating labor hours and costs by provision and employee size class are the same as for firefighters for the following provisions:

- Rule Familiarization;
- ESO Establishment of the ERP and Emergency Service(s) Capability;
- Team Member and Responder Participation;
- WERT and ESO Risk Management Plan;
- Vehicle Preparedness and Operation;
- ESO Pre-Incident Planning;
- Incident Management System Development;
- Standard Operating Procedures; and
- Program Evaluation.

Estimation methods differ for the following provisions:

- Medical and Physical Requirements;
- Training;
- ESO Facility Preparedness;
- Equipment and PPE; and
- Post-Incident Analysis.

The methods specific to EMS are described below.

(i) Medical and Physical Requirements

EMS providers typically have a lower risk of exposure to hazardous environments or materials relative to firefighters and therefore EMS providers have fewer medical exam requirements. Specifically, EMS providers are not expected to undergo a full NFPA 1582 medical exam since they are not anticipated to reach the 15-times-per-year exposure threshold to combustion products. OSHA assumes that all EMS providers would undergo each component of the minimum medical exam, and all EMS providers that exhibit signs and symptoms warranting additional heart screening (12.5 percent of all EMS providers, as shown in Table VII–C–2) would undergo all components of the additional heart screening.[51] The percentage needing each exam is multiplied by the unit cost for each exam to derive a weighted average unit cost for the minimum medical evaluation and additional heart screening. The weighted average unit cost for medical surveillance is the same as for WEREs, as shown in Table VII–C–7.

(ii) Training

The initial training time for EMS providers varies widely depending on the responder's certification level. Estimates for training hours for emergency responders, basic EMTs, advanced EMTs and paramedics were based on information from the National Highway Traffic Safety Administration's (NHTSA, 2009) Emergency Medical Services (EMS) National Emergency Medical Services Education Standards and UCLA Center for Prehospital Care (2018). NHTSA (2009) reports a range of hours of training needed to attain each certification level. OSHA made an initial assumption that EMS providers at smaller ESOs would have lower levels of certification but welcomes comment on this assumption. OSHA then assigned the estimated hours of training at the low end of that range to the smallest establishments (those with <25 and 25–49 employees) and the hours of training estimated at the higher end of that range to the remaining size classes. The agency then estimated the weighted average initial training hours by multiplying the number of training hours by the estimated share of responders at each certification level (NAEMT, 2014). As shown in Table VII–C–10, for the size class 250–499, the initial training course is estimated at 776 hours.

OSHA used a similar approach to estimate the hours required for ongoing training. OSHA obtained training hours estimates for emergency responders, basic EMTs, advanced EMTs and paramedics from the NREMT (2018a–d), and multiplied those estimates by the estimated share of responders at each certification level (NAEMT, 2014) to estimate the weighted average ongoing training hours.

(iii) ESO Facility Preparedness

ESOs would be required to ensure that each facility complies with 29 CFR part 1910, subpart E—Exit Routes and Emergency Planning and provide facilities for the decontamination, disinfection, cleaning, and storage of PPE and equipment. They would also need to ensure that fire detection, suppression, and alarm systems and occupant notification systems are installed, tested, and maintained in accordance with manufacturer's instructions and 29 CFR part 1910, subpart L—Fire Protection and that any sleeping and living areas meet the requirements in paragraph (j)(2). These activities would be conducted annually by an organization leader. Table VII–C–10 presents estimates of labor hours incurred for each activity at EMS ESOs by employment size class.

(iv) Equipment and PPE

Under paragraph (k) of the proposed rule, all ESOs would be required to provide access to equipment that conforms with applicable existing standards as well as inspect, maintain, and test equipment at prescribed intervals. Additionally, all ESOs would be required to conduct a hazard assessment to select appropriate PPE; provide PPE to responders that conforms with 29 CFR part 1910, subpart I, Personal Protective Equipment; ensure SCBA meet applicable requirements, and maintain all PPE. While OSHA assumes that equipment preparation and the inspection, maintenance and testing of equipment would take as long for EMS as for fire departments, OSHA estimates that the PPE hazard assessment, provision of PPE, and maintenance of PPE would take less time for EMS than for fire departments. OSHA bases this assumption on the fact that EMS PPE are primarily disposable (*i.e.,* gloves and masks). Organization leaders are expected to expend labor hours annually to ensure new equipment meets design and manufacturing requirements, as well as on a one-time basis to conduct the hazard assessment and provide the PPE. EMTs would be expected to annually inspect, maintain, and test equipment, as well as perform maintenance of PPE. See Table VII–C–10 for the specific labor hours OSHA estimates that would be incurred for each activity at EMS ESOs by employment size class.

(v) Post-Incident Analysis

While EMS organizations would still be required to conduct a post-incident analysis to determine the effectiveness of the ESO's response to an incident after any significant event, OSHA expects that the average time per incident for an EMS organization to conduct a post-incident analysis will be less than the average time for fire departments. OSHA believes that most incidents to which EMS organizations respond would not be characterized as significant events (large-scale incidents, significant near-miss incidents, incidents involving injury or illness to responders requiring off-scene

[51] Le Duc, 2018 indicated approximately 12.5 percent of firefighters had some type of underlying, significant cardiovascular issues such as hypertension, elevated cholesterol levels, or abnormal stress.

treatment, or incidents involving a responder fatality). Based on this assumption, OSHA estimates that EMS organizations would spend one minute per incident to meet this requirement. See Table VII–C–10 for the specific labor hours OSHA estimates that would be incurred annually for this activity at EMS ESOs by employment size class.

Table VII–C–11 shows the estimated unit costs for each requirement in the proposed rule for emergency medical services by employee class size. Note that where unit labor hours are the same as for firefighters, unit costs differ due to the application of wage rates for EMS providers rather than firefighters.

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Table VII-C-10. Unit Burden for Labor-Based Costs by Employment Size Class - Emergency Medical Service Organizations and Responders

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
Rule Familiarization									
Rule Familiarization	2.00	2.00	2.00	2.00	2.00	2.00	Organization	EMD	One-time
ESO Establishment of ERP and Emergency Service(s) Capability									
ESO Develop ERP	20.00	24.00	24.00	30.00	40.00	60.00	Organization	EMD	One-time
ESO Update and Revise ERP	4.00	5.00	5.00	6.00	8.00	12.00	Organization	EMD	Annual
ESO Establishment of Service(s) Capability	12.00	14.00	14.00	18.00	24.00	36.00	Organization	EMD	One-time
ESO Community or Facility Vulnerability and Risk Assessment	40.00	48.00	48.00	60.00	80.00	120.00	Organization	EMD	One-time
ESO Develop Mutual Aid Agreements	1.00	1.00	1.00	1.00	1.00	2.00	Organization	EMD	One-time
Team Member and Responder Participation									
Responder Participation-Meetings	8.00	10.00	10.00	12.00	16.00	24.00	Organization	EMT/Paramedic	Annual
Responder Participation-Post Sign	0.05	0.05	0.05	0.05	0.05	0.05	Organization	EMD	Annual
WERT and ESO Risk Management Plan									
Prepare Written RMP	12.00	14.00	14.00	18.00	24.00	36.00	Organization	EMD	One-time
Update Written RMP	5.00	6.00	6.00	8.00	10.00	15.00	Organization	EMD	Annual
Medical and Physical Requirements									
Minimum Medical Requirement - Statement	8.00	10.00	10.00	12.00	16.00	24.00	Organization	EMD	One-time
Confidential Records System	0.08	0.08	0.08	0.08	0.08	0.08	Responder	EMD	One-time
Establish Health and Fitness Program - Written Plan	8.00	10.00	10.00	12.00	16.00	24.00	Organization	EMD	One-time
Minimum Medical Surveillance	2.50	2.50	2.50	2.50	2.50	2.50	Responder	EMT/Paramedic	Varies
Additional Heart Screening	1.25	1.25	1.25	1.25	1.25	1.25	Responder	EMT/Paramedic	Varies
Additional ESO Surveillance (Full NFPA Medical Exam)	2.50	2.50	2.50	2.50	2.50	2.50	Responder	EMT/Paramedic	Varies
Implement Fitness Assessment	1.00	1.00	1.00	1.00	1.00	1.00	Responder	EMD	Varies
Undergo Fitness Assessment	1.00	1.00	1.00	1.00	1.00	1.00	Responder	EMT/Paramedic	Varies
Behavioral Health & Wellness Program	1.00	1.00	1.00	2.00	2.00	3.00	Organization	EMD	Annual
Training									
Establish Minimum Knowledge and Skills	8.00	10.00	10.00	12.00	16.00	24.00	Organization	EMD	One-time
Initial New Responder Training	513.32	513.32	776.23	776.23	776.23	776.23	Responder	EMT/Paramedic	Annual
EMR	*48.00*	*48.00*	*60.00*	*60.00*	*60.00*	*60.00*	Responder	EMT/Paramedic	Annual
EMT	*120.00*	*120.00*	*190.00*	*190.00*	*190.00*	*190.00*	Responder	EMT/Paramedic	Annual
Advanced EMT (AEMT)	*270.00*	*270.00*	*440.00*	*440.00*	*440.00*	*440.00*	Responder	EMT/Paramedic	Annual
Paramedic	*1,200.00*	*1,200.00*	*1,800.00*	*1,800.00*	*1,800.00*	*1,800.00*	Responder	EMT/Paramedic	Annual
Ongoing Responder Training	45.67	45.67	45.67	45.67	45.67	45.67	Responder	EMT/Paramedic	Annual

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
EMR	*16.00*	*16.00*	*16.00*	*16.00*	*16.00*	*16.00*	Responder	EMT/Paramedic	Annual
EMT	*40.00*	*40.00*	*40.00*	*40.00*	*40.00*	*40.00*	Responder	EMT/Paramedic	Annual
Advanced EMT (AEMT)	*50.00*	*50.00*	*50.00*	*50.00*	*50.00*	*50.00*	Responder	EMT/Paramedic	Annual
Paramedic	*60.00*	*60.00*	*60.00*	*60.00*	*60.00*	*60.00*	Responder	EMT/Paramedic	Annual
Refresher Responder Training	2.00	2.00	2.00	2.00	3.00	5.00	Responder	EMT/Paramedic	Annual
Professional Development	20.00	24.00	24.00	30.00	40.00	60.00	Responder	EMT/Paramedic	Annual
Document Professional Qualifications	20.00	24.00	24.00	30.00	40.00	60.00	Organization	EMD	Annual
ESO Facility Preparedness									
ESO Facility Preparedness	8.00	10.00	10.00	12.00	16.00	24.00	Organization	EMD	Annual
Equipment and PPE									
Equipment Preparedness	40.00	48.00	48.00	60.00	80.00	120.00	Organization	EMD	Annual
Inspect, Maintain, and Test Equipment	40.00	48.00	48.00	60.00	80.00	120.00	Organization	EMT/Paramedic	Annual
PPE Hazard Assessment	2.00	2.00	2.00	3.00	4.00	6.00	Organization	EMD	One-time
PPE Provision	1.00	1.00	1.00	1.00	1.60	2.00	Organization	EMD	One-time
PPE Maintenance	4.00	5.00	5.00	6.00	8.00	12.00	Organization	EMT/Paramedic	Annual
Vehicle Preparedness and Operation									
Written SOPs - Vehicle Preparedness and Operation	8.00	10.00	10.00	12.00	16.00	24.00	Organization	EMD	One-time
Vehicle Inspection and Maintenance	40.00	48.00	48.00	60.00	80.00	120.00	Organization	EMD	Annual
ESO Pre-Incident Planning									
ESO Pre-Incident Planning	20.00	24.00	24.00	30.00	40.00	60.00	Organization	EMD	One-time
ESO PIP Annual Review	4.00	5.00	5.00	6.00	8.00	12.00	Organization	EMD	Annual
Incident Management System Development									
Incident Management System Development	12.00	14.00	14.00	18.00	24.00	36.00	Organization	EMD	One-time
Emergency Incident Operations									
Emergency Incident Operations	48.33	188.47	389.63	844.92	2,723.62	2,980.78	Organization	EMD	Annual
Standard Operating Procedures									
SOPs	20.00	24.00	24.00	30.00	40.00	60.00	Organization	EMD	One-time
Post Incident Analysis									
Post Incident Analysis	9.67	37.69	77.93	168.98	544.72	596.16	Organization	EMD	Annual
ID/Implement Changes to Pre-Incident Plan	1.00	1.00	1.00	1.00	1.00	2.00	Organization	EMD	Annual
Program Evaluation									
ERP Program Evaluation	20.00	24.00	24.00	30.00	40.00	60.00	Organization	EMD	Annual
ID and Implement Changes to ERP	1.00	1.00	1.00	1.00	1.00	2.00	Organization	EMD	Annual
More Frequent ID and Implement Changes to ERP	1.00	1.00	1.00	1.00	1.00	2.00	Organization	EMD	Annual

Source: OSHA.

[a] These estimates are calculated using the expected number of events/incidents for a given responder group type and employee class size. The expected number of events/incidents does not always follow the expected pattern of smaller employment class sizes incurring lower numbers of events/incidents. This is why some unit labor hour estimates do not go in order from smallest to largest by employee class size.

Table VII-C-11. Labor-Based Unit Costs by Employment Size Class - Emergency Medical Service Organizations and Responders

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
Rule Familiarization									
Rule Familiarization	$123	$123	$123	$123	$123	$123	Organization	EMD	One-time
ESO Establishment of ERP and Emergency Service(s) Capability									
ESO Develop ERP	$1,233	$1,480	$1,480	$1,849	$2,466	$3,699	Organization	EMD	One-time
ESO Update and Revise ERP	$247	$308	$308	$370	$493	$740	Organization	EMD	Annual
ESO Establishment of Service(s) Capability	$740	$863	$863	$1,110	$1,480	$2,219	Organization	EMD	One-time
ESO Community or Facility Vulnerability and Risk Assessment	$2,466	$2,959	$2,959	$3,699	$4,932	$7,398	Organization	EMD	One-time
ESO Develop Mutual Aid Agreements	$62	$62	$62	$62	$62	$123	Organization	EMD	One-time
Team Member and Responder Participation									
Responder Participation-Meetings	$253	$316	$316	$379	$505	$758	Organization	EMT/Paramedic	Annual
Responder Participation-Post Sign	$3	$3	$3	$3	$3	$3	Organization	EMD	Annual
WERT and ESO Risk Management Plan									
Prepare Written RMP	$740	$863	$863	$1,110	$1,480	$2,219	Organization	EMD	One-time
Update Written RMP	$308	$370	$370	$493	$616	$925	Organization	EMD	Annual
Medical and Physical Requirements									
Minimum Medical Requirement - Statement	$493	$616	$616	$740	$986	$1,480	Organization	EMD	One-time
Confidential Records System	$5	$5	$5	$5	$5	$5	Responder	EMD	One-time
Establish Health and Fitness Program - Written Plan	$493	$616	$616	$740	$986	$1,480	Organization	EMD	One-time
Minimum Medical Surveillance [a]	$79	$79	$79	$79	$79	$79	Responder	EMT/Paramedic	Varies
Additional Heart Screening [a]	$39	$39	$39	$39	$39	$39	Responder	EMT/Paramedic	Varies
Additional ESO Surveillance (Full NFPA Medical Exam) [a]	$79	$79	$79	$79	$79	$79	Responder	EMT/Paramedic	Varies
Implement Fitness Assessment	$62	$62	$62	$62	$62	$62	Responder	EMD	Varies
Undergo Fitness Assessment	$32	$32	$32	$32	$32	$32	Responder	EMT/Paramedic	Varies
Behavioral Health & Wellness Program	$62	$62	$62	$123	$123	$185	Organization	EMD	Annual
Training									
Establish Minimum Knowledge and Skills	$493	$616	$616	$740	$986	$1,480	Organization	EMD	One-time
Initial New Responder Training	$16,207	$16,207	$24,509	$24,509	$24,509	$24,509	Responder	EMT/Paramedic	Annual
Ongoing Responder Training	$1,442	$1,442	$1,442	$1,442	$1,442	$1,442	Responder	EMT/Paramedic	Annual
Refresher Responder Training	$63	$63	$63	$63	$95	$158	Responder	EMT/Paramedic	Annual
Professional Development	$631	$758	$758	$947	$1,263	$1,894	Responder	EMT/Paramedic	Annual
Document Professional Qualifications	$1,233	$1,480	$1,480	$1,849	$2,466	$3,699	Organization	EMD	Annual
ESO Facility Preparedness									

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
ESO Facility Preparedness	$493	$616	$616	$740	$986	$1,480	Organization	EMD	Annual
Equipment and PPE									
Equipment Preparedness	$2,466	$2,959	$2,959	$3,699	$4,932	$7,398	Organization	EMD	Annual
Inspect, Maintain, and Test Equipment	$1,263	$1,516	$1,516	$1,894	$2,526	$3,789	Organization	EMT/Paramedic	Annual
PPE Hazard Assessment	$123	$123	$123	$185	$247	$370	Organization	EMD	One-time
PPE Provision	$62	$62	$62	$62	$99	$123	Organization	EMD	One-time
PPE Maintenance	$126	$158	$158	$189	$253	$379	Organization	EMT/Paramedic	Annual
Vehicle Preparedness and Operation									
Written SOPs - Vehicle Preparedness and Operation	$493	$616	$616	$740	$986	$1,480	Organization	EMD	One-time
Vehicle Inspection and Maintenance	$2,466	$2,959	$2,959	$3,699	$4,932	$7,398	Organization	EMD	Annual
ESO Pre-Incident Planning									
ESO Pre-Incident Planning	$1,233	$1,480	$1,480	$1,849	$2,466	$3,699	Organization	EMD	One-time
ESO PIP Annual Review	$247	$308	$308	$370	$493	$740	Organization	EMD	Annual
Incident Management System Development									
Incident Management System Development	$740	$863	$863	$1,110	$1,480	$2,219	Organization	EMD	One-time
Emergency Incident Operations									
Emergency Incident Operations	$2,980	$11,619	$24,020	$52,088	$167,906	$183,760	Organization	EMD	Annual
Standard Operating Procedures									
SOPs	$1,233	$1,480	$1,480	$1,849	$2,466	$3,699	Organization	EMD	One-time
Post Incident Analysis									
Post Incident Analysis	$596	$2,324	$4,804	$10,418	$33,581	$36,752	Organization	EMD	Annual
ID/Implement Changes to Pre-Incident Plan	$62	$62	$62	$62	$62	$123	Organization	EMD	Annual
Program Evaluation									
ERP Program Evaluation	$1,233	$1,480	$1,480	$1,849	$2,466	$3,699	Organization	EMD	Annual
ID and Implement Changes to ERP	$62	$62	$62	$62	$62	$123	Organization	EMD	Annual
More Frequent ID and Implement Changes to ERP	$6	$6	$6	$6	$6	$12	Organization	EMD	Annual

Sources: OSHA based on BLS, 2023; BLS, 2023; EPA, 2002; Rice, 2002.

Note: All dollar figures are presented in 2022$. Unit costs are shown with zero decimal places, but unrounded figures are used in the underlying calculations.

[a] These costs to undergo medical exams are only inclusive of the labor costs. The cost of the medical exam components are presented in Table VII-C-7.

D. Technical Search and Rescue Groups

Technical search and rescue groups are involved in wilderness and urban search and rescue using technical skills and equipment. These organizations would be required to comply with all provisions of the proposed rule, as described in section IV.I.. Technical search and rescue groups are assumed to incur the same labor hours and medical costs as EMS organizations for most provisions, as described in section IV.III., with three exceptions. First, for initial and ongoing training OSHA assumes that technical search and rescue employees would expend 200 hours on initial training and would spend the same amount of time as firefighters on ongoing training. Second, in the case of emergency incident operations, the per incident time estimate is the same for both EMS and technical search and rescue; however, the number of incidents that these groups respond to each year differs, which results in different annual time spent responding to all incidents. Third, the time per incident for technical search and rescue groups to conduct a post-incident analysis is five minutes instead of one minute as estimated for EMS.

As described in the Industry Profile, to fully capture the universe of technical search and rescue organizations, OSHA obtained data from multiple sources, which, for the purposes of estimating unit costs, requires the derivation of separate wage rates. The unit costs are provided for both subgroups of technical search and rescue in sections VII.D(i) and VII.D(ii)

(i) Wilderness and Urban Search and Rescue

Wilderness and urban search and rescue groups are involved in and use special Vknowledge, skills, and specialized equipment to resolve complex search and rescue situations, such as rope, vehicle/machinery, structural collapse, trench, and technical water rescue. Table VII–C–12 and Table VII–C–13 show the estimated unit labor hours and costs, respectively, for each requirement in the proposed rule for wilderness and urban search and rescue groups by employee class size. Note that while the unit labor hours are largely the same as for EMS organizations, unit costs differ due to the application of wage rates for wilderness and urban search and rescue responders rather than EMS responders.

Table VII-C-12. Unit Burden for Labor-Based Costs by Employment Size Class - Wilderness and Urban Search and Rescue Groups and Responders

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
Rule Familiarization									
Rule Familiarization	2.00	2.00	2.00	2.00	2.00	2.00	Organization	Search and Rescue Supervisor	One-time
ESO Establishment of ERP and Emergency Service(s) Capability									
ESO Develop ERP	20.00	24.00	24.00	30.00	40.00	60.00	Organization	Search and Rescue Supervisor	One-time
ESO Update and Revise ERP	4.00	5.00	5.00	6.00	8.00	12.00	Organization	Search and Rescue Supervisor	Annual
ESO Establishment of Service(s) Capability	12.00	14.00	14.00	18.00	24.00	36.00	Organization	Search and Rescue Supervisor	One-time
ESO Community or Facility Vulnerability and Risk Assessment	40.00	48.00	48.00	60.00	80.00	120.00	Organization	Search and Rescue Supervisor	One-time
ESO Develop Mutual Aid Agreements	1.00	1.00	1.00	1.00	1.00	2.00	Organization	Search and Rescue Supervisor	One-time
Team Member and Responder Participation									
Responder Participation-Meetings	8.00	10.00	10.00	12.00	16.00	24.00	Organization	Search and Rescue Worker	Annual
Responder Participation-Post Sign	0.05	0.05	0.05	0.05	0.05	0.05	Organization	Search and Rescue Supervisor	Annual
WERT and ESO Risk Management Plan									
Prepare Written RMP	12.00	14.00	14.00	18.00	24.00	36.00	Organization	Search and Rescue Supervisor	One-time
Update Written RMP	5.00	6.00	6.00	8.00	10.00	15.00	Organization	Search and Rescue Supervisor	Annual
Medical and Physical Requirements									
Minimum Medical Requirement - Statement	8.00	10.00	10.00	12.00	16.00	24.00	Organization	Search and Rescue Supervisor	One-time
Confidential Records System	0.08	0.08	0.08	0.08	0.08	0.08	Responder	Search and Rescue Supervisor	One-time
Establish Health and Fitness Program - Written Plan	8.00	10.00	10.00	12.00	16.00	24.00	Organization	Search and Rescue Supervisor	One-time
Minimum Medical Surveillance	2.50	2.50	2.50	2.50	2.50	2.50	Responder	Search and Rescue Worker	Varies
Additional Heart Screening	1.25	1.25	1.25	1.25	1.25	1.25	Responder	Search and Rescue Worker	Varies

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
Additional ESO Surveillance (Full NFPA Medical Exam)	2.50	2.50	2.50	2.50	2.50	2.50	Responder	Search and Rescue Worker	Varies
Implement Fitness Assessment	1.00	1.00	1.00	1.00	1.00	1.00	Responder	Search and Rescue Supervisor	Varies
Undergo Fitness Assessment	1.00	1.00	1.00	1.00	1.00	1.00	Responder	Search and Rescue Worker	Varies
Behavioral Health & Wellness Program	1.00	1.00	1.00	2.00	2.00	3.00	Organization	Search and Rescue Supervisor	Annual
Training									
Establish Minimum Knowledge and Skills	8.00	10.00	10.00	12.00	16.00	24.00	Organization	Search and Rescue Supervisor	One-time
Initial New Responder Training	200.00	200.00	200.00	200.00	200.00	200.00	Responder	Search and Rescue Worker	Annual
Ongoing Responder Training	24.00	29.00	29.00	36.00	48.00	72.00	Responder	Search and Rescue Worker	Annual
Refresher Responder Training	2.00	2.00	2.00	2.00	3.00	5.00	Responder	Search and Rescue Worker	Annual
Professional Development	20.00	24.00	24.00	30.00	40.00	60.00	Responder	Search and Rescue Worker	Annual
Document Professional Qualifications	20.00	24.00	24.00	30.00	40.00	60.00	Organization	Search and Rescue Supervisor	Annual
ESO Facility Preparedness									
ESO Facility Preparedness	8.00	10.00	10.00	12.00	16.00	24.00	Organization	Search and Rescue Supervisor	Annual
Equipment and PPE									
Equipment Preparedness	40.00	48.00	48.00	60.00	80.00	120.00	Organization	Search and Rescue Supervisor	Annual
Inspect, Maintain, and Test Equipment	40.00	48.00	48.00	60.00	80.00	120.00	Organization	Search and Rescue Worker	Annual
PPE Hazard Assessment	2.00	2.00	2.00	3.00	4.00	6.00	Organization	Search and Rescue Supervisor	One-time
PPE Provision	1.00	1.00	1.00	1.00	1.60	2.00	Organization	Search and Rescue Supervisor	One-time
PPE Maintenance	4.00	5.00	5.00	6.00	8.00	12.00	Organization	Search and Rescue Worker	Annual
Vehicle Preparedness and Operation									

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
Written SOPs - Vehicle Preparedness and Operation	8.00	10.00	10.00	12.00	16.00	24.00	Organization	Search and Rescue Supervisor	One-time
Vehicle Inspection and Maintenance	40.00	48.00	48.00	60.00	80.00	120.00	Organization	Search and Rescue Supervisor	Annual
ESO Pre-Incident Planning									
ESO Pre-Incident Planning	20.00	24.00	24.00	30.00	40.00	60.00	Organization	Search and Rescue Supervisor	One-time
ESO PIP Annual Review	4.00	5.00	5.00	6.00	8.00	12.00	Organization	Search and Rescue Supervisor	Annual
Incident Management System Development									
Incident Management System Development	12.00	14.00	14.00	18.00	24.00	36.00	Organization	Search and Rescue Supervisor	One-time
Emergency Incident Operations									
Emergency Incident Operations	2.77	1.68	1.54	1.66	3.27	2.49	Organization	Search and Rescue Supervisor	Annual
Standard Operating Procedures									
SOPs	20.00	24.00	24.00	30.00	40.00	60.00	Organization	Search and Rescue Supervisor	One-time
Post Incident Analysis									
Post Incident Analysis	2.77	1.68	1.54	1.66	3.27	2.49	Organization	Search and Rescue Supervisor	Annual
ID/Implement Changes to Pre-Incident Plan	1.00	1.00	1.00	1.00	1.00	2.00	Organization	Search and Rescue Supervisor	Annual
Program Evaluation									
ERP Program Evaluation	20.00	24.00	24.00	30.00	40.00	60.00	Organization	Search and Rescue Supervisor	Annual
ID and Implement Changes to ERP	1.00	1.00	1.00	1.00	1.00	2.00	Organization	Search and Rescue Supervisor	Annual
More Frequent ID and Implement Changes to ERP	1.00	1.00	1.00	1.00	1.00	2.00	Organization	Search and Rescue Supervisor	Annual

Source: OSHA.

[a] These estimates are calculated using the expected number of events/incidents for a given responder group type and employee class size. The expected number of events/incidents does not always follow the expected pattern of smaller employment class sizes incurring lower numbers of events/incidents. This is why some unit labor hour estimates do not go in order from smallest to largest by employee class size.

Table VII-C-13. Labor-Based Unit Costs by Employment Size Class - Wilderness and Urban Search and Rescue Groups and Responders

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
Rule Familiarization									
Rule Familiarization	$150	$150	$150	$150	$150	$150	Organization	Search and Rescue Supervisor	One-time
ESO Establishment of ERP and Emergency Service(s) Capability									
ESO Develop ERP	$1,499	$1,799	$1,799	$2,249	$2,998	$4,498	Organization	Search and Rescue Supervisor	One-time
ESO Update and Revise ERP	$300	$375	$375	$450	$600	$900	Organization	Search and Rescue Supervisor	Annual
ESO Establishment of Service(s) Capability	$900	$1,049	$1,049	$1,349	$1,799	$2,699	Organization	Search and Rescue Supervisor	One-time
ESO Community or Facility Vulnerability and Risk Assessment	$2,998	$3,598	$3,598	$4,498	$5,997	$8,995	Organization	Search and Rescue Supervisor	One-time
ESO Develop Mutual Aid Agreements	$75	$75	$75	$75	$75	$150	Organization	Search and Rescue Supervisor	One-time
Team Member and Responder Participation									
Responder Participation-Meetings	$275	$344	$344	$413	$550	$826	Organization	Search and Rescue Worker	Annual
Responder Participation-Post Sign	$4	$4	$4	$4	$4	$4	Organization	Search and Rescue Supervisor	Annual
WERT and ESO Risk Management Plan									
Prepare Written RMP	$900	$1,049	$1,049	$1,349	$1,799	$2,699	Organization	Search and Rescue Supervisor	One-time
Update Written RMP	$375	$450	$450	$600	$750	$1,124	Organization	Search and Rescue Supervisor	Annual
Medical and Physical Requirements									
Minimum Medical Requirement - Statement	$600	$750	$750	$900	$1,199	$1,799	Organization	Search and Rescue Supervisor	One-time
Confidential Records System	$6	$6	$6	$6	$6	$6	Responder	Search and Rescue Supervisor	One-time
Establish Health and Fitness Program - Written Plan	$600	$750	$750	$900	$1,199	$1,799	Organization	Search and Rescue Supervisor	One-time
Minimum Medical Surveillance [a]	$86	$86	$86	$86	$86	$86	Responder	Search and Rescue Worker	Varies

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
Additional Heart Screening [a]	$43	$43	$43	$43	$43	$43	Responder	Search and Rescue Worker	Varies
Additional ESO Surveillance (Full NFPA Medical Exam) [a]	$86	$86	$86	$86	$86	$86	Responder	Search and Rescue Worker	Varies
Implement Fitness Assessment	$75	$75	$75	$75	$75	$75	Responder	Search and Rescue Supervisor	Varies
Undergo Fitness Assessment	$34	$34	$34	$34	$34	$34	Responder	Search and Rescue Worker	Varies
Behavioral Health & Wellness Program	$75	$75	$75	$150	$150	$225	Organization	Search and Rescue Supervisor	Annual
Training									
Establish Minimum Knowledge and Skills	$600	$750	$750	$900	$1,199	$1,799	Organization	Search and Rescue Supervisor	One-time
Initial New Responder Training	$6,880	$6,880	$6,880	$6,880	$6,880	$6,880	Responder	Search and Rescue Worker	Annual
Ongoing Responder Training	$826	$998	$998	$1,238	$1,651	$2,477	Responder	Search and Rescue Worker	Annual
Refresher Responder Training	$69	$69	$69	$69	$103	$172	Responder	Search and Rescue Worker	Annual
Professional Development	$688	$826	$826	$1,032	$1,376	$2,064	Responder	Search and Rescue Worker	Annual
Document Professional Qualifications	$1,499	$1,799	$1,799	$2,249	$2,998	$4,498	Organization	Search and Rescue Supervisor	Annual
ESO Facility Preparedness									
ESO Facility Preparedness	$600	$750	$750	$900	$1,199	$1,799	Organization	Search and Rescue Supervisor	Annual
Equipment and PPE									
Equipment Preparedness	$2,998	$3,598	$3,598	$4,498	$5,997	$8,995	Organization	Search and Rescue Supervisor	Annual
Inspect, Maintain, and Test Equipment	$1,376	$1,651	$1,651	$2,064	$2,752	$4,128	Organization	Search and Rescue Worker	Annual
PPE Hazard Assessment	$150	$150	$150	$225	$300	$450	Organization	Search and Rescue Supervisor	One-time
PPE Provision	$75	$75	$75	$75	$120	$150	Organization	Search and Rescue Supervisor	One-time
PPE Maintenance	$138	$172	$172	$206	$275	$413	Organization	Search and Rescue Worker	Annual

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
Vehicle Preparedness and Operation									
Written SOPs - Vehicle Preparedness and Operation	$600	$750	$750	$900	$1,199	$1,799	Organization	Search and Rescue Supervisor	One-time
Vehicle Inspection and Maintenance	$2,998	$3,598	$3,598	$4,498	$5,997	$8,995	Organization	Search and Rescue Supervisor	Annual
ESO Pre-Incident Planning									
ESO Pre-Incident Planning	$1,499	$1,799	$1,799	$2,249	$2,998	$4,498	Organization	Search and Rescue Supervisor	One-time
ESO PIP Annual Review	$300	$375	$375	$450	$600	$900	Organization	Search and Rescue Supervisor	Annual
Incident Management System Development									
Incident Management System Development	$900	$1,049	$1,049	$1,349	$1,799	$2,699	Organization	Search and Rescue Supervisor	One-time
Emergency Incident Operations									
Emergency Incident Operations	$208	$126	$116	$124	$245	$187	Organization	Search and Rescue Supervisor	Annual
Standard Operating Procedures									
SOPs	$1,499	$1,799	$1,799	$2,249	$2,998	$4,498	Organization	Search and Rescue Supervisor	One-time
Post Incident Analysis									
Post Incident Analysis	$208	$126	$116	$124	$245	$187	Organization	Search and Rescue Supervisor	Annual
ID/Implement Changes to Pre-Incident Plan	$75	$75	$75	$75	$75	$150	Organization	Search and Rescue Supervisor	Annual
Program Evaluation									
ERP Program Evaluation	$1,499	$1,799	$1,799	$2,249	$2,998	$4,498	Organization	Search and Rescue Supervisor	Annual
ID and Implement Changes to ERP	$75	$75	$75	$75	$75	$150	Organization	Search and Rescue Supervisor	Annual
More Frequent ID and Implement Changes to ERP	$7	$7	$7	$7	$7	$15	Organization	Search and Rescue Supervisor	Annual

Sources: OSHA based on BLS, 2023; BLS, 2023; EPA, 2002; Rice, 2002.

Note: All dollar figures are presented in 2022$. Unit costs are shown with zero decimal places, but unrounded figures are used in the underlying calculations.

[a] These costs to undergo medical exams are only inclusive of the labor costs. The cost of the medical exam components are presented in Table VII-C-7.

(ii) Additional Technical Water Rescue Entities

This additional group of technical search and rescue entities includes lifeguarding where specialty skills or equipment is employed during search and/or rescue. This group is in addition to technical water rescue activities undertaken by wilderness and urban search and rescue. These organizations would be required to comply with all provisions of the proposed rule, as described in section IV.I. Additional technical water rescue entities would incur the same labor hours and medical costs as wilderness and urban search and rescue groups, as described in section IV.A. Table VII–C–14 shows the estimated unit costs associated with the proposed rule for additional technical water rescue groups by employment size class. Note that while the unit labor hours are the same as for wilderness and urban search and rescue groups, unit costs vary due to the different wage rates for technical water rescue professionals compared to wilderness and urban search and rescue responders, as outlined in section III.

Table VII-C-14. Labor-Based Unit Costs by Employment Size Class - Additional Technical Water Rescue Groups and Employees

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
Rule Familiarization									
Rule Familiarization	$95	$95	$95	$95	$95	$95	Organization	Technical Water Rescue Supervisor	One-time
ESO Establishment of ERP and Emergency Service(s) Capability									
ESO Develop ERP	$950	$1,140	$1,140	$1,425	$1,900	$2,851	Organization	Technical Water Rescue Supervisor	One-time
ESO Update and Revise ERP	$190	$238	$238	$285	$380	$570	Organization	Technical Water Rescue Supervisor	Annual
ESO Establishment of Service(s) Capability	$570	$665	$665	$855	$1,140	$1,710	Organization	Technical Water Rescue Supervisor	One-time
ESO Community or Facility Vulnerability and Risk Assessment	$1,900	$2,281	$2,281	$2,851	$3,801	$5,701	Organization	Technical Water Rescue Supervisor	One-time
ESO Develop Mutual Aid Agreements	$48	$48	$48	$48	$48	$95	Organization	Technical Water Rescue Supervisor	One-time
Team Member and Responder Participation									
Responder Participation-Meetings	$170	$212	$212	$255	$340	$510	Organization	Technical Water Rescuer	Annual
Responder Participation-Post Sign	$2	$2	$2	$2	$2	$2	Organization	Technical Water Rescue Supervisor	Annual
WERT and ESO Risk Management Plan									
Prepare Written RMP	$570	$665	$665	$855	$1,140	$1,710	Organization	Technical Water Rescue Supervisor	One-time
Update Written RMP	$238	$285	$285	$380	$475	$713	Organization	Technical Water Rescue Supervisor	Annual
Medical and Physical Requirements									
Minimum Medical Requirement - Statement	$380	$475	$475	$570	$760	$1,140	Organization	Technical Water Rescue Supervisor	One-time
Confidential Records System	$4	$4	$4	$4	$4	$4	Responder	Technical Water Rescue Supervisor	One-time
Establish Health and Fitness Program - Written Plan	$380	$475	$475	$570	$760	$1,140	Organization	Technical Water Rescue Supervisor	One-time
Minimum Medical Surveillance [a]	$53	$53	$53	$53	$53	$53	Responder	Technical Water Rescuer	Varies

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
Additional Heart Screening [a]	$27	$27	$27	$27	$27	$27	Responder	Technical Water Rescuer	Varies
Additional ESO Surveillance (Full NFPA Medical Exam) [a]	$53	$53	$53	$53	$53	$53	Responder	Technical Water Rescuer	Varies
Implement Fitness Assessment	$48	$48	$48	$48	$48	$48	Responder	Technical Water Rescue Supervisor	Varies
Undergo Fitness Assessment	$21	$21	$21	$21	$21	$21	Responder	Technical Water Rescuer	Varies
Behavioral Health & Wellness Program	$48	$48	$48	$95	$95	$143	Organization	Technical Water Rescue Supervisor	Annual
Training									
Establish Minimum Knowledge and Skills	$380	$475	$475	$570	$760	$1,140	Organization	Technical Water Rescue Supervisor	One-time
Initial New Responder Training	$4,246	$4,246	$4,246	$4,246	$4,246	$4,246	Responder	Technical Water Rescuer	Annual
Ongoing Responder Training	$510	$616	$616	$764	$1,019	$1,529	Responder	Technical Water Rescuer	Annual
Refresher Responder Training	$42	$42	$42	$42	$64	$106	Responder	Technical Water Rescuer	Annual
Professional Development	$425	$510	$510	$637	$849	$1,274	Responder	Technical Water Rescuer	Annual
Document Professional Qualifications	$950	$1,140	$1,140	$1,425	$1,900	$2,851	Organization	Technical Water Rescue Supervisor	Annual
ESO Facility Preparedness									
ESO Facility Preparedness	$380	$475	$475	$570	$760	$1,140	Organization	Technical Water Rescue Supervisor	Annual
Equipment and PPE									
Equipment Preparedness	$1,900	$2,281	$2,281	$2,851	$3,801	$5,701	Organization	Technical Water Rescue Supervisor	Annual
Inspect, Maintain, and Test Equipment	$849	$1,019	$1,019	$1,274	$1,698	$2,548	Organization	Technical Water Rescuer	Annual
PPE Hazard Assessment	$95	$95	$95	$143	$190	$285	Organization	Technical Water Rescue Supervisor	One-time
PPE Provision	$48	$48	$48	$48	$76	$95	Organization	Technical Water Rescue Supervisor	One-time
PPE Maintenance	$85	$106	$106	$127	$170	$255	Organization	Technical Water Rescuer	Annual

	Employment Size Class						Basis	Labor Category	Frequency
	<25	25-49	50-99	100-249	250-499	500+			
Vehicle Preparedness and Operation									
Written SOPs - Vehicle Preparedness and Operation	$380	$475	$475	$570	$760	$1,140	Organization	Technical Water Rescue Supervisor	One-time
Vehicle Inspection and Maintenance	$1,900	$2,281	$2,281	$2,851	$3,801	$5,701	Organization	Technical Water Rescue Supervisor	Annual
ESO Pre-Incident Planning									
ESO Pre-Incident Planning	$950	$1,140	$1,140	$1,425	$1,900	$2,851	Organization	Technical Water Rescue Supervisor	One-time
ESO PIP Annual Review	$190	$238	$238	$285	$380	$570	Organization	Technical Water Rescue Supervisor	Annual
Incident Management System Development									
Incident Management System Development	$570	$665	$665	$855	$1,140	$1,710	Organization	Technical Water Rescue Supervisor	One-time
Emergency Incident Operations									
Emergency Incident Operations	$132	$80	$73	$79	$156	$119	Organization	Technical Water Rescue Supervisor	Annual
Standard Operating Procedures									
SOPs	$950	$1,140	$1,140	$1,425	$1,900	$2,851	Organization	Technical Water Rescue Supervisor	One-time
Post Incident Analysis									
Post Incident Analysis	$132	$80	$73	$79	$156	$119	Organization	Technical Water Rescue Supervisor	Annual
ID/Implement Changes to Pre-Incident Plan	$48	$48	$48	$48	$48	$95	Organization	Technical Water Rescue Supervisor	Annual
Program Evaluation									
ERP Program Evaluation	$950	$1,140	$1,140	$1,425	$1,900	$2,851	Organization	Technical Water Rescue Supervisor	Annual
ID and Implement Changes to ERP	$48	$48	$48	$48	$48	$95	Organization	Technical Water Rescue Supervisor	Annual
More Frequent ID and Implement Changes to ERP	$5	$5	$5	$5	$5	$10	Organization	Technical Water Rescue Supervisor	Annual

Sources: OSHA based on BLS, 2023; BLS, 2023; EPA, 2002; Ricc, 2002.

Note: All dollar figures are presented in 2022$. Unit costs are shown with zero decimal places, but unrounded figures are used in the underlying calculations.

[a] These costs to undergo medical exams are only inclusive of the labor costs. The cost of the medical exam components are presented in Table VII-C-7.

E. Total Costs

(i) Total Costs of the Proposed Rule

OSHA estimated the total cost of the proposed rule by multiplying the numbers of affected emergency services entities and responders estimated in the industry profile, as summarized in Table VII–B–12, by the unit labor costs shown in Table VII–C–6 (for fire departments), Table VII–C–11 (for emergency medical services), Table VII–C–13 (for technical search and rescue groups), and Table VII–C–14 (for additional technical water rescue entities), and adding the unit medical costs shown in Table VII–C–4 (structural fire departments and wildland fire services) and Table VII–C–7 (WEREs, emergency medical services, and technical search and rescue groups).

Table VII–C–15, Table VII–C–16, and Table VII–C–17 show the total costs (including labor and non-labor costs) for all organizations affected by the proposed rule at three, seven, and zero percent discount rates, respectively. Table VII–C–18 shows the costs for organizations considered small by either the RFA definition (for public ESOs) or SBA definition (for private organizations) using a three percent discount rate.

Table VII-C-15. Total Cost Summary by Provision - All Organizations, 3 Percent Discount Rate

	One-Time Annualized, 3%	Annual	Total Annualized, 3%
WEREs			
Rule Familiarization	$26,567	$0	$26,567
Organization of the WERT and Establishment of the ERP and Emergency Service(s) Capability	$951,248	$456,809	$1,408,057
Team Member and Responder Participation	$0	$86,698	$86,698
WERT and ESO Risk Management Plan	$154,630	$562,127	$716,757
Medical and Physical Requirements	$8,586,477	$140,416	$8,726,893
Training	$10,716	$12,139,003	$12,149,718
WERE Facility Preparedness	$0	$888,248	$888,248
Equipment and PPE	$85,223	$3,407,900	$3,493,123
Vehicle Preparedness and Operation	$32,006	$1,334,575	$1,366,581
WERE Pre-Incident Planning	$151,582	$234,684	$386,266
Incident Management System Development	$46,220	$0	$46,220
Emergency Incident Operations	$0	$17,927	$17,927
Standard Operating Procedures	$303,164	$0	$303,164
Post Incident Analysis	$0	$216,729	$216,729
Program Evaluation	$0	$2,756,023	$2,756,023
Total	**$10,347,833**	**$22,241,138**	**$32,588,971**
Fire Departments			
Career Fire Departments			
Rule Familiarization	$62,406	$0	$62,406
ESO Establishment of ERP and Emergency Service(s) Capability	$2,223,682	$1,069,936	$3,293,618
Team Member and Responder Participation	$0	$269,662	$269,662
WERT and ESO Risk Management Plan	$361,117	$1,310,079	$1,671,196
Medical and Physical Requirements	$17,367,275	$28,938,124	$46,305,399
Training	$25,295	$64,936,817	$64,962,112
ESO Facility Preparedness	$0	$4,155,983	$4,155,983
Equipment and PPE	$199,717	$9,250,059	$9,449,776
Vehicle Preparedness and Operation	$75,084	$3,125,171	$3,200,255
ESO Pre-Incident Planning	$715,138	$1,250,777	$1,965,915
Incident Management System Development	$108,099	$0	$108,099
Emergency Incident Operations	$0	$477,677	$477,677
Standard Operating Procedures	$715,138	$0	$715,138
Post Incident Analysis	$0	$3,041,219	$3,041,219
Program Evaluation	$0	$6,504,400	$6,504,400
Total	**$21,852,951**	**$124,329,905**	**$146,182,856**

	One-Time Annualized, 3%	Annual	Total Annualized, 3%
Volunteer Fire Departments			
Rule Familiarization	$83,003	$0	$83,003
ESO Establishment of ERP and Emergency Service(s) Capability	$2,950,132	$1,414,999	$4,365,132
Team Member and Responder Participation	$0	$356,996	$356,996
WERT and ESO Risk Management Plan	$479,587	$1,733,623	$2,213,209
Medical and Physical Requirements	$33,808,879	$2,106,398	$35,915,276
Training	$33,243	$39,699,661	$39,732,904
ESO Facility Preparedness	$0	$5,509,024	$5,509,024
Equipment and PPE	$264,082	$12,261,552	$12,525,634
Vehicle Preparedness and Operation	$99,267	$4,142,154	$4,241,421
ESO Pre-Incident Planning	$923,982	$1,612,539	$2,536,521
Incident Management System Development	$143,526	$0	$143,526
Emergency Incident Operations	$0	$55,489	$55,489
Standard Operating Procedures	$923,982	$0	$923,982
Post Incident Analysis	$0	$665,293	$665,293
Program Evaluation	$0	$8,318,364	$8,318,364
Total	**$39,709,683**	**$77,876,092**	**$117,585,775**
Mixed Fire Departments			
Rule Familiarization	$31,540	$0	$31,540
ESO Establishment of ERP and Emergency Service(s) Capability	$1,133,189	$548,752	$1,681,941
Team Member and Responder Participation	$0	$138,157	$138,157
WERT and ESO Risk Management Plan	$183,516	$669,134	$852,650
Medical and Physical Requirements	$13,435,208	$5,800,599	$19,235,807
Training	$13,091	$24,049,853	$24,062,944
ESO Facility Preparedness	$0	$2,120,425	$2,120,425
Equipment and PPE	$102,451	$4,719,475	$4,821,926
Vehicle Preparedness and Operation	$38,485	$1,593,169	$1,631,655
ESO Pre-Incident Planning	$372,351	$654,500	$1,026,850
Incident Management System Development	$54,899	$0	$54,899
Emergency Incident Operations	$0	$117,810	$117,810
Standard Operating Procedures	$372,351	$0	$372,351
Post Incident Analysis	$0	$835,516	$835,516
Program Evaluation	$0	$3,391,214	$3,391,214
Total	**$15,737,080**	**$44,638,604**	**$60,375,684**
Fire Departments Total			
Rule Familiarization	$176,949	$0	$176,949
ESO Establishment of ERP and Emergency Service(s) Capability	$6,307,003	$3,033,688	$9,340,691

	One-Time Annualized, 3%	Annual	Total Annualized, 3%
Team Member and Responder Participation	$0	$764,816	$764,816
WERT and ESO Risk Management Plan	$1,024,219	$3,712,836	$4,737,056
Medical and Physical Requirements	$64,611,361	$36,845,121	$101,456,482
Training	$71,629	$128,686,331	$128,757,961
ESO Facility Preparedness	$0	$11,785,432	$11,785,432
Equipment and PPE	$566,250	$26,231,085	$26,797,336
Vehicle Preparedness and Operation	$212,836	$8,860,495	$9,073,331
ESO Pre-Incident Planning	$2,011,471	$3,517,815	$5,529,286
Incident Management System Development	$306,524	$0	$306,524
Emergency Incident Operations	$0	$650,975	$650,975
Standard Operating Procedures	$2,011,471	$0	$2,011,471
Post Incident Analysis	$0	$4,542,029	$4,542,029
Program Evaluation	$0	$18,213,977	$18,213,977
Total	**$77,299,714**	**$246,844,602**	**$324,144,315**
Wildland Firefighting Services			
Career Wildland Firefighting ESOs			
Rule Familiarization	$7,615	$0	$7,615
ESO Establishment of ERP and Emergency Service(s) Capability	$260,466	$122,122	$382,588
Team Member and Responder Participation	$0	$30,889	$30,889
WERT and ESO Risk Management Plan	$42,768	$152,349	$195,117
Medical and Physical Requirements	$3,573,693	$6,393,251	$9,966,944
Training	$2,787	$14,122,292	$14,125,080
ESO Facility Preparedness	$0	$484,607	$484,607
Equipment and PPE	$22,782	$1,078,600	$1,101,382
Vehicle Preparedness and Operation	$8,611	$366,331	$374,942
ESO Pre-Incident Planning	$77,959	$133,370	$211,329
Incident Management System Development	$12,862	$0	$12,862
Emergency Incident Operations	$0	$7,261	$7,261
Standard Operating Procedures	$77,959	$0	$77,959
Post Incident Analysis	$0	$73,800	$73,800
Program Evaluation	$0	$706,928	$706,928
Total	**$4,087,501**	**$23,671,803**	**$27,759,304**
Volunteer Wildland Firefighting ESOs			
Rule Familiarization	$117	$0	$117
ESO Establishment of ERP and Emergency Service(s) Capability	$4,847	$2,276	$7,123
Team Member and Responder Participation	$0	$589	$589
WERT and ESO Risk Management Plan	$800	$2,845	$3,646

	One-Time Annualized, 3%	Annual	Total Annualized, 3%
Medical and Physical Requirements	$4,394,919	$525,146	$4,920,064
Training	$56	$12,165,646	$12,165,702
ESO Facility Preparedness	$0	$8,985	$8,985
Equipment and PPE	$421	$19,997	$20,418
Vehicle Preparedness and Operation	$154	$6,589	$6,743
ESO Pre-Incident Planning	$1,861	$3,175	$5,035
Incident Management System Development	$232	$0	$232
Emergency Incident Operations	$0	$1,025	$1,025
Standard Operating Procedures	$1,861	$0	$1,861
Post Incident Analysis	$0	$8,289	$8,289
Program Evaluation	$0	$21,112	$21,112
Total	**$4,405,269**	**$12,765,674**	**$17,170,943**
Wildland Firefighting Total			
Rule Familiarization	$7,732	$0	$7,732
ESO Establishment of ERP and Emergency Service(s) Capability	$265,313	$124,398	$389,712
Team Member and Responder Participation	$0	$31,479	$31,479
WERT and ESO Risk Management Plan	$43,568	$155,195	$198,763
Medical and Physical Requirements	$7,968,612	$6,918,397	$14,887,009
Training	$2,843	$26,287,939	$26,290,782
ESO Facility Preparedness	$0	$493,592	$493,592
Equipment and PPE	$23,204	$1,098,597	$1,121,801
Vehicle Preparedness and Operation	$8,765	$372,920	$381,685
ESO Pre-Incident Planning	$79,820	$136,545	$216,365
Incident Management System Development	$13,094	$0	$13,094
Emergency Incident Operations	$0	$8,287	$8,287
Standard Operating Procedures	$79,820	$0	$79,820
Post Incident Analysis	$0	$82,090	$82,090
Program Evaluation	$0	$728,040	$728,040
Total	**$8,492,770**	**$36,437,477**	**$44,930,247**
Emergency Medical Services			
Career Emergency Medical Services ESOs			
Rule Familiarization	$37,292	$0	$37,292
ESO Establishment of ERP and Emergency Service(s) Capability	$1,302,959	$618,063	$1,921,021
Team Member and Responder Participation	$0	$130,680	$130,680
WERT and ESO Risk Management Plan	$212,983	$765,870	$978,852
Medical and Physical Requirements	$16,822,891	$147,807	$16,970,698
Training	$14,363	$41,880,573	$41,894,936

	One-Time Annualized, 3%	Annual	Total Annualized, 3%
ESO Facility Preparedness	$0	$491,854	$491,854
Equipment and PPE	$20,073	$3,799,716	$3,819,790
Vehicle Preparedness and Operation	$43,468	$1,831,591	$1,875,059
ESO Pre-Incident Planning	$409,984	$708,379	$1,118,363
Incident Management System Development	$63,892	$0	$63,892
Emergency Incident Operations	$0	$5,769,083	$5,769,083
Standard Operating Procedures	$409,984	$0	$409,984
Post Incident Analysis	$0	$8,002,159	$8,002,159
Program Evaluation	$0	$3,774,436	$3,774,436
Total	**$19,337,888**	**$67,920,210**	**$87,258,098**
Volunteer Emergency Medical Services ESOs			
Rule Familiarization	$20,189	$0	$20,189
ESO Establishment of ERP and Emergency Service(s) Capability	$705,515	$334,679	$1,040,194
Team Member and Responder Participation	$0	$70,761	$70,761
WERT and ESO Risk Management Plan	$115,326	$414,764	$530,091
Medical and Physical Requirements	$9,387,879	$80,085	$9,467,965
Training	$7,780	$23,516,412	$23,524,193
ESO Facility Preparedness	$0	$266,336	$266,336
Equipment and PPE	$10,862	$2,057,491	$2,068,354
Vehicle Preparedness and Operation	$23,537	$991,776	$1,015,314
ESO Pre-Incident Planning	$222,442	$384,345	$606,787
Incident Management System Development	$34,596	$0	$34,596
Emergency Incident Operations	$0	$3,210,860	$3,210,860
Standard Operating Procedures	$222,442	$0	$222,442
Post Incident Analysis	$0	$4,468,519	$4,468,519
Program Evaluation	$0	$2,050,495	$2,050,495
Total	**$10,750,570**	**$37,846,526**	**$48,597,096**
Mixed Emergency Medical Services ESOs			
Rule Familiarization	$39,255	$0	$39,255
ESO Establishment of ERP and Emergency Service(s) Capability	$1,371,536	$650,592	$2,022,128
Team Member and Responder Participation	$0	$137,558	$137,558
WERT and ESO Risk Management Plan	$224,192	$806,179	$1,030,371
Medical and Physical Requirements	$16,581,615	$155,586	$16,737,201
Training	$15,119	$41,113,375	$41,128,494
ESO Facility Preparedness	$0	$517,741	$517,741
Equipment and PPE	$21,130	$3,999,701	$4,020,831
Vehicle Preparedness and Operation	$45,755	$1,927,991	$1,973,746

	One-Time Annualized, 3%	Annual	Total Annualized, 3%
ESO Pre-Incident Planning	$431,562	$745,662	$1,177,224
Incident Management System Development	$67,254	$0	$67,254
Emergency Incident Operations	$0	$6,072,719	$6,072,719
Standard Operating Procedures	$431,562	$0	$431,562
Post Incident Analysis	$0	$8,423,326	$8,423,326
Program Evaluation	$0	$3,973,090	$3,973,090
Total	**$19,228,981**	**$68,523,520**	**$87,752,501**
Emergency Medical Services Total			
Rule Familiarization	$96,736	$0	$96,736
ESO Establishment of ERP and Emergency Service(s) Capability	$3,380,010	$1,603,334	$4,983,344
Team Member and Responder Participation	$0	$338,999	$338,999
WERT and ESO Risk Management Plan	$552,501	$1,986,813	$2,539,314
Medical and Physical Requirements	$42,792,385	$383,479	$43,175,864
Training	$37,263	$106,510,361	$106,547,623
ESO Facility Preparedness	$0	$1,275,931	$1,275,931
Equipment and PPE	$52,066	$9,856,909	$9,908,975
Vehicle Preparedness and Operation	$112,760	$4,751,358	$4,864,118
ESO Pre-Incident Planning	$1,063,988	$1,838,386	$2,902,374
Incident Management System Development	$165,742	$0	$165,742
Emergency Incident Operations	$0	$15,052,662	$15,052,662
Standard Operating Procedures	$1,063,988	$0	$1,063,988
Post Incident Analysis	$0	$20,894,004	$20,894,004
Program Evaluation	$0	$9,798,021	$9,798,021
Total	**$49,317,439**	**$174,290,256**	**$223,607,695**
Technical Search and Rescue Groups			
Career Technical Search and Rescue ESOs			
Rule Familiarization	$2,002	$0	$2,002
ESO Establishment of ERP and Emergency Service(s) Capability	$72,491	$34,529	$107,020
Team Member and Responder Participation	$0	$6,426	$6,426
WERT and ESO Risk Management Plan	$11,860	$43,019	$54,879
Medical and Physical Requirements	$1,228,014	$8,489	$1,236,504
Training	$821	$2,453,601	$2,454,422
ESO Facility Preparedness	$0	$27,453	$27,453
Equipment and PPE	$1,063	$202,383	$203,447
Vehicle Preparedness and Operation	$2,416	$101,571	$103,986
ESO Pre-Incident Planning	$25,622	$44,308	$69,930
Incident Management System Development	$3,538	$0	$3,538

	One-Time Annualized, 3%	Annual	Total Annualized, 3%
Emergency Incident Operations	$0	$2,551	$2,551
Standard Operating Procedures	$25,622	$0	$25,622
Post Incident Analysis	$0	$25,023	$25,023
Program Evaluation	$0	$255,544	$255,544
Total	**$1,373,449**	**$3,204,897**	**$4,578,346**
Volunteer Technical Search and Rescue ESOs			
Rule Familiarization	$27,622	$0	$27,622
ESO Establishment of ERP and Emergency Service(s) Capability	$1,015,690	$483,501	$1,499,192
Team Member and Responder Participation	$0	$91,873	$91,873
WERT and ESO Risk Management Plan	$166,384	$603,946	$770,331
Medical and Physical Requirements	$5,441,734	$120,445	$5,562,179
Training	$11,549	$13,069,649	$13,081,198
ESO Facility Preparedness	$0	$384,229	$384,229
Equipment and PPE	$14,755	$2,854,651	$2,869,406
Vehicle Preparedness and Operation	$33,729	$1,419,793	$1,453,522
ESO Pre-Incident Planning	$369,978	$638,882	$1,008,860
Incident Management System Development	$49,493	$0	$49,493
Emergency Incident Operations	$0	$31,342	$31,342
Standard Operating Procedures	$369,978	$0	$369,978
Post Incident Analysis	$0	$334,470	$334,470
Program Evaluation	$0	$3,789,179	$3,789,179
Total	**$7,500,912**	**$23,821,962**	**$31,322,873**
Technical Search and Rescue Total			
Rule Familiarization	$29,625	$0	$29,625
ESO Establishment of ERP and Emergency Service(s) Capability	$1,088,181	$518,031	$1,606,211
Team Member and Responder Participation	$0	$98,299	$98,299
WERT and ESO Risk Management Plan	$178,244	$646,965	$825,210
Medical and Physical Requirements	$6,669,748	$128,935	$6,798,683
Training	$12,370	$15,523,250	$15,535,620
ESO Facility Preparedness	$0	$411,682	$411,682
Equipment and PPE	$15,818	$3,057,035	$3,072,853
Vehicle Preparedness and Operation	$36,145	$1,521,364	$1,557,508
ESO Pre-Incident Planning	$395,600	$683,190	$1,078,790
Incident Management System Development	$53,031	$0	$53,031
Emergency Incident Operations	$0	$33,893	$33,893
Standard Operating Procedures	$395,600	$0	$395,600
Post Incident Analysis	$0	$359,493	$359,493

	One-Time Annualized, 3%	Annual	Total Annualized, 3%
Program Evaluation	$0	$4,044,723	$4,044,723
Total	**$8,874,361**	**$27,026,859**	**$35,901,219**
Total for All Responder Groups			
Rule Familiarization	$337,609	$0	$337,609
Organization of the WERT and Establishment of the ERP and Emergency Service(s) Capability	$951,248	$456,809	$1,408,057
ESO Establishment of ERP and Emergency Service(s) Capability	$11,040,506	$5,279,451	$16,319,958
Team Member and Responder Participation	$0	$1,320,291	$1,320,291
WERT and ESO Risk Management Plan	$1,953,163	$7,063,936	$9,017,099
Medical and Physical Requirements	$130,628,583	$44,416,347	$175,044,930
Training	$134,821	$289,146,883	$289,281,704
WERE Facility Preparedness	$0	$888,248	$888,248
ESO Facility Preparedness	$0	$13,966,637	$13,966,637
Equipment and PPE	$742,560	$43,651,527	$44,394,087
Vehicle Preparedness and Operation	$402,512	$16,840,711	$17,243,223
WERE Pre-Incident Planning	$151,582	$234,684	$386,266
ESO Pre-Incident Planning	$3,550,878	$6,175,936	$9,726,814
Incident Management System Development	$584,610	$0	$584,610
Emergency Incident Operations	$0	$15,763,744	$15,763,744
Standard Operating Procedures	$3,854,042	$0	$3,854,042
Post Incident Analysis	$0	$26,094,344	$26,094,344
Program Evaluation	$0	$35,540,783	$35,540,783
Total	**$154,332,116**	**$506,840,331**	**$661,172,447**

Source: OSHA.

Note: Figures in rows may not add to totals due to rounding.

Table VII-C-16. Total Cost Summary by Provision - All Organizations, 7 Percent Discount Rate

	One-Time Annualized, 7%	Annual	Total Annualized, 7%
WEREs			
Rule Familiarization	$32,266	$0	$32,266
Organization of the WERT and Establishment of the ERP and Emergency Service(s) Capability	$1,155,299	$456,809	$1,612,108
Team Member and Responder Participation	$0	$86,698	$86,698
WERT and ESO Risk Management Plan	$187,800	$562,127	$749,926
Medical and Physical Requirements	$8,722,884	$140,416	$8,863,300
Training	$13,014	$12,139,003	$12,152,017
WERE Facility Preparedness	$0	$888,248	$888,248
Equipment and PPE	$103,504	$3,407,900	$3,511,404
Vehicle Preparedness and Operation	$38,872	$1,334,575	$1,373,447
WERE Pre-Incident Planning	$184,098	$234,684	$418,782
Incident Management System Development	$56,135	$0	$56,135
Emergency Incident Operations	$0	$17,927	$17,927
Standard Operating Procedures	$368,196	$0	$368,196
Post Incident Analysis	$0	$216,729	$216,729
Program Evaluation	$0	$2,756,023	$2,756,023
Total	**$10,862,067**	**$22,241,138**	**$33,103,205**
Fire Departments			
Career Fire Departments			
Rule Familiarization	$75,793	$0	$75,793
ESO Establishment of ERP and Emergency Service(s) Capability	$2,700,681	$1,069,936	$3,770,618
Team Member and Responder Participation	$0	$269,662	$269,662
WERT and ESO Risk Management Plan	$438,579	$1,310,079	$1,748,659
Medical and Physical Requirements	$17,716,105	$28,938,124	$46,654,229
Training	$30,721	$64,936,817	$64,967,538
ESO Facility Preparedness	$0	$4,155,983	$4,155,983
Equipment and PPE	$242,559	$9,250,059	$9,492,618
Vehicle Preparedness and Operation	$91,190	$3,125,171	$3,216,361
ESO Pre-Incident Planning	$868,542	$1,250,777	$2,119,318
Incident Management System Development	$131,287	$0	$131,287
Emergency Incident Operations	$0	$477,677	$477,677
Standard Operating Procedures	$868,542	$0	$868,542
Post Incident Analysis	$0	$3,041,219	$3,041,219
Program Evaluation	$0	$6,504,400	$6,504,400
Total	**$23,163,999**	**$124,329,905**	**$147,493,904**

	One-Time Annualized, 7%	Annual	Total Annualized, 7%
Volunteer Fire Departments			
Rule Familiarization	$100,808	$0	$100,808
ESO Establishment of ERP and Emergency Service(s) Capability	$3,582,962	$1,414,999	$4,997,962
Team Member and Responder Participation	$0	$356,996	$356,996
WERT and ESO Risk Management Plan	$582,462	$1,733,623	$2,316,085
Medical and Physical Requirements	$34,394,053	$2,106,398	$36,500,451
Training	$40,374	$39,699,661	$39,740,035
ESO Facility Preparedness	$0	$5,509,024	$5,509,024
Equipment and PPE	$320,730	$12,261,552	$12,582,282
Vehicle Preparedness and Operation	$120,561	$4,142,154	$4,262,715
ESO Pre-Incident Planning	$1,122,184	$1,612,539	$2,734,723
Incident Management System Development	$174,314	$0	$174,314
Emergency Incident Operations	$0	$55,489	$55,489
Standard Operating Procedures	$1,122,184	$0	$1,122,184
Post Incident Analysis	$0	$665,293	$665,293
Program Evaluation	$0	$8,318,364	$8,318,364
Total	**$41,560,633**	**$77,876,092**	**$119,436,725**
Mixed Fire Departments			
Rule Familiarization	$38,305	$0	$38,305
ESO Establishment of ERP and Emergency Service(s) Capability	$1,376,268	$548,752	$1,925,020
Team Member and Responder Participation	$0	$138,157	$138,157
WERT and ESO Risk Management Plan	$222,882	$669,134	$892,016
Medical and Physical Requirements	$13,668,041	$5,800,599	$19,468,640
Training	$15,900	$24,049,853	$24,065,753
ESO Facility Preparedness	$0	$2,120,425	$2,120,425
Equipment and PPE	$124,428	$4,719,475	$4,843,902
Vehicle Preparedness and Operation	$46,741	$1,593,169	$1,639,910
ESO Pre-Incident Planning	$452,223	$654,500	$1,106,723
Incident Management System Development	$66,675	$0	$66,675
Emergency Incident Operations	$0	$117,810	$117,810
Standard Operating Procedures	$452,223	$0	$452,223
Post Incident Analysis	$0	$835,516	$835,516
Program Evaluation	$0	$3,391,214	$3,391,214
Total	**$16,463,685**	**$44,638,604**	**$61,102,290**
Fire Departments Total			
Rule Familiarization	$214,906	$0	$214,906
ESO Establishment of ERP and Emergency Service(s) Capability	$7,659,911	$3,033,688	$10,693,600

	One-Time Annualized, 7%	Annual	Total Annualized, 7%
Team Member and Responder Participation	$0	$764,816	$764,816
WERT and ESO Risk Management Plan	$1,243,924	$3,712,836	$4,956,760
Medical and Physical Requirements	$65,778,199	$36,845,121	$102,623,320
Training	$86,995	$128,686,331	$128,773,326
ESO Facility Preparedness	$0	$11,785,432	$11,785,432
Equipment and PPE	$687,716	$26,231,085	$26,918,801
Vehicle Preparedness and Operation	$258,491	$8,860,495	$9,118,986
ESO Pre-Incident Planning	$2,442,949	$3,517,815	$5,960,764
Incident Management System Development	$372,277	$0	$372,277
Emergency Incident Operations	$0	$650,975	$650,975
Standard Operating Procedures	$2,442,949	$0	$2,442,949
Post Incident Analysis	$0	$4,542,029	$4,542,029
Program Evaluation	$0	$18,213,977	$18,213,977
Total	**$81,188,318**	**$246,844,602**	**$328,032,919**
Wildland Firefighting Services			
Career Wildland Firefighting ESOs			
Rule Familiarization	$9,249	$0	$9,249
ESO Establishment of ERP and Emergency Service(s) Capability	$316,338	$122,122	$438,460
Team Member and Responder Participation	$0	$30,889	$30,889
WERT and ESO Risk Management Plan	$51,942	$152,349	$204,291
Medical and Physical Requirements	$3,636,332	$6,393,251	$10,029,584
Training	$3,385	$14,122,292	$14,125,678
ESO Facility Preparedness	$0	$484,607	$484,607
Equipment and PPE	$27,669	$1,078,600	$1,106,269
Vehicle Preparedness and Operation	$10,458	$366,331	$376,789
ESO Pre-Incident Planning	$94,682	$133,370	$228,052
Incident Management System Development	$15,621	$0	$15,621
Emergency Incident Operations	$0	$7,261	$7,261
Standard Operating Procedures	$94,682	$0	$94,682
Post Incident Analysis	$0	$73,800	$73,800
Program Evaluation	$0	$706,928	$706,928
Total	**$4,260,357**	**$23,671,803**	**$27,932,160**
Volunteer Wildland Firefighting ESOs			
Rule Familiarization	$142	$0	$142
ESO Establishment of ERP and Emergency Service(s) Capability	$5,887	$2,276	$8,163
Team Member and Responder Participation	$0	$589	$589
WERT and ESO Risk Management Plan	$972	$2,845	$3,817

	One-Time Annualized, 7%	Annual	Total Annualized, 7%
Medical and Physical Requirements	$4,453,858	$525,146	$4,979,004
Training	$68	$12,165,646	$12,165,714
ESO Facility Preparedness	$0	$8,985	$8,985
Equipment and PPE	$512	$19,997	$20,509
Vehicle Preparedness and Operation	$188	$6,589	$6,776
ESO Pre-Incident Planning	$2,260	$3,175	$5,434
Incident Management System Development	$281	$0	$281
Emergency Incident Operations	$0	$1,025	$1,025
Standard Operating Procedures	$2,260	$0	$2,260
Post Incident Analysis	$0	$8,289	$8,289
Program Evaluation	$0	$21,112	$21,112
Total	**$4,466,428**	**$12,765,674**	**$17,232,102**
Wildland Firefighting Total			
Rule Familiarization	$9,391	$0	$9,391
ESO Establishment of ERP and Emergency Service(s) Capability	$322,225	$124,398	$446,624
Team Member and Responder Participation	$0	$31,479	$31,479
WERT and ESO Risk Management Plan	$52,914	$155,195	$208,109
Medical and Physical Requirements	$8,090,190	$6,918,397	$15,008,587
Training	$3,453	$26,287,939	$26,291,392
ESO Facility Preparedness	$0	$493,592	$493,592
Equipment and PPE	$28,181	$1,098,597	$1,126,778
Vehicle Preparedness and Operation	$10,645	$372,920	$383,565
ESO Pre-Incident Planning	$96,942	$136,545	$233,487
Incident Management System Development	$15,902	$0	$15,902
Emergency Incident Operations	$0	$8,287	$8,287
Standard Operating Procedures	$96,942	$0	$96,942
Post Incident Analysis	$0	$82,090	$82,090
Program Evaluation	$0	$728,040	$728,040
Total	**$8,726,785**	**$36,437,477**	**$45,164,262**
Emergency Medical Services			
Career Emergency Medical Services ESOs			
Rule Familiarization	$45,292	$0	$45,292
ESO Establishment of ERP and Emergency Service(s) Capability	$1,582,455	$618,063	$2,200,518
Team Member and Responder Participation	$0	$130,680	$130,680
WERT and ESO Risk Management Plan	$258,670	$765,870	$1,024,539
Medical and Physical Requirements	$17,103,833	$147,807	$17,251,640
Training	$17,444	$41,880,573	$41,898,017

	One-Time Annualized, 7%	Annual	Total Annualized, 7%
ESO Facility Preparedness	$0	$491,854	$491,854
Equipment and PPE	$24,379	$3,799,716	$3,824,096
Vehicle Preparedness and Operation	$52,792	$1,831,591	$1,884,383
ESO Pre-Incident Planning	$497,929	$708,379	$1,206,308
Incident Management System Development	$77,597	$0	$77,597
Emergency Incident Operations	$0	$5,769,083	$5,769,083
Standard Operating Procedures	$497,929	$0	$497,929
Post Incident Analysis	$0	$8,002,159	$8,002,159
Program Evaluation	$0	$3,774,436	$3,774,436
Total	**$20,158,320**	**$67,920,210**	**$88,078,531**
Volunteer Emergency Medical Services ESOs			
Rule Familiarization	$24,520	$0	$24,520
ESO Establishment of ERP and Emergency Service(s) Capability	$856,854	$334,679	$1,191,534
Team Member and Responder Participation	$0	$70,761	$70,761
WERT and ESO Risk Management Plan	$140,065	$414,764	$554,829
Medical and Physical Requirements	$9,543,692	$80,085	$9,623,778
Training	$9,449	$23,516,412	$23,525,862
ESO Facility Preparedness	$0	$266,336	$266,336
Equipment and PPE	$13,192	$2,057,491	$2,070,684
Vehicle Preparedness and Operation	$28,586	$991,776	$1,020,363
ESO Pre-Incident Planning	$270,158	$384,345	$654,503
Incident Management System Development	$42,017	$0	$42,017
Emergency Incident Operations	$0	$3,210,860	$3,210,860
Standard Operating Procedures	$270,158	$0	$270,158
Post Incident Analysis	$0	$4,468,519	$4,468,519
Program Evaluation	$0	$2,050,495	$2,050,495
Total	**$11,198,692**	**$37,846,526**	**$49,045,218**
Mixed Emergency Medical Services ESOs			
Rule Familiarization	$47,676	$0	$47,676
ESO Establishment of ERP and Emergency Service(s) Capability	$1,665,742	$650,592	$2,316,335
Team Member and Responder Participation	$0	$137,558	$137,558
WERT and ESO Risk Management Plan	$272,284	$806,179	$1,078,462
Medical and Physical Requirements	$16,862,435	$155,586	$17,018,022
Training	$18,362	$41,113,375	$41,131,738
ESO Facility Preparedness	$0	$517,741	$517,741
Equipment and PPE	$25,663	$3,999,701	$4,025,364
Vehicle Preparedness and Operation	$55,570	$1,927,991	$1,983,561

	One-Time Annualized, 7%	Annual	Total Annualized, 7%
ESO Pre-Incident Planning	$524,136	$745,662	$1,269,798
Incident Management System Development	$81,681	$0	$81,681
Emergency Incident Operations	$0	$6,072,719	$6,072,719
Standard Operating Procedures	$524,136	$0	$524,136
Post Incident Analysis	$0	$8,423,326	$8,423,326
Program Evaluation	$0	$3,973,090	$3,973,090
Total	**$20,077,685**	**$68,523,520**	**$88,601,204**
Emergency Medical Services Total			
Rule Familiarization	$117,487	$0	$117,487
ESO Establishment of ERP and Emergency Service(s) Capability	$4,105,052	$1,603,334	$5,708,386
Team Member and Responder Participation	$0	$338,999	$338,999
WERT and ESO Risk Management Plan	$671,018	$1,986,813	$2,657,831
Medical and Physical Requirements	$43,509,961	$383,479	$43,893,440
Training	$45,256	$106,510,361	$106,555,617
ESO Facility Preparedness	$0	$1,275,931	$1,275,931
Equipment and PPE	$63,234	$9,856,909	$9,920,144
Vehicle Preparedness and Operation	$136,949	$4,751,358	$4,888,307
ESO Pre-Incident Planning	$1,292,223	$1,838,386	$3,130,608
Incident Management System Development	$201,295	$0	$201,295
Emergency Incident Operations	$0	$15,052,662	$15,052,662
Standard Operating Procedures	$1,292,223	$0	$1,292,223
Post Incident Analysis	$0	$20,894,004	$20,894,004
Program Evaluation	$0	$9,798,021	$9,798,021
Total	**$51,434,697**	**$174,290,256**	**$225,724,953**
Technical Search and Rescue Groups			
Career Technical Search and Rescue ESOs			
Rule Familiarization	$2,432	$0	$2,432
ESO Establishment of ERP and Emergency Service(s) Capability	$88,040	$34,529	$122,570
Team Member and Responder Participation	$0	$6,426	$6,426
WERT and ESO Risk Management Plan	$14,404	$43,019	$57,423
Medical and Physical Requirements	$1,247,713	$8,489	$1,256,202
Training	$997	$2,453,601	$2,454,598
ESO Facility Preparedness	$0	$27,453	$27,453
Equipment and PPE	$1,291	$202,383	$203,675
Vehicle Preparedness and Operation	$2,934	$101,571	$104,505
ESO Pre-Incident Planning	$31,118	$44,308	$75,427
Incident Management System Development	$4,297	$0	$4,297

	One-Time Annualized, 7%	Annual	Total Annualized, 7%
Emergency Incident Operations	$0	$2,551	$2,551
Standard Operating Procedures	$31,118	$0	$31,118
Post Incident Analysis	$0	$25,023	$25,023
Program Evaluation	$0	$255,544	$255,544
Total	**$1,424,345**	**$3,204,897**	**$4,629,242**
Volunteer Technical Search and Rescue ESOs			
Rule Familiarization	$33,547	$0	$33,547
ESO Establishment of ERP and Emergency Service(s) Capability	$1,233,565	$483,501	$1,717,066
Team Member and Responder Participation	$0	$91,873	$91,873
WERT and ESO Risk Management Plan	$202,075	$603,946	$806,022
Medical and Physical Requirements	$5,560,787	$120,445	$5,681,232
Training	$14,027	$13,069,649	$13,083,676
ESO Facility Preparedness	$0	$384,229	$384,229
Equipment and PPE	$17,920	$2,854,651	$2,872,571
Vehicle Preparedness and Operation	$40,964	$1,419,793	$1,460,757
ESO Pre-Incident Planning	$449,341	$638,882	$1,088,223
Incident Management System Development	$60,109	$0	$60,109
Emergency Incident Operations	$0	$31,342	$31,342
Standard Operating Procedures	$449,341	$0	$449,341
Post Incident Analysis	$0	$334,470	$334,470
Program Evaluation	$0	$3,789,179	$3,789,179
Total	**$8,061,677**	**$23,821,962**	**$31,883,638**
Technical Search and Rescue Total			
Rule Familiarization	$35,979	$0	$35,979
ESO Establishment of ERP and Emergency Service(s) Capability	$1,321,605	$518,031	$1,839,636
Team Member and Responder Participation	$0	$98,299	$98,299
WERT and ESO Risk Management Plan	$216,479	$646,965	$863,445
Medical and Physical Requirements	$6,808,500	$128,935	$6,937,434
Training	$15,023	$15,523,250	$15,538,274
ESO Facility Preparedness	$0	$411,682	$411,682
Equipment and PPE	$19,211	$3,057,035	$3,076,246
Vehicle Preparedness and Operation	$43,898	$1,521,364	$1,565,261
ESO Pre-Incident Planning	$480,460	$683,190	$1,163,650
Incident Management System Development	$64,406	$0	$64,406
Emergency Incident Operations	$0	$33,893	$33,893
Standard Operating Procedures	$480,460	$0	$480,460
Post Incident Analysis	$0	$359,493	$359,493

	One-Time Annualized, 7%	Annual	Total Annualized, 7%
Program Evaluation	$0	$4,044,723	$4,044,723
Total	**$9,486,022**	**$27,026,859**	**$36,512,880**
Total for All Responder Groups			
Rule Familiarization	$410,030	$0	$410,030
Organization of the WERT and Establishment of the ERP and Emergency Service(s) Capability	$1,155,299	$456,809	$1,612,108
ESO Establishment of ERP and Emergency Service(s) Capability	$13,408,794	$5,279,451	$18,688,245
Team Member and Responder Participation	$0	$1,320,291	$1,320,291
WERT and ESO Risk Management Plan	$2,372,134	$7,063,936	$9,436,070
Medical and Physical Requirements	$132,909,734	$44,416,347	$177,326,081
Training	$163,741	$289,146,883	$289,310,625
WERE Facility Preparedness	$0	$888,248	$888,248
ESO Facility Preparedness	$0	$13,966,637	$13,966,637
Equipment and PPE	$901,846	$43,651,527	$44,553,373
Vehicle Preparedness and Operation	$488,855	$16,840,711	$17,329,566
WERE Pre-Incident Planning	$184,098	$234,684	$418,782
ESO Pre-Incident Planning	$4,312,573	$6,175,936	$10,488,509
Incident Management System Development	$710,014	$0	$710,014
Emergency Incident Operations	$0	$15,763,744	$15,763,744
Standard Operating Procedures	$4,680,769	$0	$4,680,769
Post Incident Analysis	$0	$26,094,344	$26,094,344
Program Evaluation	$0	$35,540,783	$35,540,783
Total	**$161,697,888**	**$506,840,331**	**$668,538,219**

Source: OSHA.

Note: Figures in rows may not add to totals due to rounding.

Table VII-C-17. Total Cost Summary by Provision - All Organizations, 0 Percent Discount Rate

	One-Time Annualized, 0%	Annual	Total Annualized, 0%
WEREs			
Rule Familiarization	$22,663	$0	$22,663
Organization of the WERT and Establishment of the ERP and Emergency Service(s) Capability	$811,434	$456,809	$1,268,243
Team Member and Responder Participation	$0	$86,698	$86,698
WERT and ESO Risk Management Plan	$131,903	$562,127	$694,029
Medical and Physical Requirements	$8,487,315	$140,416	$8,627,731
Training	$9,141	$12,139,003	$12,148,143
WERE Facility Preparedness	$0	$888,248	$888,248
Equipment and PPE	$72,697	$3,407,900	$3,480,597
Vehicle Preparedness and Operation	$27,302	$1,334,575	$1,361,877
WERE Pre-Incident Planning	$129,303	$234,684	$363,986
Incident Management System Development	$39,427	$0	$39,427
Emergency Incident Operations	$0	$17,927	$17,927
Standard Operating Procedures	$258,605	$0	$258,605
Post Incident Analysis	$0	$216,729	$216,729
Program Evaluation	$0	$2,756,023	$2,756,023
Total	**$9,989,788**	**$22,241,138**	**$32,230,926**
Fire Departments			
Career Fire Departments			
Rule Familiarization	$53,234	$0	$53,234
ESO Establishment of ERP and Emergency Service(s) Capability	$1,896,846	$1,069,936	$2,966,782
Team Member and Responder Participation	$0	$269,662	$269,662
WERT and ESO Risk Management Plan	$308,040	$1,310,079	$1,618,119
Medical and Physical Requirements	$17,125,735	$28,938,124	$46,063,859
Training	$21,577	$64,936,817	$64,958,395
ESO Facility Preparedness	$0	$4,155,983	$4,155,983
Equipment and PPE	$170,363	$9,250,059	$9,420,422
Vehicle Preparedness and Operation	$64,048	$3,125,171	$3,189,219
ESO Pre-Incident Planning	$610,027	$1,250,777	$1,860,804
Incident Management System Development	$92,211	$0	$92,211
Emergency Incident Operations	$0	$477,677	$477,677
Standard Operating Procedures	$610,027	$0	$610,027
Post Incident Analysis	$0	$3,041,219	$3,041,219
Program Evaluation	$0	$6,504,400	$6,504,400
Total	**$20,952,108**	**$124,329,905**	**$145,282,013**

	One-Time Annualized, 0%	Annual	Total Annualized, 0%
Volunteer Fire Departments			
Rule Familiarization	$70,804	$0	$70,804
ESO Establishment of ERP and Emergency Service(s) Capability	$2,516,523	$1,414,999	$3,931,522
Team Member and Responder Participation	$0	$356,996	$356,996
WERT and ESO Risk Management Plan	$409,097	$1,733,623	$2,142,720
Medical and Physical Requirements	$33,393,743	$2,106,398	$35,500,141
Training	$28,357	$39,699,661	$39,728,018
ESO Facility Preparedness	$0	$5,509,024	$5,509,024
Equipment and PPE	$225,267	$12,261,552	$12,486,819
Vehicle Preparedness and Operation	$84,677	$4,142,154	$4,226,831
ESO Pre-Incident Planning	$788,175	$1,612,539	$2,400,714
Incident Management System Development	$122,431	$0	$122,431
Emergency Incident Operations	$0	$55,489	$55,489
Standard Operating Procedures	$788,175	$0	$788,175
Post Incident Analysis	$0	$665,293	$665,293
Program Evaluation	$0	$8,318,364	$8,318,364
Total	**$38,427,249**	**$77,876,092**	**$116,303,341**
Mixed Fire Departments			
Rule Familiarization	$26,904	$0	$26,904
ESO Establishment of ERP and Emergency Service(s) Capability	$966,633	$548,752	$1,515,385
Team Member and Responder Participation	$0	$138,157	$138,157
WERT and ESO Risk Management Plan	$156,543	$669,134	$825,677
Medical and Physical Requirements	$13,270,499	$5,800,599	$19,071,098
Training	$11,167	$24,049,853	$24,061,020
ESO Facility Preparedness	$0	$2,120,425	$2,120,425
Equipment and PPE	$87,393	$4,719,475	$4,806,867
Vehicle Preparedness and Operation	$32,829	$1,593,169	$1,625,998
ESO Pre-Incident Planning	$317,623	$654,500	$972,122
Incident Management System Development	$46,830	$0	$46,830
Emergency Incident Operations	$0	$117,810	$117,810
Standard Operating Procedures	$317,623	$0	$317,623
Post Incident Analysis	$0	$835,516	$835,516
Program Evaluation	$0	$3,391,214	$3,391,214
Total	**$15,234,043**	**$44,638,604**	**$59,872,647**
Fire Departments Total			
Rule Familiarization	$150,941	$0	$150,941
ESO Establishment of ERP and Emergency Service(s) Capability	$5,380,001	$3,033,688	$8,413,690

	One-Time Annualized, 0%	Annual	Total Annualized, 0%
Team Member and Responder Participation	$0	$764,816	$764,816
WERT and ESO Risk Management Plan	$873,680	$3,712,836	$4,586,516
Medical and Physical Requirements	$63,789,977	$36,845,121	$100,635,098
Training	$61,101	$128,686,331	$128,747,433
ESO Facility Preparedness	$0	$11,785,432	$11,785,432
Equipment and PPE	$483,023	$26,231,085	$26,714,108
Vehicle Preparedness and Operation	$181,553	$8,860,495	$9,042,048
ESO Pre-Incident Planning	$1,715,825	$3,517,815	$5,233,641
Incident Management System Development	$261,471	$0	$261,471
Emergency Incident Operations	$0	$650,975	$650,975
Standard Operating Procedures	$1,715,825	$0	$1,715,825
Post Incident Analysis	$0	$4,542,029	$4,542,029
Program Evaluation	$0	$18,213,977	$18,213,977
Total	**$74,613,399**	**$246,844,602**	**$321,458,001**
Wildland Firefighting Services			
Career Wildland Firefighting ESOs			
Rule Familiarization	$6,496	$0	$6,496
ESO Establishment of ERP and Emergency Service(s) Capability	$222,183	$122,122	$344,305
Team Member and Responder Participation	$0	$30,889	$30,889
WERT and ESO Risk Management Plan	$36,482	$152,349	$188,831
Medical and Physical Requirements	$3,530,266	$6,393,251	$9,923,517
Training	$2,378	$14,122,292	$14,124,670
ESO Facility Preparedness	$0	$484,607	$484,607
Equipment and PPE	$19,434	$1,078,600	$1,098,034
Vehicle Preparedness and Operation	$7,345	$366,331	$373,676
ESO Pre-Incident Planning	$66,500	$133,370	$199,871
Incident Management System Development	$10,971	$0	$10,971
Emergency Incident Operations	$0	$7,261	$7,261
Standard Operating Procedures	$66,500	$0	$66,500
Post Incident Analysis	$0	$73,800	$73,800
Program Evaluation	$0	$706,928	$706,928
Total	**$3,968,554**	**$23,671,803**	**$27,640,357**
Volunteer Wildland Firefighting ESOs			
Rule Familiarization	$100	$0	$100
ESO Establishment of ERP and Emergency Service(s) Capability	$4,135	$2,276	$6,411
Team Member and Responder Participation	$0	$589	$589
WERT and ESO Risk Management Plan	$683	$2,845	$3,528

	One-Time Annualized, 0%	Annual	Total Annualized, 0%
Medical and Physical Requirements	$4,352,656	$525,146	$4,877,802
Training	$48	$12,165,646	$12,165,694
ESO Facility Preparedness	$0	$8,985	$8,985
Equipment and PPE	$359	$19,997	$20,357
Vehicle Preparedness and Operation	$132	$6,589	$6,720
ESO Pre-Incident Planning	$1,587	$3,175	$4,762
Incident Management System Development	$198	$0	$198
Emergency Incident Operations	$0	$1,025	$1,025
Standard Operating Procedures	$1,587	$0	$1,587
Post Incident Analysis	$0	$8,289	$8,289
Program Evaluation	$0	$21,112	$21,112
Total	**$4,361,485**	**$12,765,674**	**$17,127,159**
Wildland Firefighting Total			
Rule Familiarization	$6,596	$0	$6,596
ESO Establishment of ERP and Emergency Service(s) Capability	$226,317	$124,398	$350,716
Team Member and Responder Participation	$0	$31,479	$31,479
WERT and ESO Risk Management Plan	$37,165	$155,195	$192,359
Medical and Physical Requirements	$7,882,922	$6,918,397	$14,801,319
Training	$2,426	$26,287,939	$26,290,364
ESO Facility Preparedness	$0	$493,592	$493,592
Equipment and PPE	$19,793	$1,098,597	$1,118,390
Vehicle Preparedness and Operation	$7,477	$372,920	$380,397
ESO Pre-Incident Planning	$68,088	$136,545	$204,633
Incident Management System Development	$11,169	$0	$11,169
Emergency Incident Operations	$0	$8,287	$8,287
Standard Operating Procedures	$68,088	$0	$68,088
Post Incident Analysis	$0	$82,090	$82,090
Program Evaluation	$0	$728,040	$728,040
Total	**$8,330,040**	**$36,437,477**	**$44,767,517**
Emergency Medical Services			
Career Emergency Medical Services ESOs			
Rule Familiarization	$31,811	$0	$31,811
ESO Establishment of ERP and Emergency Service(s) Capability	$1,111,450	$618,063	$1,729,513
Team Member and Responder Participation	$0	$130,680	$130,680
WERT and ESO Risk Management Plan	$181,679	$765,870	$947,548
Medical and Physical Requirements	$16,623,534	$147,807	$16,771,341
Training	$12,252	$41,880,573	$41,892,825

	One-Time Annualized, 0%	Annual	Total Annualized, 0%
ESO Facility Preparedness	$0	$491,854	$491,854
Equipment and PPE	$17,123	$3,799,716	$3,816,839
Vehicle Preparedness and Operation	$37,079	$1,831,591	$1,868,670
ESO Pre-Incident Planning	$349,724	$708,379	$1,058,103
Incident Management System Development	$54,501	$0	$54,501
Emergency Incident Operations	$0	$5,769,083	$5,769,083
Standard Operating Procedures	$349,724	$0	$349,724
Post Incident Analysis	$0	$8,002,159	$8,002,159
Program Evaluation	$0	$3,774,436	$3,774,436
Total	**$18,768,878**	**$67,920,210**	**$86,689,088**
Volunteer Emergency Medical Services ESOs			
Rule Familiarization	$17,222	$0	$17,222
ESO Establishment of ERP and Emergency Service(s) Capability	$601,819	$334,679	$936,498
Team Member and Responder Participation	$0	$70,761	$70,761
WERT and ESO Risk Management Plan	$98,376	$414,764	$513,140
Medical and Physical Requirements	$9,277,290	$80,085	$9,357,375
Training	$6,637	$23,516,412	$23,523,049
ESO Facility Preparedness	$0	$266,336	$266,336
Equipment and PPE	$9,266	$2,057,491	$2,066,757
Vehicle Preparedness and Operation	$20,078	$991,776	$1,011,854
ESO Pre-Incident Planning	$189,748	$384,345	$574,092
Incident Management System Development	$29,511	$0	$29,511
Emergency Incident Operations	$0	$3,210,860	$3,210,860
Standard Operating Procedures	$189,748	$0	$189,748
Post Incident Analysis	$0	$4,468,519	$4,468,519
Program Evaluation	$0	$2,050,495	$2,050,495
Total	**$10,439,692**	**$37,846,526**	**$48,286,218**
Mixed Emergency Medical Services ESOs			
Rule Familiarization	$33,485	$0	$33,485
ESO Establishment of ERP and Emergency Service(s) Capability	$1,169,948	$650,592	$1,820,540
Team Member and Responder Participation	$0	$137,558	$137,558
WERT and ESO Risk Management Plan	$191,241	$806,179	$997,419
Medical and Physical Requirements	$16,382,449	$155,586	$16,538,035
Training	$12,897	$41,113,375	$41,126,272
ESO Facility Preparedness	$0	$517,741	$517,741
Equipment and PPE	$18,024	$3,999,701	$4,017,726
Vehicle Preparedness and Operation	$39,030	$1,927,991	$1,967,021

	One-Time Annualized, 0%	Annual	Total Annualized, 0%
ESO Pre-Incident Planning	$368,131	$745,662	$1,113,793
Incident Management System Development	$57,369	$0	$57,369
Emergency Incident Operations	$0	$6,072,719	$6,072,719
Standard Operating Procedures	$368,131	$0	$368,131
Post Incident Analysis	$0	$8,423,326	$8,423,326
Program Evaluation	$0	$3,973,090	$3,973,090
Total	**$18,640,705**	**$68,523,520**	**$87,164,225**
Emergency Medical Services Total			
Rule Familiarization	$82,518	$0	$82,518
ESO Establishment of ERP and Emergency Service(s) Capability	$2,883,217	$1,603,334	$4,486,551
Team Member and Responder Participation	$0	$338,999	$338,999
WERT and ESO Risk Management Plan	$471,295	$1,986,813	$2,458,108
Medical and Physical Requirements	$42,283,272	$383,479	$42,666,751
Training	$31,786	$106,510,361	$106,542,147
ESO Facility Preparedness	$0	$1,275,931	$1,275,931
Equipment and PPE	$44,413	$9,856,909	$9,901,322
Vehicle Preparedness and Operation	$96,187	$4,751,358	$4,847,545
ESO Pre-Incident Planning	$907,603	$1,838,386	$2,745,989
Incident Management System Development	$141,381	$0	$141,381
Emergency Incident Operations	$0	$15,052,662	$15,052,662
Standard Operating Procedures	$907,603	$0	$907,603
Post Incident Analysis	$0	$20,894,004	$20,894,004
Program Evaluation	$0	$9,798,021	$9,798,021
Total	**$47,849,276**	**$174,290,256**	**$222,139,532**
Technical Search and Rescue Groups			
Career Technical Search and Rescue ESOs			
Rule Familiarization	$1,708	$0	$1,708
ESO Establishment of ERP and Emergency Service(s) Capability	$61,836	$34,529	$96,365
Team Member and Responder Participation	$0	$6,426	$6,426
WERT and ESO Risk Management Plan	$10,117	$43,019	$53,136
Medical and Physical Requirements	$1,213,988	$8,489	$1,222,478
Training	$700	$2,453,601	$2,454,301
ESO Facility Preparedness	$0	$27,453	$27,453
Equipment and PPE	$907	$202,383	$203,290
Vehicle Preparedness and Operation	$2,061	$101,571	$103,631
ESO Pre-Incident Planning	$21,856	$44,308	$66,164
Incident Management System Development	$3,018	$0	$3,018

	One-Time Annualized, 0%	Annual	Total Annualized, 0%
Emergency Incident Operations	$0	$2,551	$2,551
Standard Operating Procedures	$21,856	$0	$21,856
Post Incident Analysis	$0	$25,023	$25,023
Program Evaluation	$0	$255,544	$255,544
Total	**$1,338,047**	**$3,204,897**	**$4,542,944**
Volunteer Technical Search and Rescue ESOs			
Rule Familiarization	$23,562	$0	$23,562
ESO Establishment of ERP and Emergency Service(s) Capability	$866,404	$483,501	$1,349,906
Team Member and Responder Participation	$0	$91,873	$91,873
WERT and ESO Risk Management Plan	$141,929	$603,946	$745,876
Medical and Physical Requirements	$5,358,052	$120,445	$5,478,497
Training	$9,852	$13,069,649	$13,079,501
ESO Facility Preparedness	$0	$384,229	$384,229
Equipment and PPE	$12,586	$2,854,651	$2,867,238
Vehicle Preparedness and Operation	$28,771	$1,419,793	$1,448,564
ESO Pre-Incident Planning	$315,599	$638,882	$954,481
Incident Management System Development	$42,218	$0	$42,218
Emergency Incident Operations	$0	$31,342	$31,342
Standard Operating Procedures	$315,599	$0	$315,599
Post Incident Analysis	$0	$334,470	$334,470
Program Evaluation	$0	$3,789,179	$3,789,179
Total	**$7,114,572**	**$23,821,962**	**$30,936,534**
Technical Search and Rescue Total			
Rule Familiarization	$25,270	$0	$25,270
ESO Establishment of ERP and Emergency Service(s) Capability	$928,240	$518,031	$1,446,271
Team Member and Responder Participation	$0	$98,299	$98,299
WERT and ESO Risk Management Plan	$152,046	$646,965	$799,011
Medical and Physical Requirements	$6,572,040	$128,935	$6,700,975
Training	$10,552	$15,523,250	$15,533,802
ESO Facility Preparedness	$0	$411,682	$411,682
Equipment and PPE	$13,493	$3,057,035	$3,070,528
Vehicle Preparedness and Operation	$30,832	$1,521,364	$1,552,196
ESO Pre-Incident Planning	$337,455	$683,190	$1,020,645
Incident Management System Development	$45,236	$0	$45,236
Emergency Incident Operations	$0	$33,893	$33,893
Standard Operating Procedures	$337,455	$0	$337,455
Post Incident Analysis	$0	$359,493	$359,493

	One-Time Annualized, 0%	Annual	Total Annualized, 0%
Program Evaluation	$0	$4,044,723	$4,044,723
Total	**$8,452,619**	**$27,026,859**	**$35,479,478**
Total for All Responder Groups			
Rule Familiarization	$287,988	$0	$287,988
Organization of the WERT and Establishment of the ERP and Emergency Service(s) Capability	$811,434	$456,809	$1,268,243
ESO Establishment of ERP and Emergency Service(s) Capability	$9,417,776	$5,279,451	$14,697,227
Team Member and Responder Participation	$0	$1,320,291	$1,320,291
WERT and ESO Risk Management Plan	$1,666,088	$7,063,936	$8,730,024
Medical and Physical Requirements	$129,015,527	$44,416,347	$173,431,875
Training	$115,005	$289,146,883	$289,261,889
WERE Facility Preparedness	$0	$888,248	$888,248
ESO Facility Preparedness	$0	$13,966,637	$13,966,637
Equipment and PPE	$633,419	$43,651,527	$44,284,946
Vehicle Preparedness and Operation	$343,351	$16,840,711	$17,184,062
WERE Pre-Incident Planning	$129,303	$234,684	$363,986
ESO Pre-Incident Planning	$3,028,971	$6,175,936	$9,204,907
Incident Management System Development	$498,684	$0	$498,684
Emergency Incident Operations	$0	$15,763,744	$15,763,744
Standard Operating Procedures	$3,287,576	$0	$3,287,576
Post Incident Analysis	$0	$26,094,344	$26,094,344
Program Evaluation	$0	$35,540,783	$35,540,783
Total	**$149,235,122**	**$506,840,331**	**$656,075,453**

Source: OSHA.
Note: Figures in rows may not add to totals due to rounding.

Table VII-C-18. Total Cost Summary by Provision - Organizations Considered Small by SBA/RFA Definitions, 3 Percent Discount Rate

	One-Time Annualized, 3%	Annual	Total Annualized, 3%
WEREs			
Rule Familiarization	$26,567	$0	$26,567
Organization of the WERT and Establishment of the ERP and Emergency Service(s) Capability	$951,248	$456,809	$1,408,057
Team Member and Responder Participation	$0	$86,698	$86,698
WERT and ESO Risk Management Plan	$154,630	$562,127	$716,757
Medical and Physical Requirements	$142,874	$8,689,778	$8,832,652
Training	$10,716	$12,139,003	$12,149,718
WERE Facility Preparedness	$0	$888,248	$888,248
Equipment and PPE	$85,223	$3,407,900	$3,493,123
Vehicle Preparedness and Operation	$32,006	$1,334,575	$1,366,581
WERE Pre-Incident Planning	$151,582	$234,684	$386,266
Incident Management System Development	$46,220	$0	$46,220
Emergency Incident Operations	$0	$17,927	$17,927
Standard Operating Procedures	$303,164	$0	$303,164
Post Incident Analysis	$0	$216,729	$216,729
Program Evaluation	$0	$2,756,023	$2,756,023
Total	**$1,904,231**	**$30,790,499**	**$32,694,730**
Fire Departments			
Career Fire Departments			
Rule Familiarization	$51,420	$0	$51,420
ESO Establishment of ERP and Emergency Service(s) Capability	$1,842,835	$887,593	$2,730,428
Team Member and Responder Participation	$0	$223,829	$223,829
WERT and ESO Risk Management Plan	$298,958	$1,081,496	$1,380,454
Medical and Physical Requirements	$470,617	$21,865,052	$22,335,669
Training	$20,973	$30,810,465	$30,831,438
ESO Facility Preparedness	$0	$3,443,293	$3,443,293
Equipment and PPE	$165,668	$7,663,810	$7,829,479
Vehicle Preparedness and Operation	$62,189	$2,585,395	$2,647,583
ESO Pre-Incident Planning	$576,629	$1,010,170	$1,586,799
Incident Management System Development	$89,355	$0	$89,355
Emergency Incident Operations	$0	$395,891	$395,891
Standard Operating Procedures	$576,629	$0	$576,629
Post Incident Analysis	$0	$2,427,977	$2,427,977
Program Evaluation	$0	$5,162,786	$5,162,786

	One-Time Annualized, 3%	Annual	Total Annualized, 3%
Total	**$4,155,273**	**$77,557,756**	**$81,713,029**
Volunteer Fire Departments			
Rule Familiarization	$82,638	$0	$82,638
ESO Establishment of ERP and Emergency Service(s) Capability	$2,936,930	$1,408,788	$4,345,718
Team Member and Responder Participation	$0	$355,446	$355,446
WERT and ESO Risk Management Plan	$477,408	$1,725,872	$2,203,280
Medical and Physical Requirements	$748,927	$34,900,661	$35,649,588
Training	$33,097	$38,490,404	$38,523,501
ESO Facility Preparedness	$0	$5,484,292	$5,484,292
Equipment and PPE	$262,920	$12,206,504	$12,469,424
Vehicle Preparedness and Operation	$98,831	$4,123,606	$4,222,437
ESO Pre-Incident Planning	$919,245	$1,604,445	$2,523,690
Incident Management System Development	$142,875	$0	$142,875
Emergency Incident Operations	$0	$55,242	$55,242
Standard Operating Procedures	$919,245	$0	$919,245
Post Incident Analysis	$0	$662,140	$662,140
Program Evaluation	$0	$8,267,686	$8,267,686
Total	**$6,622,117**	**$109,285,085**	**$115,907,202**
Mixed Fire Departments			
Rule Familiarization	$28,628	$0	$28,628
ESO Establishment of ERP and Emergency Service(s) Capability	$1,030,014	$500,259	$1,530,272
Team Member and Responder Participation	$0	$125,850	$125,850
WERT and ESO Risk Management Plan	$166,480	$605,805	$772,284
Medical and Physical Requirements	$264,085	$12,727,473	$12,991,558
Training	$11,983	$15,127,510	$15,139,494
ESO Facility Preparedness	$0	$1,927,980	$1,927,980
Equipment and PPE	$93,421	$4,291,146	$4,384,567
Vehicle Preparedness and Operation	$35,077	$1,447,919	$1,482,996
ESO Pre-Incident Planning	$332,885	$587,133	$920,018
Incident Management System Development	$49,793	$0	$49,793
Emergency Incident Operations	$0	$106,980	$106,980
Standard Operating Procedures	$332,885	$0	$332,885
Post Incident Analysis	$0	$740,343	$740,343
Program Evaluation	$0	$2,981,304	$2,981,304
Total	**$2,345,252**	**$41,169,701**	**$43,514,953**
Fire Departments Total			
Rule Familiarization	$162,686	$0	$162,686

	One-Time Annualized, 3%	Annual	Total Annualized, 3%
ESO Establishment of ERP and Emergency Service(s) Capability	$5,809,779	$2,796,639	$8,606,419
Team Member and Responder Participation	$0	$705,125	$705,125
WERT and ESO Risk Management Plan	$942,846	$3,413,172	$4,356,018
Medical and Physical Requirements	$1,483,629	$69,493,186	$70,976,815
Training	$66,053	$84,428,379	$84,494,433
ESO Facility Preparedness	$0	$10,855,565	$10,855,565
Equipment and PPE	$522,010	$24,161,460	$24,683,470
Vehicle Preparedness and Operation	$196,098	$8,156,919	$8,353,017
ESO Pre-Incident Planning	$1,828,759	$3,201,747	$5,030,507
Incident Management System Development	$282,022	$0	$282,022
Emergency Incident Operations	$0	$558,114	$558,114
Standard Operating Procedures	$1,828,759	$0	$1,828,759
Post Incident Analysis	$0	$3,830,459	$3,830,459
Program Evaluation	$0	$16,411,776	$16,411,776
Total	**$13,122,642**	**$228,012,542**	**$241,135,184**
Wildland Firefighting Services			
Career Wildland Firefighting ESOs			
Rule Familiarization	$7,417	$0	$7,417
ESO Establishment of ERP and Emergency Service(s) Capability	$252,859	$118,549	$371,409
Team Member and Responder Participation	$0	$29,975	$29,975
WERT and ESO Risk Management Plan	$41,511	$147,799	$189,311
Medical and Physical Requirements	$68,854	$5,069,710	$5,138,564
Training	$2,702	$7,058,410	$7,061,113
ESO Facility Preparedness	$0	$470,454	$470,454
Equipment and PPE	$22,119	$1,047,100	$1,069,219
Vehicle Preparedness and Operation	$8,364	$355,810	$364,174
ESO Pre-Incident Planning	$75,035	$128,382	$203,417
Incident Management System Development	$12,492	$0	$12,492
Emergency Incident Operations	$0	$6,009	$6,009
Standard Operating Procedures	$75,035	$0	$75,035
Post Incident Analysis	$0	$63,361	$63,361
Program Evaluation	$0	$674,860	$674,860
Total	**$566,387**	**$15,170,422**	**$15,736,809**
Wildland Firefighting Total			
Rule Familiarization	$7,417	$0	$7,417
ESO Establishment of ERP and Emergency Service(s) Capability	$252,859	$118,549	$371,409
Team Member and Responder Participation	$0	$29,975	$29,975

	One-Time Annualized, 3%	Annual	Total Annualized, 3%
WERT and ESO Risk Management Plan	$41,511	$147,799	$189,311
Medical and Physical Requirements	$68,854	$5,069,710	$5,138,564
Training	$2,702	$7,058,410	$7,061,113
ESO Facility Preparedness	$0	$470,454	$470,454
Equipment and PPE	$22,119	$1,047,100	$1,069,219
Vehicle Preparedness and Operation	$8,364	$355,810	$364,174
ESO Pre-Incident Planning	$75,035	$128,382	$203,417
Incident Management System Development	$12,492	$0	$12,492
Emergency Incident Operations	$0	$6,009	$6,009
Standard Operating Procedures	$75,035	$0	$75,035
Post Incident Analysis	$0	$63,361	$63,361
Program Evaluation	$0	$674,860	$674,860
Total	**$566,387**	**$15,170,422**	**$15,736,809**
Emergency Medical Services			
Career Emergency Medical Services ESOs			
Rule Familiarization	$36,062	$0	$36,062
ESO Establishment of ERP and Emergency Service(s) Capability	$1,254,284	$595,148	$1,849,433
Team Member and Responder Participation	$0	$125,748	$125,748
WERT and ESO Risk Management Plan	$204,965	$737,290	$942,256
Medical and Physical Requirements	$330,454	$18,428,377	$18,758,831
Training	$13,806	$41,735,056	$41,748,862
ESO Facility Preparedness	$0	$473,727	$473,727
Equipment and PPE	$19,357	$3,658,444	$3,677,801
Vehicle Preparedness and Operation	$41,898	$1,764,860	$1,806,758
ESO Pre-Incident Planning	$392,149	$677,868	$1,070,017
Incident Management System Development	$61,550	$0	$61,550
Emergency Incident Operations	$0	$4,821,121	$4,821,121
Standard Operating Procedures	$392,149	$0	$392,149
Post Incident Analysis	$0	$6,581,871	$6,581,871
Program Evaluation	$0	$3,580,357	$3,580,357
Total	**$2,746,675**	**$83,179,868**	**$85,926,543**
Volunteer Emergency Medical Services ESOs			
Rule Familiarization	$19,539	$0	$19,539
ESO Establishment of ERP and Emergency Service(s) Capability	$679,494	$322,436	$1,001,930
Team Member and Responder Participation	$0	$68,123	$68,123
WERT and ESO Risk Management Plan	$111,037	$399,484	$510,522
Medical and Physical Requirements	$180,017	$10,334,860	$10,514,877

	One-Time Annualized, 3%	Annual	Total Annualized, 3%
Training	$7,481	$23,464,448	$23,471,929
ESO Facility Preparedness	$0	$256,656	$256,656
Equipment and PPE	$10,481	$1,981,995	$1,992,476
Vehicle Preparedness and Operation	$22,701	$956,176	$978,877
ESO Pre-Incident Planning	$212,776	$367,820	$580,596
Incident Management System Development	$33,346	$0	$33,346
Emergency Incident Operations	$0	$2,667,749	$2,667,749
Standard Operating Procedures	$212,776	$0	$212,776
Post Incident Analysis	$0	$3,653,511	$3,653,511
Program Evaluation	$0	$1,944,088	$1,944,088
Total	**$1,489,648**	**$46,417,347**	**$47,906,995**
Mixed Emergency Medical Services ESOs			
Rule Familiarization	$37,960	$0	$37,960
ESO Establishment of ERP and Emergency Service(s) Capability	$1,320,299	$626,472	$1,946,771
Team Member and Responder Participation	$0	$132,366	$132,366
WERT and ESO Risk Management Plan	$215,753	$776,095	$991,848
Medical and Physical Requirements	$344,791	$18,310,870	$18,655,661
Training	$14,533	$41,091,560	$41,106,093
ESO Facility Preparedness	$0	$498,660	$498,660
Equipment and PPE	$20,376	$3,850,994	$3,871,370
Vehicle Preparedness and Operation	$44,103	$1,857,748	$1,901,851
ESO Pre-Incident Planning	$412,789	$713,546	$1,126,334
Incident Management System Development	$64,789	$0	$64,789
Emergency Incident Operations	$0	$5,074,864	$5,074,864
Standard Operating Procedures	$412,789	$0	$412,789
Post Incident Analysis	$0	$6,928,285	$6,928,285
Program Evaluation	$0	$3,768,797	$3,768,797
Total	**$2,888,181**	**$83,630,257**	**$86,518,438**
Emergency Medical Services Total			
Rule Familiarization	$93,561	$0	$93,561
ESO Establishment of ERP and Emergency Service(s) Capability	$3,254,077	$1,544,057	$4,798,134
Team Member and Responder Participation	$0	$326,237	$326,237
WERT and ESO Risk Management Plan	$531,756	$1,912,869	$2,444,625
Medical and Physical Requirements	$855,261	$47,074,108	$47,929,369
Training	$35,820	$106,291,065	$106,326,885
ESO Facility Preparedness	$0	$1,229,043	$1,229,043
Equipment and PPE	$50,214	$9,491,433	$9,541,647

	One-Time Annualized, 3%	Annual	Total Annualized, 3%
Vehicle Preparedness and Operation	$108,702	$4,578,784	$4,687,487
ESO Pre-Incident Planning	$1,017,714	$1,759,234	$2,776,948
Incident Management System Development	$159,685	$0	$159,685
Emergency Incident Operations	$0	$12,563,733	$12,563,733
Standard Operating Procedures	$1,017,714	$0	$1,017,714
Post Incident Analysis	$0	$17,163,667	$17,163,667
Program Evaluation	$0	$9,293,242	$9,293,242
Total	**$7,124,505**	**$213,227,471**	**$220,351,976**
Technical Search and Rescue Groups			
Career Technical Search and Rescue ESOs			
Rule Familiarization	$1,855	$0	$1,855
ESO Establishment of ERP and Emergency Service(s) Capability	$67,132	$32,000	$99,131
Team Member and Responder Participation	$0	$5,948	$5,948
WERT and ESO Risk Management Plan	$10,978	$39,775	$50,753
Medical and Physical Requirements	$16,908	$721,621	$738,528
Training	$762	$1,210,381	$1,211,143
ESO Facility Preparedness	$0	$25,446	$25,446
Equipment and PPE	$985	$187,422	$188,407
Vehicle Preparedness and Operation	$2,239	$94,080	$96,319
ESO Pre-Incident Planning	$23,615	$40,868	$64,483
Incident Management System Development	$3,275	$0	$3,275
Emergency Incident Operations	$0	$2,400	$2,400
Standard Operating Procedures	$23,615	$0	$23,615
Post Incident Analysis	$0	$23,291	$23,291
Program Evaluation	$0	$234,741	$234,741
Total	**$151,364**	**$2,617,974**	**$2,769,337**
Volunteer Technical Search and Rescue ESOs			
Rule Familiarization	$26,401	$0	$26,401
ESO Establishment of ERP and Emergency Service(s) Capability	$970,789	$462,127	$1,432,916
Team Member and Responder Participation	$0	$87,811	$87,811
WERT and ESO Risk Management Plan	$159,029	$577,247	$736,276
Medical and Physical Requirements	$233,081	$5,146,998	$5,380,079
Training	$11,039	$12,491,867	$12,502,906
ESO Facility Preparedness	$0	$367,243	$367,243
Equipment and PPE	$14,102	$2,728,453	$2,742,556
Vehicle Preparedness and Operation	$32,238	$1,357,027	$1,389,265
ESO Pre-Incident Planning	$353,622	$610,638	$964,260

	One-Time Annualized, 3%	Annual	Total Annualized, 3%
Incident Management System Development	$47,305	$0	$47,305
Emergency Incident Operations	$0	$29,957	$29,957
Standard Operating Procedures	$353,622	$0	$353,622
Post Incident Analysis	$0	$319,684	$319,684
Program Evaluation	$0	$3,621,667	$3,621,667
Total	**$2,201,227**	**$27,800,721**	**$30,001,947**
Technical Search and Rescue Total			
Rule Familiarization	$28,256	$0	$28,256
ESO Establishment of ERP and Emergency Service(s) Capability	$1,037,920	$494,127	$1,532,047
Team Member and Responder Participation	$0	$93,759	$93,759
WERT and ESO Risk Management Plan	$170,007	$617,022	$787,029
Medical and Physical Requirements	$249,989	$5,868,619	$6,118,607
Training	$11,800	$13,702,249	$13,714,049
ESO Facility Preparedness	$0	$392,690	$392,690
Equipment and PPE	$15,088	$2,915,875	$2,930,963
Vehicle Preparedness and Operation	$34,477	$1,451,107	$1,485,584
ESO Pre-Incident Planning	$377,237	$651,506	$1,028,743
Incident Management System Development	$50,580	$0	$50,580
Emergency Incident Operations	$0	$32,357	$32,357
Standard Operating Procedures	$377,237	$0	$377,237
Post Incident Analysis	$0	$342,975	$342,975
Program Evaluation	$0	$3,856,409	$3,856,409
Total	**$2,352,590**	**$30,418,694**	**$32,771,285**
Total for All Responder Groups			
Rule Familiarization	$318,488	$0	$318,488
Organization of the WERT and Establishment of the ERP and Emergency Service(s) Capability	$951,248	$456,809	$1,408,057
ESO Establishment of ERP and Emergency Service(s) Capability	$10,354,636	$4,953,372	$15,308,008
Team Member and Responder Participation	$0	$1,241,795	$1,241,795
WERT and ESO Risk Management Plan	$1,840,749	$6,652,990	$8,493,739
Medical and Physical Requirements	$2,800,607	$136,195,401	$138,996,007
Training	$127,092	$223,619,106	$223,746,197
WERE Facility Preparedness	$0	$888,248	$888,248
ESO Facility Preparedness	$0	$12,947,752	$12,947,752
Equipment and PPE	$694,652	$41,023,768	$41,718,421
Vehicle Preparedness and Operation	$379,647	$15,877,195	$16,256,842
WERE Pre-Incident Planning	$151,582	$234,684	$386,266

	One-Time Annualized, 3%	Annual	Total Annualized, 3%
ESO Pre-Incident Planning	$3,298,745	$5,740,870	$9,039,615
Incident Management System Development	$550,999	$0	$550,999
Emergency Incident Operations	$0	$13,178,140	$13,178,140
Standard Operating Procedures	$3,601,910	$0	$3,601,910
Post Incident Analysis	$0	$21,617,192	$21,617,192
Program Evaluation	$0	$32,992,309	$32,992,309
Total	**$25,070,355**	**$517,619,629**	**$542,689,984**

Source: OSHA.

Note: Figures in rows may not add to totals due to rounding.

(ii) Insurance Adjustments for Medical Exam Costs

OSHA acknowledges that insurance companies likely cover a portion of the medical costs required by the proposed rule. For this analysis, OSHA assumed that all career responders would be covered under an employer-sponsored medical insurance plan. To determine the percentage of responders at volunteer and mixed departments with medical insurance coverage, OSHA used data from BLS's (2023) National Compensation Survey—Benefits program, which suggests that 66 percent of private industry workers with access to employer-sponsored medical insurance plans choose to participate. Costs were adjusted for minimum medical exams (for both WERT members and ESO responders), additional heart screenings (for both WERT members and ESO responders) and expanded medical exams (only required for ESO responders). These costs are used in Chapter VI: Economic Feasibility Analysis to better reflect the costs that will actually be borne directly by affected entities. Insurance-adjusted costs for the medical and physical requirements provision are presented in Table VII–C–19. Total costs with the insurance-adjusted medical and physical requirements costs are shown in Table VII–C–20.

Table VII-C-19. Insurance-Adjusted Medical and Physical Requirements Costs - All Organizations, 3 Percent Discount Rate

Emergency Response Service Sector	One-Time Annualized, 3%	Annual	Total Annualized, 3%
WEREs	**$142,874**	**$140,416**	**$283,290**
Career Fire Departments	$7,707,602	$1,177,334	$8,884,936
Volunteer Fire Departments	$16,327,508	$998,272	$17,325,780
Mixed Fire Departments	$6,734,327	$2,204,320	$8,938,647
Total Fire Departments	**$30,769,437**	**$4,379,926**	**$35,149,363**
Career Wildland Fire Services	$1,575,064	$44,402	$1,619,466
Volunteer Wildland Fire Services	$2,078,413	$180,211	$2,258,624
Total Wildland Fire Services	**$3,653,477**	**$224,613**	**$3,878,090**
Career Emergency Medical Services	$3,562,892	$147,807	$3,710,699
Volunteer Emergency Medical Services	$4,501,581	$80,085	$4,581,667
Mixed Emergency Medical Services	$7,965,807	$155,586	$8,121,393
Total Emergency Medical Services	**$16,030,280**	**$383,479**	**$16,413,759**
Career Technical Search and Rescue Groups	$251,438	$8,489	$259,928
Volunteer Technical Search and Rescue Groups	$2,757,816	$120,445	$2,878,261
Total Technical Search and Rescue Groups	**$3,009,254**	**$128,935**	**$3,138,189**
All Responder Groups	**$53,605,322**	**$5,257,368**	**$58,862,690**

Sources: OSHA based on BLS, 2023.
Note: Figures in rows may not add to totals due to rounding.

Table VII-C-20. Total Costs with Insurance-Adjusted Medical and Physical Requirements Costs - All Organizations, 3 Percent Discount Rate

Emergency Response Service Sector	One-Time Annualized, 3%	Annual	Total Annualized, 3%
WEREs	**$1,904,231**	**$22,241,138**	**$24,145,368**
Career Fire Departments	$12,193,278	$96,569,115	$108,762,393
Volunteer Fire Departments	$22,228,312	$76,767,966	$98,996,278
Mixed Fire Departments	$9,036,199	$41,042,325	$50,078,524
Total Fire Departments	**$43,457,789**	**$214,379,407**	**$257,837,196**
Career Wildland Fire Services	$2,088,872	$17,322,954	$19,411,826
Volunteer Wildland Fire Services	$2,088,763	$12,420,739	$14,509,502
Total Wildland Fire Services	**$4,177,635**	**$29,743,693**	**$33,921,328**
Career Emergency Medical Services	$6,077,889	$67,920,210	$73,998,100
Volunteer Emergency Medical Services	$5,864,272	$37,846,526	$43,710,798
Mixed Emergency Medical Services	$10,613,173	$68,523,520	$79,136,692
Total Emergency Medical Services	**$22,555,334**	**$174,290,256**	**$196,845,590**
Career Technical Search and Rescue Groups	$396,873	$3,204,897	$3,601,770
Volunteer Technical Search and Rescue Groups	$4,816,994	$23,821,962	$28,638,955
Total Technical Search and Rescue Groups	**$5,213,867**	**$27,026,859**	**$32,240,725**
All Responder Groups	**$77,308,855**	**$467,681,352**	**$544,990,208**

Sources: OSHA based on BLS, 2023.
Note: Figures in rows may not add to totals due to rounding.

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Washington State Patrol. (2023). 2023 Weekday Recruit Academy. Available at *https://www.wsp.wa.gov/wp-content/uploads/2022/10/2023-Weekday-RA-Announcement.pdf.* (Accessed September 6, 2023)

D. Benefits

I. Introduction

Benefits from OSHA's proposed Emergency Response standard would

stem from reductions in the number of fatal and nonfatal injuries and incidents that occur on duty, work-related suicides that would be prevented by the standard, and reductions in the incidence of illnesses and subsequent mortality among affected employees. In this benefits analysis, OSHA estimated and quantified the benefits associated with the avoidance of certain fatal and nonfatal incidents involving emergency responders if the safety requirements of this standard were to be implemented. OSHA also estimated and quantified the benefits of reducing the number of deaths by suicide among responders when the behavioral health and wellness components of the proposed standard are applied. In addition, OSHA estimated and quantified the benefits from the reduction in deaths from certain cancers due to increased screening for lung, colorectal, and breast cancers. Although incidence and death for other types of cancer may be reduced due to the more general medical evaluation and surveillance provisions of this standard, OSHA was unable find data to support a specific quantitative impact on the incidence or mortality of these other types of cancer for responders.

As discussed below, OSHA estimates that the proposed Emergency Response standard would reduce fatal and non-fatal work-related injuries to emergency responders, (*e.g.,* burns, struck by objects and equipment, vehicle collisions) by 50 percent. OSHA also estimates that the proposed Emergency Response standard would reduce firefighter deaths due to prostate, testicular, buccal cavity/pharynx, thyroid, and melanoma cancers by at least 20 percent. As explained in further detail below, OSHA estimates that this proposed rule would prevent an average of approximately 54 fatalities and 11,015 nonfatal injuries per year, with an associated value of $1,864.9 million in Year 1 (using 2022 dollars, the most recent year of data available). Assuming these annual benefits would continue for 50 years, the average annualized value of the benefits would be $2,628.5 million using a 3 percent discount rate and $2,262.3 million using a 7 percent discount rate in 2022 dollars. A discussion of expected benefits that could not be quantified is presented in the final section of the chapter.

II. Benefits From Reducing Responder Fatalities

OSHA gathered data from its OIS to characterize fatal incidents among emergency responders.[52] OIS is the primary repository of OSHA's data. This database contains information about work-related incidents collected through OSHA's Fatality and Investigation Summaries (OSHA Form 170), which OSHA prepares after conducting an inspection in response to a fatality or catastrophe. As explained further below, the OIS database does not capture the full number of emergency responder fatalities that occur, but the details contained within the summary descriptions of the incidents in the database provides useful information that OSHA used to estimate how the proposed rule would help prevent fatalities.

[52] U.S. Department of Labor, Occupational Safety and Health Administration. Fatality and Catastrophe Investigation Summaries. Available at: *https://www.osha.gov/ords/imis/accidentsearch.html.*

Each Fatality and Investigation Summary provides a narrative of the fatal incident and includes information such as the characteristics of the worksite; the employee task or activity performed at the time of the incident; the equipment used; a brief description of the injuries sustained by those involved in the accident; and other pertinent information surrounding the incident, including any worksite hazards present at the time of an individual's death. OSHA used these data to develop an informed understanding of the workplace fatalities frequently occurring among the emergency response professions, to identify common hazards present in worksites at which an emergency responder fatality has occurred, and to develop an estimate of the number of fatalities that would be addressed by at least one provision of the proposed Emergency Response standard.

To identify those fatalities that would be within the scope of the proposed rule, OSHA performed a query of the OIS database over a 15-year period (2007 through 2021), using keywords associated with emergency response activities (examples of relevant keywords include ''fire,'' ''emergency,'' ''respond''). From this initial dataset of several thousand fatalities, the summary abstracts of each accident were individually reviewed to determine if the death could be classified as relevant to the scope of the proposed rule. For each fatality determined to fall within the scope of the proposed rule, OSHA collected descriptive information relating to the manner of death, the assigned task at the time of death, the cause of death, and any workplace hazards present at the time of death, as identified by OSHA inspectors during the fatality investigation. OSHA identified 273 fatal incidents in the OIS database that involved responders or team members as defined in the proposed standard and emergency response activities that are within the scope of the proposed rule.

As shown in Table VII–1, the leading cause of death among emergency responders was attributed to struck by/crushing/collision injuries, 26 percent of all fatalities in the OIS database. Sixty-one percent of all struck by, crushing, and collision incidents were due to vehicle accidents. The most common contributory factor of these accidents was the unsafe operation of emergency response vehicles and equipment. Heart attacks accounted for an additional 20 percent of all fatalities in the OIS database, followed by burns, asphyxiations, and falls. Fatal accidents related to burns, falls and asphyxiations mainly occurred at the scene of an emergency during participation in response activities.

OSHA did a further analysis of the 273 emergency response-related fatalities in the OIS database to develop an estimate of how many might have been prevented if at least one of the provisions of the proposed standard had been followed. The details surrounding the fatalities were carefully examined and compared with the requirements of each provision of the proposed standard. Contributory hazards, as identified by the investigating OSHA inspector in both an accident's descriptive summary abstract and cited safety standards, were reviewed to determine the number and frequency of workplace hazards present at emergency response-related fatalities. If the identified workplace hazards present at the time of a fatality were determined to be addressed by the safety requirements of one or more of the emergency response provisions, then that fatality was classified as preventable. On the other hand, if the circumstances surrounding a fatality could not be matched with any requirements of the proposed standard, then that incident was categorized as not preventable by the standard. Of the 273 emergency-response-related fatalities in the OIS database, 77.7 percent or 212 were identified as being preventable if at least one of the provisions of the proposed standard had been followed. See example below.

Example:

Inspection Nr: 310966023

Event: 06/18/2007

Fire Department Employees Die of Smoke Inhalation

On June 18, 2007, nine employees of the City of Charleston Fire Department were engaged in interior structural firefighting in a furniture store at Sofa Super Store, 1807 Savannah Highway, Charleston, SC. The store had been converted from a 1960s era grocery store with a metal truss roof system. The fire and smoke spread rapidly, and they became lost and separated from their hoses. With air in air-packing running out, they could not find their way out. They died of smoke inhalation.

From the investigation report, OSHA inspectors identified four hazards present at the workplace, including inadequate inspection or maintenance of the workplace or equipment, inadequate training, and inadequate or incorrect use of personal protective equipment (PPE). OSHA determined that the requirements in proposed paragraphs (c), (d), (h), and (k) could have prevented this fatal incident.

Next, OSHA further developed estimates to determine what percentage of preventable incidents related to emergency response activities (for example, the 77.7 percent or 212 out of 273 identified in the OIS database) would actually be *avoided* by the standard, treating non-heart attacks and heart attacks differently. Table VII–2 shows the number of fatalities in the OIS database the agency estimates could have been addressed by each major provision category (a fatal incident may be covered by more than one safety provision of the proposed standard). Because emergency response operations are highly unpredictable and dangerous

in ways that cannot be mitigated, OSHA does not believe this standard will prevent every fatality among responders. However, the process of developing plans will help to clarify procedures, roles, training needs, and other factors that will allow responders to operate more efficiently and safely at response scenes. The requirements for equipment, vehicles, and other preparedness measures would, if followed, protect responders during response operations. Improved and enhanced training is always a critical step in improving safety in all sorts of workplaces. OSHA assumes that a reasonable estimate of non-heart attack fatal incidents related to emergency response activities that are classified as preventable is that 50 percent would be avoided by following the requirements of this proposed standard.

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Table VII-1. Estimated Number of Fatal Incidents in OIS Database by Nature of Fatality, 2007-2021

Nature of Fatality	Number of Fatalities	Percent of Total Fatalities	Average Annual Fatalities
Asphyxia	28	10.3	1.9
Burn/Scald (Heat)	39	14.3	2.6
Cancer	1	0.4	0.1
Chemical Exposure	1	0.4	0.1
Cut/Laceration	1	0.4	0.1
Drowning	12	4.4	0.8
Explosion	9	3.3	0.6
Fall	28	10.3	1.9
Heart Attack	55	20.1	3.7
Heat Exhaustion	7	2.6	0.5
Natural Causes[53]	2	0.7	0.1
Smoke Exposure	1	0.4	0.1
Struck By/Crushing/Collision	72	26.4	4.8
Stroke	1	0.4	0.1
Suicide	1	0.4	0.1
Unknown/Unspecified[54]	13	4.8	0.9
Violence	2	0.7	0.1
Total Fatalities	**273**	**100**	**18.2**

Source: OSHA's Occupational Safety and Health Information System (OIS). Note: Totals may not equal sums due to rounding.

[53] Natural causes is defined as an internal factor, such as a disease, that caused the body to shut down; no external reason contributing to death such as a traumatic injury.

[54] Deaths for which a descriptive sequence of causes could not be determined.

Table VII-2: Fatalities in OIS Database Addressed by Provisions of the Proposed Rule (Excluding Heart Attacks)

Emergency Response Provision	Provision Description	Number of Fatalities
1910.156 (c/d)	Establishment of the ERP and Emergency Services Capability	56
1910.156 (e)	Team Member and Responder Participation	-
1910.156 (f)	Risk Management Plan	43
1910.156 (h)	Training	41
1910.156 (i/j)	Facility Preparedness	-
1910.156(k)	Equipment and PPE	59
1910.156 (l)	Vehicle Preparedness and Operation	29
1910.156(m)/(n)	Pre-Incident Planning	1
1910.156 (o)	Incident Management System Development	-
1910.156(p)	Emergency Incident Operations	11
1910.156(q)	Standard Operating Procedures	47
Total Number of Instances a Provision was Applicable		287
Total Number of Fatalities: 2007 to 2021		273
Total Number of Fatalities with at Least One Provision Applied (77.7%)		**212**

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OSHA treats heart attack prevention differently. As mentioned earlier, heart attacks made up 20 percent or 55 of the 273 emergency response-related fatalities in the OIS database. Thirty-one percent of the 55 heart attack fatalities occurred on worksites of an emergency (See Table VII–3). Twenty-seven percent occurred onsite while participating in training exercises. Another 15 percent occurred on-site during non-emergency activities such as maintenance work, and 15 percent of heart attacks happened less than 24 hours after participating in a work-related activity. The remainder were unspecified.

Table VII-3. Estimated Number of Fatal Heart Attacks in OIS Database by Activity, 2007-2021

Activity	Number of Fatalities
Accident Response, Onsite of an Emergency	1
Emergency Response, Onsite of an Emergency	2
Fire Fighting, Onsite of an Emergency	14
Fire Fighting, Onsite, Non-Emergency	1
Maintenance Work – Onsite, Non-Emergency	2
Off Duty, Less than 24 Hours of Work-Related Activities	8
On Duty, Onsite, Non-Emergency	5
Training Exercise, Onsite, Non-Emergency	15
Unspecified	7
Total Fatal Heart Attacks	**55**

Source: OSHA, OIS

Many studies show that following a healthy lifestyle including getting regular physical activity, maintaining a healthy weight, and healthy sleep habits may prevent many cases of sudden cardiac death.[55] A number of provisions in the proposed rule—the medical and physical, fitness for duty, and health and fitness program requirements—focus on components of a healthy lifestyle for emergency responders as well as fitness for duty requirements and medical monitoring that would be expected to prevent some fatal heart attacks. While the proposed standard would not prevent all fatal heart attacks, based on a review of the circumstances surrounding the deaths caused by heart

[55] See *https://www.hsph.harvard.edu/nutritionsource/disease-prevention/cardiovascular-disease/preventing-cvd/* based on Chiuve, SE, Rexrode, K.M., D.S, Logroscino, G., Manson, J.E., Rimm, E.B. (2008). Primary prevention of stroke by healthy lifestyle. *Circulation.* 118:947–54 and Chiuve, SE, Fung, T.T., Rexrode, K.M., et al. (2011). Adherence to a low-risk, healthy lifestyle and risk of sudden cardiac death among women. *JAMA.* 306:62–9. The Centers for Disease Control and Prevention's ''Prevent Heart Disease.'' Available at *https://www.cdc.gov/heartdisease/prevention.htm.*

attack in the OIS dataset, OSHA believes a reasonable estimate is that the rule would prevent 20 percent of work-related fatal heart attacks among emergency responders. OSHA welcomes comment on this estimate and encourages the public to submit any additional data or data sources that the agency might use to better estimate this parameter of the analysis.

As mentioned above and explained in section II.A., *Need for the Standard,* OSHA recognizes that the number of fatalities occurring among emergency responders contained in the OIS is incomplete. This is in large part because so many emergency responders are volunteers and/or work for state or local governments in States without OSHA-approved State Plans; OSHA inspectors typically would not investigate fatalities in these groups. Other data sources, such as the NFPA, help provide a more complete picture, even if they may not contain the same level of detail about individual incidents that OIS does. From 2007 to 2021, the NFPA reported a total of 1,086 firefighter fatalities,[56] compared to the 273 in the OIS database. Of those 1,086 fatalities, 464 or 42.7 percent were from heart attacks. Applying the assumptions developed from the OIS data, OSHA first excluded the 464 NPFA fatalities attributable to heart attacks to produce a total of 622 emergency response-related fatalities. From this estimate, OSHA applied its assumption that 77.7 percent of total fatalities would be preventable by the provisions of the Emergency Response standard, to develop an estimate of 483.3 fatalities; an average of 32.2 fatalities per year. OSHA then applied the assumption that only 50 percent of NFPA's preventable firefighter fatalities would be actually prevented, giving an estimate of 241.8 prevented firefighter fatalities; an annual average of 16.1 fatalities.

It should be noted that while the data can provide broad characterization in terms of cause of death, there is frequently insufficient information to isolate the effect on very specific causes of injury. Injuries to emergency responders take many forms, and the proposed standard is designed to reduce them on many fronts. For example, the proposal includes provisions for the safer use of fire poles. While not the leading cause of firefighter injury and fatalities, use of fire poles continues to present needless hazards to responders. While the use of fire poles has become less common due to use of slides, chutes and stairs, fatalities and serious injuries still occur, including the recent death of a North Carolina firefighter in 2021 (*https://www.firefighterclosecalls.com/north-carolina-firefighter-dies-after-falling-down-pole-hole-in-firehouse/*). In 2013 a Seattle firefighter was awarded $12.75 million due to disabling injuries related to a fall down a fire pole shaft. (*https://www.seattletimes.com/news/high-court-upholds-1275m-award-to-ex-seattle-firefighter/*). For these reasons, many fire departments are already moving away from installing fire poles in new firehouses. The agency supports the trend away from the use of fire poles, and has included questions seeking input and data from stakeholders about whether the agency should consider prohibiting the installation of fire poles in new facilities in the final rule. On the whole, the agency believes the multifaceted approach of the emergency response program standard should prevent approximately half of most safety-related fatalities and injuries to firefighters.

Because the NFPA data is based on firefighter fatalities only, OSHA relied on data from BLS, Census of Fatal Occupational Injuries, to develop estimates for non-firefighting emergency responders (paramedics, EMTs) and applied the same assumptions. From 2007 to 2021, BLS reported a total of 169 fatalities to emergency responders,[57] not including firefighters. Applying the assumption that 77.7 percent would fall under the provisions of the Emergency Response standard (131.3 fatalities, an average of 8.8 fatalities per year), and 50 percent would be preventable (65.7 fatalities), OSHA estimates an additional 4.4 preventable fatalities per year. OSHA did not apply its assumption for heart attacks to this estimate because BLS considers heart attacks to be an illness and excludes them from its Census of Fatal Occupational Injuries unless a traumatic injury contributed to the death. According to a study, ''Prevalence of risk factors for cardiovascular disease in paramedics,'' printed in the 2015 publication of the *International Archives of Occupational and Environmental Health,* nine out of ten paramedics are at risk of developing cardiovascular disease as a result of the cardiovascular risk factors of occupational stress, obesity, and tobacco consumption.[58] OSHA is aware that heart attacks among non-firefighting emergency responders are prevalent and therefore welcomes comment on this estimate and encourages the public to submit any additional data or data sources that the agency might use to better estimate this parameter of the analysis.

Using the 2022 estimate of the value of a statistical life (VSL) developed by the U.S. Department of Transportation (DOT), $12.5 million, OSHA estimates the benefit from avoiding 20.5 fatal incidents (16.1 firefighter and 4.4 non-firefighter responders) other than heart attacks in Year 1 would produce benefits of $256.2 million in 2022 dollars.[59] As stated above, 464 of NFPA's total firefighter fatalities were heart attacks; an average of 30.9 fatalities per year. Applying the assumption that 20 percent of heart attacks would be prevented by the standard, yields another 92.8 fatalities; an annual average of 6.2 fatalities. The annual value of these avoided cases is $77.3 million in 2022 dollars. Combining the benefits from avoided non-heart attack safety-related fatalities and heart attack fatalities yields estimated annual benefits of $333.5 million in 2022 dollars.

III. Benefits From Reducing Non-Fatal Injuries for Responders

NFPA reported a total of 1,012,250 non-fatal firefighter injuries between 2007 and 2021 of which 215,022 resulted in lost time from work; an average of 14,335 lost time injuries per year. Non-fatal injuries occurring during fireground operations (structure fires, vehicle fires, brush fires, etc.) accounted for 41.7 percent of total injuries, followed by non-fire emergencies (rescue calls, hazardous calls, and natural disaster calls) at 20.5 percent, other duties (*e.g.,* inspection or maintenance duties) at 19.4 percent, training at 11.7 percent, and responding to or returning from an emergency at 6.7 percent. As shown in Table VII–4, overexertion and strains were the leading cause of injuries amongst firefighters, accounting for an average of 27 percent of total injuries during the 2007 thru 2021 period. Falls, jumps, and slips accounted for an additional 22.8 percent, with another 20.7 percent of injuries attributed to exposures to fire products, chemicals or radiation.

[56] *https://www.nfpa.org/News-and-Research/Data-research-and-tools/Emergency-Responders/Firefighter-fatalities-in-the-United-States.*

[57] *https://data.bls.gov/gqt/ProfileData.*

[58] Hegg-Deloye, S., Brassard, P., Prairie, J., Larouche, D., Jauvin, N., Poirier, P., Tremblay, A., Corbeil, P. (2015). Prevalence of risk factors for cardiovascular disease in paramedics. *International archives of occupational and environmental health,* 88(7), 973–980. *https://doi.org/10.1007/s00420-015-1028-z.*

[59] As elsewhere in the PEA, these calculations were performed on an Excel spreadsheet, so the rounded numbers may appear not to add precisely. The spreadsheet appears in the docket at (Document ID 0394).

Table VII-4. Leading Causes of Non-Fatal Injuries to Firefighters with Lost Time from Work, 2007-2021

Cause of Injury	Average Percent of Total Lost Time Injuries	Estimated Injuries by Average Percent of Lost Time Injuries	Estimated Injuries, Annual Average
Falls, jumps, slips	22.8	49,025	3,268
Overexertion, strains	27.0	58,056	3,870
Contact with object	10.8	23,222	1,548
Struck by an object	6.0	12,901	860
Extreme weather	3.1	6,451	430
Exposure to fire products	11.5	24,728	1,649
Exposure to chemicals or radiation	9.2	19,782	1,319
Other	16.3	35,049	2,337
Total Lost Time from Work Injuries			**215,022**
Average Annual Non-Fatal Injuries			**14,335**

Source: NFPA.
Note: Number of injuries by cause is an estimation derived from published injuries percentages by year. Totals may not equal sums due to rounding and using averages of yearly percentages.

From 2007 to 2020, BLS reported a total of 107,720 non-fatal injuries requiring days away from work to emergency medical technicians (EMTs) and paramedics; an average of 7,694 injuries per year. As shown below in Table VII–5, the leading cause of injuries to these responders were overexertion and bodily reactions, commonly resulting from worker activities such as lifting, pushing, pulling, carrying, holding, etc. Falls, slips and trips accounted for nearly 14 percent of all injuries to EMTs and paramedics, with an average of 1,050 injuries per year, followed by contacts with objects or equipment, and transportation incidents, at 10 percent and 7 percent, respectively.

Table VII-5. Non-Fatal Injuries to EMTs and Paramedics, All Ownerships, 2007-2020

Event or Exposure	Number of Injuries	Percent of Total Injuries	Average Annual Injuries
Contact with objects	10,570	9.8	755
Falls, slips, trips	14,700	13.6	1,050
Overexertion and bodily reaction	57,790	53.6	4,128
Exposure to harmful substance or environment	7,010	6.5	501
Transportation incidents	7,540	7.0	539
Fires and explosions	260	0.2	19
Violence and other injuries by persons or animals	4,720	4.4	337
Other	4,640	4.3	331
Total Injuries	**107,720**	**100.0**	**7,694**

Source: Bureau of Labor Statistics, U.S. Department of Labor, Survey of Occupational Injuries and Illnesses in cooperation with participating State agencies. *https://data.bls.gov/gqt/ProfileData.*
Number of nonfatal occupational injuries and illnesses involving days away from work (1) by selected worker and case characteristics and occupation, All U.S., private industry, 2007 – 2020.
NOTE: Because of rounding and data exclusion of nonclassifiable responses, data may not sum to the totals.

OSHA expects that the proposed standard would reduce the number of non-fatal emergency responder injuries. Further, given the provisions of the proposal address the contributory causes of over 75 percent of the estimated fatalities to emergency responders, OSHA believes it is reasonable that the proposed standard would reduce these occurrences by at least 50 percent for all responders. OSHA monetized the benefit of preventing injuries using the midpoint of the range cited in Viscusi and Gentry (2015), converted to 2022 dollars using the GDP deflator.[60] The total Year 1 benefit of reducing firefighter injuries by 7,168 (50%) would be $777.5 million and reducing EMT and paramedic injuries by 3,847 (50%) would be $417.3 million (Table VII–11) for a total of approximately $1,194.8 million.

IV. Benefits From Preventing Some Firefighter and EMT Suicides

OSHA preliminarily finds that the behavioral health and wellness resources provisions in the proposed standard would benefit responders by reducing the number of deaths by suicide. Based on Firefighter Behavioral Health Alliance (FBHA) data, 1,348 firefighters and EMTs died by suicide between 2007 and 2020, which is an average of 96 deaths per year.[61] FBHA estimates that about 17 percent of these deaths occurred during retirement, so 83 percent, or approximately 77, of the annual deaths by suicide occurred among active duty responders (64 firefighters and 13 EMTs).[62] [63] This estimate is adjusted to account only for the proportion of firefighters and EMTs covered by the proposed rule, yielding an estimated 43 annual deaths among covered responders (31 firefighters and 12 EMTs). OSHA was unable to find definitive evidence to support a specific reduction to these figures resulting from the implementation of the provisions of this proposed standard; however, based on available evidence the agency estimates that a 20 percent reduction is a realistic, even arguably low estimate.[64] The expected number of avoided deaths by suicide is therefore estimated to be 8.5 per year. Based on the value of a statistical life (VSL) developed by DOT,[65] the VSL estimate for 2022 is $12.5 million, which translates to an annual benefit from the reduction in deaths by suicide in Year 1 of $106.8 million. OSHA expects, but could not quantify, additional benefits from the reduction in adverse behavioral health outcomes identified in health effects (stress, depression, PTSD, anxiety, etc.).

V. Cancer Cases in Firefighters

Several studies have found evidence that firefighters are more likely to develop certain types of cancer compared to the general population. OSHA did not estimate benefits related to avoided cancer cases or fatalities among other types of responders due to insufficient data for other types of emergency responders. To the extent that medical evaluations and physical fitness requirements prevent cancer cases or fatalities in other types of responders, the estimated benefits of this proposed standard may be underestimated. Researchers have investigated whether firefighters have higher or lower rates of incidences or mortality for various types of cancer compared to the general population. Commonly considered cancers are those for which firefighters may have greater risks due to occupational exposures to carcinogenic substances. In order to estimate the benefits of reduced cancer fatalities other than those being screened for and discussed previously, OSHA primarily used the estimates of the incidence rates of cancer for firefighters relative to the general population from Lee et al. (2020).[66] Lee et al. provided estimates for firefighters for melanoma, thyroid, prostate, and testicular cancers. OSHA estimated cases of buccal cavity and pharynx cancer based on Daniels et al. (2014, Document ID 0187) estimates of incidence.[67]

For these cancers, estimates of the incidence rates for the general population were from the Centers for Disease Control and Prevention (CDC) or the American Cancer Society (ACS).[68] To estimate the rates for firefighters, OSHA made adjustments based on the relevant findings in the literature. For example, the risk of a firefighter getting prostate cancer is 1.36 times that of the general population. Therefore, the annual incidence rate for the general population of 0.11 percent was multiplied by 1.36, which yields a firefighter annual incidence rate of prostate cancer of 0.15 percent. Multiplying each incidence rate by the applicable number of firefighters, Table VII–6 shows the estimated annual number of incidents of cancer, by cancer type and firefighter type.

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[60] Viscusi, K. and E.P Gentry. (2015). ''The value of a statistical life for transportation regulations: A test of the benefits transfer methodology.'' Journal of Risk and Uncertainty. 51:53–77. *https://doi.org/10.1007/s11166-015-9219-2.* OSHA used the midpoint of the range listed of $77,000 and $84,000 in 2008 dollars converted to 2022 dollars using the GDP deflator.

[61] Available at: *https://www.ffbha.org/ff-ems-suicide-deaths-by-year-type/.* Validated and verified by Firefighter Behavioral Health Alliance.

[62] OSHA communication with an FBHA representative on May 1, 2023.

[63] OSHA was unable to determine whether deaths by suicide of retired responders are considered occupational. If those deaths are considered occupational, the limitation to active-duty deaths by suicide in this analysis would likely underestimate the impact of the proposed standard.

[64] A review of 13 studies found that the suicide prevention programs for protective and emergency services employees were associated with an approximate 50 percent reduction on average in suicide rates. See Witt, K., et al. (2017). ''Effectiveness of suicide prevention programs for emergency and protective services employees: A systematic review and meta-analysis. American Journal of Industrial Medicine 60(4): 394–407. *https://doi.org/10.1002/ajim.22676.*

[65] U.S. Department of Transportation. (2022). ''Departmental Guidance of Valuation of a Statistical Life in Economic Analysis.'' Available at *https://www.transportation.gov/office-policy/transportation-policy/revised-departmental-guidance-on-valuation-of-a-statistical-life-in-economic-analysis.*

[66] Lee, D.J., Koru-Sengul, T., Hernandez, M.N., Caban-Martinez, A.J., McClure, L.A., Mackinnon, J.A., Kobetz, E.N. (2020). Cancer risk among career male and female Florida firefighters: Evidence from the Florida Firefighter Cancer Registry (1981–2014). American Journal of Industrial Medicine, 63(4):285–299. *doi.org/10.1002/ajim.23086.* These researchers compared firefighters to the general population over the most recent time period and generally had estimates that were similar or between other estimates.

[67] Daniels, R.D., Kubale, T.L., Yiin, J.H., Dahm, M.M., Hales, T.R., Baris, D., Zahm, S.H., Beaumont, J.J., Waters, K.M., Pinkerton. L.E. (2014). Mortality and cancer incidence in a pooled cohort of US firefighters from San Francisco, Chicago, and Philadelphia (1950–2009). Occupational and Environmental Medicine, 71:388–397. *doi.org/10.1136/oemed-2013-101662.*

[68] Data for incidence and mortality rates for prostate cancer from the CDC: *https://www.cdc.gov/cancer/prostate/basic_info/risk_factors.htm#:~:text=Out%20of%20every%20100%20American,increased%20risk%20for%20prostate%20cancer.* Data from ACS for testicular, buccal cavity and pharynx, thyroid, and melanoma cancers. For example, see *https://www.cancer.org/cancer/testicular-cancer/about/key-statistics.html#:~:text=Testicular%20cancer%20is%20not%20common,testicular%20cancer%20is%20about%2033* (Accessed March 26, 2023).

Table VII-6. Estimated Annual Incidents of Cancer in Firefighters, by Type of Cancer

Cancer Type	Public, State Plan, and Private Fire Departments [a]			
	Career	Paid per Call	Volunteer	Total
Breast [b]	6.4	2.4	0.2	8.9
Colorectal [c]	26.2	9.8	0.6	36.7
Lung (using ACS w/adjustment) [d]	27.7	10.4	0.7	38.7
Prostate [e]	80.4	30.1	84.8	195.3
Testicular [f]	19.0	7.1	20.1	46.2
Buccal cavity and pharynx [g]	52.6	19.7	55.5	127.8
Thyroid [h]	40.7	15.3	43.0	98.9
Melanoma [i]	97.0	36.4	102.4	235.8
Total	**351.3**	**131.7**	**308.7**	**791.7**

[a] Number of non-inmate firefighters from the U.S. Fire Administration (USFA) National Fire Department Registry: National Data. (2020). Available at *https://apps.usfa.fema.gov/registry/download*. Also included are the estimated number of inmate firefighters compiled from internet searches primarily of states' websites.

[b] Incidence rate based on the American Cancer Society's Cancer Statistics Center (CSC). 2015-2019 average annual incidence rate. *https://cancerstatisticscenter.cancer.org/#!/cancer-site/Breast*

[c] Incidence rate based on CSC 2015-2019 average annual incidence rate (*https://cancerstatisticscenter.cancer.org/#!/cancer-site/Colorectum*) and Jalilian et al. (2019) "Cancer

incidence and mortality among firefighters." *International Journal of Cancer*. 145:2639–2646. *http://dx.doi.org/10.1002/ijc.32199*.
[d] Incidence rate based on CSC 2015-2019 average annual incidence rate (*https://cancerstatisticscenter.cancer.org/#!/cancer-site/Lung%20and%20bronchus*) and Daniels, R.D., Kubale,T.L., Yiin, J.H., et al. (2014). *Occup Environ Med*. 71:388–397. *http://dx.doi.org/10.1136/oemed-2013-101803*
[e] Incidence rate based on CSC 2015-2019 average annual incidence rate (*https://cancerstatisticscenter.cancer.org/#!/cancer-site/Prostate*) and Lee, D.J., Koru-Sengul, T., Hernandez, M.N., et al. (2020). "Cancer risk among career male and female Florida firefighters: Evidence from the Florida Firefighter Cancer Registry (1981-2014)." *Am J Ind Med*. 63:285–299. *https://doi.org/10.1002/ajim.23086*
[f] Incidence rate based on CSC 2015-2019 average annual incidence rate (*https://cancerstatisticscenter.cancer.org/#!/cancer-site/Testis*) and Lee, D.J., Koru-Sengul, T., Hernandez, M.N., et al. (2020). "Cancer risk among career male and female Florida firefighters: Evidence from the Florida Firefighter Cancer Registry (1981-2014)." Am J Ind Med. 63:285–299. *https://doi.org/10.1002/ajim.23086*
[g] Incidence rate based on CSC 2015-2019 average annual incidence rate (*https://cancerstatisticscenter.cancer.org/#!/cancer-site/Oral%20cavity%20and%20pharynx*) and Daniels, R.D., Kubale, T.L., Yiin, J.H., et al. (2014). Occup Environ Med. 71:388–397. *http://dx.doi.org/10.1136/oemed-2013-101803*
[h] Incidence rate based on CSC 2015-2019 average annual incidence rate (*https://cancerstatisticscenter.cancer.org/#!/cancer-site/Thyroid*) and Lee, D.J., Koru-Sengul, T., Hernandez, M.N., et al. (2020). "Cancer risk among career male and female Florida firefighters: Evidence from the Florida Firefighter Cancer Registry (1981-2014)." Am J Ind Med. 63:285–299. *https://doi.org/10.1002/ajim.23086*
[i] Incidence rate based on CSC 2015-2019 average annual incidence rate (*https://cancerstatisticscenter.cancer.org/#!/cancer-site/Melanoma%20of%20the%20skin*) and Lee, D.J., Koru-Sengul, T., Hernandez, M.N., et al. (2020). "Cancer risk among career male and female Florida firefighters: Evidence from the Florida Firefighter Cancer Registry (1981-2014)." Am J Ind Med. 63:285–299. *https://doi.org/10.1002/ajim.23086*

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VI. Benefits From Reducing Cancer Fatalities of Firefighters Through Screening

OSHA preliminarily finds that the proposed rule would result in benefits in the form of avoided firefighter fatalities due to increased screening for lung, colorectal, and breast cancers. Three recent articles provided estimates of the effects of screening on fatalities due to certain types of cancer. Nishihara et al. (2013) followed almost 89,000 participants over 22 years and measured a 53 percent reduction in mortality from proximal colon cancer with regular colonoscopies.[69] Among men, de Koning et al. (2020) found that lung-cancer mortality was 0.8 deaths per 1,000 person-years lower over 10 years for patients getting CT screening than those not getting screened for lung cancer.[70] Finally, Seely and Alhassan (2018) conducted a meta-analysis of breast cancer studies and concluded that women 40–74 years of age experience a 40 percent reduction in breast cancer mortality with regular screenings.[71] The results of these studies are discussed below.

The benefits of increased screening are expected to occur for firefighters in the age ranges designated for screening for each type of cancer by NFPA 1582. Under the proposed standard, increased screening would be required for firefighters with at least 15 exposures to combustion products per year or who have a medically-indicated need for ongoing surveillance. Based on data from NFPA on the number of fire calls responded to, 98 percent of career firefighters and 2.2 percent of volunteer firefighters meet one of these criteria.[72] The number of potentially affected firefighters was taken from the U.S Fire Administration (USFA, 2020) registry data and OSHA's estimate of the number of inmate firefighters (see Section VII.B., *Industry Profile,* for more details).[73] The age distribution based on NFPA (2017) estimates was then applied.[74] The appropriate populations of firefighters potentially affected by the

[69] Nishihara, R., Wu, K., Lochhead, P., Morikawa, T., Liao, X., Qian, Z.R., et al. Long-term colorectal-cancer incidence and mortality after lower endoscopy. N Engl J Med 2013; 369:1095–105.

[70] de Koning, H.J., et al. Reduced Lung-Cancer Mortality with Volume CT Screening in a Randomized Trial. N. Engl. J. Med. 382, 503–513 (2020). The difference for women in the study was not statistically significant.

[71] Seely, J.M., Alhassan, T. Screening for breast cancer in 2018—what should we be doing today? Curr Oncol. 2018 Jun; 25(Suppl 1): S115–S124. *doi:10.3747/co.25.3770.*

[72] See section VI.2.2.1 for more detail.

[73] Inmate firefighters were included only in state plan states that cover volunteer firefighters. Due to lack of more appropriate data, OSHA assumed the same demographic distribution as the firefighters for the inmate firefighters. In the benefits estimations, OSHA used the lower estimate of inmate firefighters when numbers varied by source.

[74] U.S. Fire Administration (USFA). (2020). U.S. Fire Administration (USFA) National Fire Department Registry: National Data. Available at *https://apps.usfa.fema.gov/registry/download* (Accessed January 13, 2020).
NFPA (2017). U.S. Fire Department Profile—2015. April 2017. Available at *https://www.nfpa.org/News-and-Research/Fire-statistics-and-reports/Fire-statistics/The-fire-service/Administration/US-fire-department-profile* (Accessed September 13, 2018).

rule would be: women ages 50 and older for breast cancer; individuals ages 50–75 for colorectal cancer; and individuals ages 55+ for lung cancer.

OSHA applied the findings from the respective studies to the subset of the firefighter population who would be required to get each of the screenings to estimate the reduction in annual fatalities that the proposed rule would yield. For colorectal cancer, a 53 percent reduction in mortality from proximal colon cancer over a 22-year period for individuals getting colonoscopy screenings corresponds to a 2.4 percent reduction per year in the probability of a colorectal cancer fatality (0.53/22 years = .024) (Nishihara (2013), Docket No. 0384).[75] Applying this reduction to the current number of colorectal cancer fatalities (15.8) results in a reduction of 0.4 fatalities per year due to colorectal cancer (Table VII–9). OSHA assumes this annual benefit begins in Year 10 but welcomes comments on the most appropriate lag time for benefits.[76]

For lung cancer, OSHA additionally restricted the subpopulation of firefighters to males due to the lack of a statistically significant difference found in de Koning et al. (2020) for females (de Koning 2020, Docket No. 0377). Because the results were expressed in terms of deaths per 1,000 person-years, OSHA could directly apply the difference in the findings of 0.8, the difference between 2.5 deaths per 1,000 person-years for patients who get CT scans and 3.3 deaths per 1,000 person-years for patients who do not get screenings, to the current number of cases, 22.9 (Table VII–9). Thus, OSHA estimates that 9.7 fatalities from lung cancer would be avoided annually starting in Year 10 by the proposed rule.

For breast cancer, in addition to restricting the subpopulation of firefighters to females ages 50 and older, OSHA also assumed that these women would already be getting mammograms at the same rate as the general population. According to the National Cancer Institute, about 76 percent of women aged 50–74 years had a mammogram within the past 2 years.[77] The high rates of screening already being performed likely contributed to the reduced benefits observed for this screening activity. Seely and Alhasan (2018) conclude that breast cancer mortality is reduced by 40 percent in women 40–74 years of age who get screened (Seely (2018), Docket No. 0379). This result seems to be strongly driven by a study that followed women from 1990 to 2009, so OSHA approximated an annual reduction in deaths of 2.1 percent (0.40/19 years). Table VII–9 also contains the value of these avoided fatalities expected to begin in Year 10.

The value of the benefits in Year 1 along with the average annualized benefits using a 3 percent and a 7 percent discount rate are shown in Table VII–9.

Table VII-9. Benefits of Firefighter Cancer Fatalities Prevented by Screening, Millions 2022$

Source	Current Cases	Cases Prevented	Current Annual Cases	Annual Cases Prevented	Value of Annual Cases Prevented
	50 Year Period		Year 10 and later [a]		
Cancer fatalities-firefighters					
Colorectal	792	19	15.8	0.4	$4.8
Lung	1,143	487	22.9	9.7	$121.8
Breast	16	0.3	0.3	0.0	$0.1
Total Fatalities	**1,952**	**507**	**39.0**	**10.1**	**$126.7**
Average annualized value over 50 years					
3 percent discount rate					**$138.98**
7 percent discount rate					**$97.04**

[a] Estimated cases avoided are per year from Year 10 to Year 50 in this analysis. OSHA applied the 2022 VSL value from U.S. Department of Transportation. (2022).

[75] While the probability of death is likely not uniformly distributed over the time period, this simplifying assumption should reasonably provide a way to approximate the benefits.

[76] See Lee S J, Boscardin W J, Stijacic-Cenzer I, Conell-Price J, O'Brien S, Walter L C et al. Time lag to benefit after screening for breast and colorectal cancer: meta-analysis of survival data from the United States, Sweden, United Kingdom, and Denmark BMJ 2013; 346:e8441 *doi:10.1136/bmj.e8441* as an example of research findings that may be applicable.

[77] National Cancer Institute. August 2023. Breast Cancer Screening. Available at *https://progressreport.cancer.gov/detection/breast_cancer.* Accessed October 19, 2023.

VII. Benefits From Reducing Cancer Fatalities of Firefighters Through General Medical Evaluation and Other Provisions of the Proposed Standard

As noted previously, many researchers have found that firefighters have higher rates of incidents and/or mortality for various types of cancer compared to the general population. In order to estimate the benefits of reduced cancer fatalities other than those being screened for and discussed previously, OSHA included a range of potential benefits from a reduction in buccal cavity and pharynx cancer based on Muegge et al. (2018) estimates of mortality.[78] For the other types of cancer checked for in a general medical evaluation (prostate, testicular, thyroid, melanoma), OSHA applied Pinkerton et al.'s (2020) estimates of the relative mortality rates of firefighters for cancer in general.[79]

For these five cancers, estimates of the mortality rates for the general population were from the Centers for Disease Control and Prevention (CDC) or the American Cancer Society (ACS).[80] To estimate the rates for firefighters, OSHA made adjustments based on the relevant findings in the literature of statistically significant mortality rates of firefighters relative to the general population by type of cancer.

Multiplying the calculated mortality rates for firefighters by the applicable population of firefighters yielded an estimate of the expected number of firefighter deaths from each type of cancer in Year 1.[81] Although OSHA was unable to find current research directly quantifying the likely reduction in these fatalities from programs similar to this proposed standard, the agency believes, for reasons discussed in the *Health Effects of Emergency Response Activities* and the *Summary and Explanation of the Proposed Rule* sections, that a combined effect of improved medical surveillance and more consistent and hygienic use of PPE would provide a meaningful reduction in cancer mortality among firefighters. In addition, the agency believes the enhanced medical surveillance and tracking of worker exposure to combustion products will enhance research in this area to optimize future cancer reduction. OSHA estimates the proposed standard would prevent 20 percent of these cancer fatalities (Table VII–10). OSHA also expects a lag in achieving benefits and assumes they will begin in Year 20. However, this is an area of ongoing research and the agency invites comment on this estimate.

To quantify the benefits of reduced fatalities, OSHA used the value of a statistical life (VSL) originally developed by the DOT.[82] The total value of prevented cancer fatalities in Year 20 is $210.6 million. Table VII–10 also contains the average annualized benefits over 50 years using a 3 percent discount rate ($163.6 million) and a 7 percent discount rate ($88.3 million).

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[78] Muegge, C.M., Zollinger, T.W., Song, Y., Wessel, J., Monahan, P.O., Moffatt, S.M. (2018). Excess mortality among Indiana firefighters, 1985–2013. American Journal of Industrial Medicine, 61(12):961–967. *Doi.org/10.1002/ajim.22918.*

[79] Pinkerton, L., Bertke, S.J., Yiin, J., Dahm, M., Kubale, T., Hales, T., Purdue, M., Beaumont, J.J., Daniels, R. (2020). Mortality in a cohort of US firefighters from San Francisco, Chicago, and Philadelphia: an update. Occupational and Environmental Medicine 77(2):84–93. *http://dx.doi.org/10.1136/oemed-2019-105962.*

[80] Data for incidence and mortality rates for prostate cancer from the CDC: *https://www.cdc.gov/cancer/prostate/basic_info/risk_factors.htm#:~:text=Out%20of%20every%20100%20American,increased%20risk%20for%20prostate%20cancer.* Data from ACS for testicular, buccal cavity and pharynx, thyroid, and melanoma cancers. For example, see *https://www.cancer.org/cancer/testicular-cancer/about/key-statistics.html#:~:text=Testicular%20cancer%20is%20not%20common,testicular%20cancer%20is%20about%2033* (Accessed March 26, 2023).

[81] U.S. Fire Administration (USFA). (2020). U.S. Fire Administration (USFA) National Fire Department Registry: National Data. Available at *https://apps.usfa.fema.gov/registry/download* (Accessed January 13, 2020). The distributions by age and sex were based on:

NFPA (2017). U.S. Fire Department Profile—2015. April 2017. Available at *https://www.nfpa.org/News-and-Research/Fire-statistics-and-reports/Fire-statistics/The-fire-service/Administration/US-fire-department-profile* (Accessed September 13, 2018).

[82] U.S. Department of Transportation. (2022). ''Departmental Guidance of Valuation of a Statistical Life in Economic Analysis.'' Available at *https://www.transportation.gov/office-policy/transportation-policy/revised-departmental-guidance-on-valuation-of-a-statistical-life-in-economic-analysis.*

Table VII-10. Benefits of Prevented Cancer Fatalities by General Medical Evaluation

Type of Cancer/ Discount Rate	Public, State Plan, and Private Fire Departments			
	Career	Paid per Call	Volunteers	Total
Year 20				
Prostate				
Fatalities prevented	2.3	0.8	2.4	5.5
Value (millions $2022)	$28.3	$10.6	$29.9	$68.8
Testicular				
Fatalities prevented	0.1	0.1	0.1	0.3
Value (millions $2022)	$1.7	$0.6	$1.8	$4.1
Buccal cavity and pharynx				
Fatalities prevented	2.8	1.1	3.0	6.9
Value (millions $2022)	$35.5	$13.3	$37.4	$86.2
Thyroid				
Fatalities prevented	0.2	0.1	0.3	0.6
Value (millions $2022)	$3.1	$1.2	$3.3	$7.5
Melanoma				
Fatalities prevented	1.5	0.5	1.5	3.5
Value (millions $2022)	$18.1	$6.8	$19.1	$44.1
Total				
Fatalities prevented	**6.9**	**2.6**	**7.3**	**16.9**
Value (millions $2022)	**$86.7**	**$32.5**	**$91.5**	**$210.6**
Average Annualized Over 50 Years (Millions $2022)				
3 percent discount rate	**$67.3**	**$25.2**	**$71.1**	**$163.6**
7 percent discount rate	**$36.3**	**$13.6**	**$38.3**	**$88.3**

Note: Totals may not match the sums due to rounding.

VIII. Summary of Quantified Benefits

Table VII–11 presents a summary of the quantified benefits of the proposed standard in reducing emergency responder fatalities on the job, firefighter and EMT suicides, and firefighter fatalities from certain types of cancer. The monetization of the reduction in these fatalities is based on the VSL developed by DOT. OSHA applied the estimates of the cost of injuries from the Viscusi and Gentry (2015).[83] In total, OSHA estimated that the proposed standard would prevent an average of approximately 54 fatalities and 11,015 nonfatal injuries per year, with an associated value of $1,864.9 million in 2022 dollars. Assuming these annual benefits would continue for 50 years, the average annualized value of the benefits would be $2,628.5 million using a 3 percent discount rate and $2,262.3 million using a 7 percent discount rate.

As a sensitivity analysis, OSHA estimated the benefits based on assuming a large reduction of certain fatalities and injuries. Table B–1 in Appendix B shows the estimated benefits for 20, 35, and 50 percent reductions of fatalities and injuries. OSHA assumed a 20 percent reduction in heart attacks, suicides, and cancer fatalities prevented by the general medical evaluation (prostate, testicular, buccal cavity and pharynx, thyroid, and melanoma cancers). OSHA also assumed a 50 percent reduction for safety-related fatalities and nonfatal injuries. Based on a 50 percent reduction, average annualized benefits would be $3.4 billion using a 3 percent discount rate, and $2.8 billion using a 7 percent discount rate.

[83] Viscusi, K. and E.P Gentry. (2015). ''The value of a statistical life for transportation regulations: A test of the benefits transfer methodology.'' Journal of Risk and Uncertainty. 51:53–77. *https://doi.org/10.1007/s11166-015-9219-2.*

Table VII-11. Summary of Benefits, Millions 2022$

Source	Current Cases	Cases Prevented	Average Annualized Value, 3 Percent Discount Rate
	50 Year Period		
Suicides-firefighters and EMTs	2,179	436	$154.8
Safety-Related fatal injuries-firefighters and EMTs	2,049	1,025	$363.9
Health-Related fatal injuries-firefighters	1,546	309	$109.8
Cancer fatalities-firefighters			
Colorectal	792	15	$5.2
Lung	1,143	390	$133.7
Breast	16	0.277	$0.1
Prostate	1,376	165	$53.4
Testicular	82	10	$3.2
Buccal cavity and pharynx	1,724	207	$67.0
Thyroid	150	18	$5.8
Melanoma	882	106	$34.3
Total Fatalities	**11,939**	**2,681**	**$931.2**
Nonfatal injuries-EMTs and paramedics [a]	**384,700**	**192,350**	**$592.8**
Nonfatal injuries-firefighters [a]	**716,750**	**358,375**	**$1,104.5**
Average annualized value over 50 years			
3 percent discount rate			**$2,628.5**
7 percent discount rate			**$2,262.3**

Note: Totals may not match the sums due to rounding.

[a] The value assigned to a non-fatal injury is the midpoint of the range ($77,000 to $84,000) cited by Viscusi, W.K., Gentry, E.P. The value of a statistical life for transportation regulations: A test of the benefits transfer methodology. J Risk Uncertain 51, 53–77 (2015). https://doi.org/10.1007/s11166-015-9219-2, inflated to 2022 dollars using the GDP deflator.

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IX. Non-Quantified Benefits for Emergency Responders

(i) Reduction in the Incidence of Cancer

OSHA believes that the proposed standard would reduce both the number of fatalities due to cancer and the incidence of cancer among firefighters. As previously explained, OSHA believes that research exists that can be used to estimate the reduction in fatalities but an estimate of the reduction in the number of total cancer cases would be more speculative. Additionally, OSHA was unable to develop a monetary value of avoided cases of non-fatal cancer as empirically validated as that for the fatal cases. Nonetheless, the agency welcomes comment on this issue for potential inclusion of these benefits in the Final Economic Analysis.

As previously noted, several studies have found evidence that firefighters are more likely to develop certain types of cancer compared to the general population. Based on general population incidence rates from the ACS with adjustments as determined in the studies referenced above, OSHA estimated the number of cancer cases in firefighters. (Table VII–6).[84] OSHA

[84] The ACS general population estimates, see for example *https://www.cancer.org/cancer/testicular-cancer/about/key-statistics.html#:~:text=Testicular%20cancer%20is%20not%20common,testicular%20cancer%20is%20about%2033*. OSHA primarily used the estimates of the incidence rates of cancer for firefighters relative to the general population from Lee et al. (2020). Lee et al. provided estimates for firefighters for melanoma, thyroid, prostate, and testicular cancers. Daniels et al. (2014) found differences in incidence rates for buccal cavity and pharynx cancer. Lee, D.J., Koru-Sengul, T., Hernandez, M.N., Caban-Martinez, A.J., McClure, L.A., Mackinnon, J.A., Kobetz, E.N. (2020). Cancer risk among career male and female Florida firefighters: Evidence from the Florida Firefighter Cancer Registry (1981–2014). Daniels, R.D., Kubale,

believes the proposed standard would prevent some of the 765.4 estimated cases of cancer diagnosed per year in firefighters but was not able to calculate a robust estimate of how many of these cases would be prevented.

X. Other Non-Quantified Benefits to Society

While OSHA is estimating the potential costs of vocational training and has occupational safety-related benefits included in the analysis, it has *not* quantified the potential spillover value to society from the vocational training involved. For example, the NFPA Research Foundation estimated the total cost to society of fire and fire protections in the U.S. to be over $300 billion, more than $50 billion of which was the cost to society of the fires themselves (NFPA, 2017). If the enhanced vocational training of firefighting estimated in this analysis resulted in even a 1 percent increase in the proficiency of firefighting, that would represent a savings to society of over $500 million. The health value to society from EMT vocational training is potentially of a similar or greater magnitude.

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Appendix A. NIOSH Firefighter Fatalities

While OSHA is relying on data from the OIS and from NFPA to estimate the safety benefits of the rule, NIOSH has also conducted extensive analyses of firefighter injuries that parallel OSHA's analysis and OSHA believes these merit summarizing here. The agency finds these largely parallel the analysis of the OIS and NFPA data in terms of the distribution of the cause and nature of the fatal injuries. However, OSHA decided against using the NIOSH data to estimate the number of firefighter fatalities

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T.L., Yiin, J.H., Dahm, M.M., Hales, T.R., Baris, D., Zahm, S.H., Beaumont, J.J., Waters, K.M., Pinkerton, L.E. (2014). Mortality and cancer incidence in a pooled cohort of US firefighters from San Francisco, Chicago, and Philadelphia (1950–2009). Occupational and Environmental Medicine, 71:388–397. *doi.org/10.1136/oemed-2013–101662.* The number of in-scope firefighters are from U.S. Fire Administration (USFA). (2020). U.S. Fire Administration (USFA) National Fire Department Registry: National Data. Available at *https://apps.usfa.fema.gov/registry/download* (Accessed January 13, 2020). The distributions by age and sex were based on:

NFPA (2017). U.S. Fire Department Profile—2015. April 2017. Available at *https://www.nfpa.org/News-and-Research/Fire-statistics-and-reports/Fire-statistics/The-fire-service/Administration/US-fire-department-profile* (Accessed September 13, 2018).

due to issues in identifying volunteers and which fatalities occurred in States with OSHA-approved State Plans.

Between 2007 and 2021, NIOSH reported a total of 1,490 firefighter on-duty fatalities, an average of 99.33 firefighter fatalities per year.[85] The definition used by NIOSH to categorize a fatality as ''on-duty'' was provided by the USFA. The USFA defines ''on duty'' as ''being at the scene of an alarm, whether a fire or non-fire incident; being enroute while responding to or returning from an alarm; performing other assigned duties such as training, maintenance, public education, inspection, investigations, court testimony and fundraising; and being on call, under orders or on standby duty other than at home or at the individual's place of business.'' The USFA also states that ''fatalities that occur at a firefighter's home may be counted if the actions of the firefighter at the time of injury involved firefighting or rescue'' (USFA 2022).

During this 15-year period, the leading cause of injury was stress/over-exertion, making up nearly 50 percent of total fatalities. The USFA places all firefighter fatalities that are cardiac or cerebrovascular in nature in this category due to the strenuous and physical demands of the work. Of the 741 stress and over-exertion fatalities, 665 were heart attacks. NIOSH cites undiagnosed medical conditions such as cardiovascular diseases, hypertension, and obesity as contributing factors to these fatalities.

Vehicle accidents were the second leading cause of firefighter deaths in the NIOSH data, accounting for 14 percent of total fatalities. More than 50 percent of the 209 vehicle accident fatalities reported occurred when firefighters were responding to an emergency. In many of these cases, firefighters were fatally injured when fire apparatus collided with roadway objects or overturned from traveling at speeds unsafe for vehicle maneuvering, especially during unfavorable weather and road conditions. In addition, firefighters' failure to wear seatbelts and lack of experience operating fire apparatus were also frequently contributors to these fatal incidents.

The leading nature of these fatal injuries or the primary physical characteristic that resulted in the death of these firefighters was heart attacks, accounting for 45 percent of total fatalities, followed by bodily trauma and asphyxiation, at 24 and 7 percent, respectively.

Appendix B

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[85] *https://wwwn.cdc.gov/wisards/fffmap/.* This estimate includes 99 Covid-19 related fatalities reported by the USFA for years 2020 and 2021; *https://apps.usfa.fema.gov/firefighter-fatalities/.*

Table B-1. Summary of Benefits Sensitivity Analysis, Millions $2022

Source	Current Annual Cases	20 Percent Reduction		35 Percent Reduction		50 Percent Reduction	
		Average Annual Cases Prevented	Value of Average Annual Cases Prevented	Average Annual Cases Prevented	Value of Average Annual Cases Prevented	Average Annual Cases Prevented	Value of Average Annual Cases Prevented
Year 1							
Suicides-firefighters and EMTs	43.6	8.7	$109.0	15.3	$190.7	21.8	$272.4
Safety-Related fatal incidents-firefighters and EMTs	41.0	8.2	$102.5	14.3	$179.3	20.5	$256.2
Health-Related fatal incidents-firefighters	30.9	6.2	$77.3	10.8	$135.3	15.5	$193.2
Cancer fatalities-firefighters							
Colorectal	15.8	2.5	$31.7	4.4	$55.5	6.3	$79.2
Lung	22.9	3.7	$45.7	6.4	$80.0	9.1	$114.3
Breast	0.3	0.1	$0.7	0.1	$1.2	0.1	$1.6
Prostate	27.5	3.3	$41.3	5.8	$72.2	8.3	$103.2
Testicular	1.6	0.2	$2.5	0.3	$4.3	0.5	$6.2
Buccal cavity and pharynx	34.5	4.1	$51.7	7.2	$90.5	10.3	$129.3
Thyroid	3.0	0.4	$4.5	0.6	$7.9	0.9	$11.2
Melanoma	17.6	2.1	$26.5	3.7	$46.3	5.3	$66.1
Total Fatalities	**238.8**	**39.5**	**$493.2**	**69.0**	**$863.0**	**98.6**	**$1,232.9**
Nonfatal incidents-EMTs and paramedics	**7,694**	**1,539**	**$166.9**	**2,693**	**$292.1**	**3,847**	**$417.3**
Nonfatal incidents-firefighters	**14,335**	**2,867**	**$311.0**	**5,017**	**$544.2**	**7,168**	**$777.5**
Average annualized value over 50 years							
3 percent discount rate			**$1,359.8**		**$2,379.7**		**$3,399.6**
7 percent discount rate			**$1,138.3**		**$1,992.0**		**$2,845.7**

Note: Totals may not match the sums due to rounding.

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E. Economic Feasibility Analysis

I. Introduction

This section estimates the economic impacts of the proposed rule on affected employers in the three emergency response service sectors: firefighting, emergency medical service, and technical search and rescue. The purpose of this analysis is twofold. First, it is used to determine whether the proposed rule is economically feasible for all entities in the affected emergency response service sectors, and second, OSHA will use the results to determine whether the agency can certify that the proposed rule will not have a significant economic impact on a substantial number of small entities.

II. Analytical Approach

To determine whether a rule is economically feasible, OSHA typically begins by using two screening tests to determine whether the costs of the rule are beneath the threshold level at which the economic viability of an affected industry might be threatened. As noted in the Industry Profile, the proposed rule will impact private entities in all states and state and local government entities in States with OSHA-approved State Plans.[86] Because a significant proportion of affected entities are expected to be state and local government ESOs, the determination of economic feasibility discussed in this chapter is expanded to include both private and public (state and local government) entities.

The first screening test is a revenue test. In the context of public entities, for the screening test, existing emergency organization budgets are used as a measure of revenues. While there is no hard and fast rule on which to base the threshold, OSHA generally considers a rule to be economically feasible for an affected industry when the annualized costs of compliance are less than one percent of annual revenues for an average firm in that industry. The one-percent revenue threshold is intentionally set at a low level so that OSHA can confidently assert that the rule is economically feasible for industries where the average firm is below the threshold (*i.e.,* industries for which the costs of compliance are less than one percent of annual revenues). As discussed further later, ultimately the larger pool of locality revenue is more analogous to the revenues afforded private firms; however, impact screening based on the more limited pre-assigned budget of the emergency organization will readily expose potential constraints facing the organization.

One complexity to note in the economic impact of the rule is that the agency anticipates that part of the cost of the rule will not be borne directly by affected emergency response entities but will be dispersed widely in the economy because the cost of medical examinations will be borne in part by insurance companies and other third parties. While these represent costs to society and are reflected in the estimated total costs of the rule, they do not pose issues for the economic feasibility of the rule to emergency response organizations. Details of this are discussed in the Costs chapter.

The second screening test that OSHA traditionally uses for private entities to consider whether a rule is economically feasible for an affected industry is if the costs of compliance are less than ten percent of annual profits for the average firm in an industry (see, *e.g.,* OSHA's economic analysis of its Silica rule, 81 FR 16286, 16533 (March 25, 2016); upheld in *N. Am. Bldg. Trades Unions* v. *OSHA,* 878 F.3d 271, 300 (D.C. Cir. 2017)). The ten-percent profit test is also intended to be at a sufficiently low level to allow OSHA to identify industries that might require further examination. For public entities, OSHA considers the costs of compliance compared to the revenue for the entire locality as an alternative revenue measure to assess regulatory impacts. To the extent that a city or town's budget can be reallocated to different functions, this approach may result in a better representation of how the costs of the proposed rule might impact a given government entity. There has been no threshold established for public entities equivalent to the ten-percent profits threshold for private entities, but the agency invites comment on what would reasonably apply to the public sector.

When an industry ''passes'' both the ''cost-to-revenue'' and ''cost-to-profit'' screening tests, OSHA is assured that the costs of compliance with the rule are economically feasible for firms in that industry. A rule is not necessarily economically infeasible, however, for firms in industries where the average firm does not pass the initial revenue screening test (*i.e.,* those for which the costs of compliance with the rule are one percent or more of annual revenues), the initial profit screening test (*i.e.,* those for which the costs of compliance are ten percent or more of annual profits), or both. Instead, OSHA normally views those industries as requiring additional examination as to whether the rule would be economically feasible (see *N. Am. Bldg. Trades Unions* v. *OSHA,* 878 F.3d at 291).

III. Impacts

A. Impacts and Economic Feasibility Screening Analysis—All Establishments

Previous chapters of this PEA present summary profile information of the number of potentially affected ESOs, WEREs, responders, and team members as well as the costs of the proposed rule by provision and responder or team member type. As shown in the Costs chapter, the training and medical requirements provisions contribute the most to the overall cost of the proposed rule.

To determine whether the proposed rule's projected costs of compliance would threaten the economic viability of affected emergency response service sectors, OSHA first compared, for the average firm in each sector, annualized compliance costs to annual revenues and profits for private organizations and annualized compliance costs to annual revenues (represented by ESO budgets) and locality revenues per (average) affected public organization. Table VII–E–2 and Table VII–E–3 show economic impacts for all public and private organizations, respectively, where total costs include one-time and annual costs annualized using a 3 percent discount rate. The estimated average annualized cost per public organization is $17,012, while the estimated average annualized cost per private organization is $22,464.

OSHA estimated revenues as follows:

Firefighting Services: To estimate public fire department revenue by department type (career, volunteer, and mixed), OSHA used data from Firehouse Magazine's (2022) 2021 National Run Survey, 2021 Volunteer Fire Department Run Survey, and 2021 Combination Fire Department Run Survey, respectively. Each of these surveys presents statistics on funding and staffing.[87] In order to extrapolate from these fire departments to the entire universe of public fire departments in the U.S., OSHA calculated the median budget per employee for each department type and multiplied that estimate by the number

[86] As explained in section VII, Additional Requirements, States that have elected voluntarily to adopt a State Plan approved by the agency pursuant to section 18 of the Act must adopt a standard at least as effective as the Federal standard, which must apply to State and local government agencies (29 U.S.C. 667(b), (c)(2) and (6)).

[87] The National Run Survey includes 229 fire departments; the Volunteer Fire Department Run Survey includes 259 fire departments; and the Combination Fire Department Run Survey includes 94 fire departments.

of firefighters in each size class as reported in the fire department profile.

For private fire departments, OSHA conducted an internet search for NAICS codes linked to a randomly designated subset of the entities recorded as either a ''contract fire department'' or ''private or industrial fire brigade'' in the National Fire Registry database (USFA, 2022).[88] OSHA compared revenue per firm estimates from the 2017 SUSB dataset for these NAICS codes and used the 25th percentile revenue per firm estimate ($16,664,010 in 2022 dollars) as representative of revenues for all private entities in the National Fire Registry.

To estimate revenues for private wildland fire service organizations, OSHA used revenue and employment data from the U.S. Census Bureau's (2021) 2017 SUSB for NAICS 115310 Support Activities for Forestry, dividing the total revenue figure by total employment to estimate revenue per employee ($154,471). This estimate was then multiplied by the number of wildland firefighters in each employee class size from section V (Industry Profile) to determine revenues in each employee class size. These estimates are then inflated to 2022 dollars using the Bureau of Economic Analysis' (BEA, 2023) implicit price deflators for gross domestic product. OSHA used state-level revenue data from the Survey of State and Local Government Finances (2022) and inflated to 2022 dollars using the Bureau of Economic Analysis' (BEA, 2023) implicit price deflators for gross domestic product for state governments that utilize inmate firefighters.

Emergency Medical Services (EMS): Emergency medical service revenue were estimated using revenue data from the U.S. Census Bureau's (2021) 2017 Statistics of U.S. Businesses (SUSB) for detailed employment size classes in NAICS 621910 Ambulance Services, inflating those data to 2022 dollars using the Bureau of Economic Analysis' (BEA, 2023) implicit price deflators for gross domestic product.

Technical Search and Rescue: Derivation of technical search and rescue revenues involves characterization of wilderness and urban search and rescue entities as well as additional technical water rescue entities. For the former, OSHA used police department expenditures data from the U.S. Census Bureau's (2022) 2017 Annual Survey of State and Local Government Finances, as well as employment data from the Bureau of Justice Statistics (2022) Census of State and Local Law Enforcement Agencies for 2018. Using these two sources, OSHA calculated the average expenditure per employee and multiplied this estimate by the number of public wilderness and urban search and rescue group members derived in section V (Industry Profile) for each employee class size. These estimates are then inflated to 2022 dollars using the Bureau of Economic Analysis' (BEA, 2023) implicit price deflators for gross domestic product. OSHA also estimated revenues for private wilderness and urban search and rescue groups by identifying a subset of these entities and obtaining annual sales for them in DemographicsNow. OSHA then extrapolated the revenues of this subset of entities to the full profile of private wilderness and urban search and groups identified in section V.

To estimate technical water rescue entity revenue, OSHA used the median budget of all career fire departments from the Firehouse Magazine's (2022) 2021 National Run Survey, inflated to 2022 dollars using the Bureau of Economic Analysis's (BEA, 2023) implicit price deflators for gross domestic product. OSHA's rationale for using career fire departments budgets to estimate technical water rescue entity revenue is explained in the Industry Profile. This estimate was multiplied by the number of employees within each employee class size as shown in section V (Industry Profile).

OSHA estimated profits and locality revenues for these emergency response service sectors as follows:

OSHA estimated before-tax profit rates using corporate balance sheet data from the Internal Revenue Service's Corporation Source Book (IRS, 2016).[89] For each of the years 2000 through 2013, OSHA calculated profit rates as the ratio of total receipts to net income by NAICS code and averaged profit rates across the fourteen-year (2000–2013) period. Since some data provided by the IRS were not available at disaggregated levels for all industries and profit rates, data at more highly aggregated levels were used as proxy for such industries—that is, where data were not available for each six-digit NAICS code, corresponding 4- and 5-digit NAICS codes were used as appropriate. Table VII–E–1 presents the NAICS codes and profit rates used for each emergency response service sector.

To estimate locality revenues, the agency used U.S. Census Bureau (2022) data on local government finances, which breaks down expenditures for various functions for local governments in the U.S. and by state. OSHA used the ratio of expenditures for current operations ($1.5 trillion) to expenditures for fire protection ($50 billion), a multiplier of approximately 30, to inflate estimated revenue per public ESO to estimated total expenditures.

[88] The National Fire Registry does not list NAICS codes associated with each organization in the database. Since there are 435 organizations listed as ''contract fire department'' or ''private or industrial fire brigade'' in the Registry, OSHA determined that a subset of organizations could be taken as representative. OSHA used the 25th percentile revenue estimate as representative.

[89] At the time of this analysis, this source was the most recent publicly available dataset on industry-wide profit rates at the NAICS level.

Table VII-E-1. Private Sector Profit Rates Used in the Economic Feasibility Analysis

Emergency Response Service Sector	NAICS	Profit Rate
WEREs [a]	562210	3.5%
Private Fire Departments [a]	562210	3.5%
Wildland Fire Services	115310	2.0%
Emergency Medical Services	621910	4.4%
Technical Search and Rescue Groups	541618	5.0%

Sources: IRS, 2016.

[a] OSHA conducted an internet search for NAICS codes linked to a randomly designated subset of the entities recorded as either a "contract fire department" or "private or industrial fire brigade" in the National Fire Registry database (USFA, 2022). OSHA compared revenue per firm estimates from the 2017 SUSB dataset for these NAICS codes and used the 25th percentile revenue per firm estimate as representative of revenues for all private entities in the National Fire Registry. OSHA also used the profit rate for the same NAICS code when calculating profits for these private entities.

As previously discussed, OSHA has established a minimum threshold level of annualized costs equal to one percent of annual revenues—and, secondarily, annualized costs equal to ten percent of annual profits—below which the agency has concluded that costs are unlikely to threaten the economic viability of an affected sector. Table VII–E–2 shows that costs as a percent of locality revenues for public organizations generally range from less than 0.01 percent to 0.16 percent. Public volunteer fire departments are the only emergency response service group with costs as a percent of revenues estimated to exceed the one percent revenue test, at an estimated 4.99% of revenues. In most situations, OSHA expects that the affected community would be able to allocate the very small additional share of the locality revenues necessary to permit the fire department to comply with the standard. However, the agency welcomes comments, information, and data on the feasibility of compliance for these entities.

Table VII–E–3 shows that all private emergency response service sectors have costs that are less than one percent of revenues and ten percent of profits.

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Table VII-E-2. Economic Impacts Experienced by Organizations Affected by the Proposed Rule with Costs Calculated Using a 3 Percent Discount Rate - All Public State-Plan State Organizations

Sources: OSHA derived from USFA, 2022; BLS, 2023; BLS, 2023; EPA, 2002; Rice, 2002; U.S. Census, 2021.
Note: Figures may not add to totals due to rounding.

	Organizations	Total Annualized Costs [a]	Average Annualized Cost per Organization	Average Revenue per Organization	Costs as % of Revenue	Average Revenue per Locality	Costs as % of Locality Revenue
Fire Departments							
Career	3,807	$76,468,238	$20,086	$8,539,522	0.24%	$258,221,245	0.01%
Volunteer	5,216	$75,896,161	$14,551	$291,703	4.99%	$8,820,610	0.16%
Mixed	2,032	$38,308,712	$18,853	$3,290,935	0.57%	$99,512,530	0.02%
Total	**11,055**	**$190,673,112**	**$17,248**	**$3,054,294**	**0.56%**	**$92,356,876**	**0.02%**
Wildland Fire Services							
Volunteer [b]	7	$784,787	$112,112	$98,229,775,991	0.00%	$98,229,775,991	0.00%
Total	**7**	**$784,787**	**$112,112**	**$98,229,775,991**	**0.00%**	**$98,229,775,991**	**0.00%**
Emergency Medical Services							
Career	548	$13,427,932	$24,488	$6,070,423	0.40%	$183,559,703	0.01%
Volunteer	221	$6,751,172	$30,616	$6,070,423	0.50%	$183,559,703	0.02%
Mixed	577	$12,335,922	$21,371	$6,070,423	0.35%	$183,559,703	0.01%
Total	**1,346**	**$32,515,027**	**$24,155**	**$6,070,423**	**0.40%**	**$183,559,703**	**0.01%**
Technical Search and Rescue Groups							
Career	123	$1,755,945	$14,255	$15,079,160	0.09%	$455,969,256	0.00%
Volunteer	1,572	$14,184,107	$9,025	$4,229,050	0.21%	$127,879,578	0.01%
Total	**1,695**	**$15,940,052**	**$9,405**	**$4,834,888**	**0.19%**	**$146,199,132**	**0.01%**
Total							
Career	4,479	$91,652,116	$20,465	$8,417,071	0.24%	$254,518,540	0.01%
Volunteer	7,015	$97,616,228	$13,915	$117,467,842	0.01%	$154,908,438	0.01%
Mixed	2,609	$50,644,634	$19,410	$3,905,818	0.50%	$118,105,566	0.02%
Total	**14,103**	**$239,912,978**	**$17,012**	**$72,552,496**	**0.02%**	**$193,938,058**	**0.01%**

[a] These annualized costs reflect lower costs than presented in the Costs chapter because they are adjusted to reflect the percentage of medical exam costs that will be covered by insurance companies.
[b] The volunteer wildland fire service organizations represented here are the State Plan state governments that use prison labor to fight wildfires. The revenues shown here represent the average revenues of the applicable State Plan states.

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Table VII-E-3. Economic Impacts Experienced by Organizations Affected by the Proposed Rule with Costs Calculated Using a 3 Percent Discount Rate - All Private Organizations

	Organizations	Total Annualized Costs [a]	Average Annualized Cost per Organization	Average Revenue per Organization	Costs as % of Revenue	Average Profit per Organization	Costs as % of Profit
WEREs							
Career	1,500	$24,145,368	$16,097	$16,664,010	0.10%	$578,873	2.78%
Total	**1,500**	**$24,145,368**	**$16,097**	**$16,664,010**	**0.10%**	**$578,873**	**2.78%**
Fire Departments							
Career	220	$3,767,753	$17,126	$16,664,010	0.10%	$578,873	2.96%
Volunteer	450	$6,153,007	$13,673	$16,664,010	0.08%	$578,873	2.36%
Mixed	118	$2,198,398	$18,630	$16,664,010	0.11%	$578,873	3.22%
Total	**788**	**$12,119,158**	**$15,380**	**$16,664,010**	**0.09%**	**$578,873**	**2.66%**
Wildland Fire Services							
Career	516	$10,869,070	$21,082	$12,575,542	0.17%	$252,124	8.36%
Total	**516**	**$10,869,070**	**$21,082**	**$12,575,542**	**0.17%**	**$252,124**	**8.36%**
Emergency Medical Services							
Career	2,032	$49,800,769	$24,512	$6,092,267	0.40%	$266,673	9.19%
Volunteer	1,176	$30,745,950	$26,139	$6,092,267	0.43%	$266,673	9.80%
Mixed	2,139	$55,901,728	$26,139	$6,092,267	0.43%	$266,673	9.80%
Total	**5,347**	**$136,448,447**	**$25,521**	**$6,092,267**	**0.42%**	**$266,673**	**9.57%**
Technical Search and Rescue Groups							
Career	39	$371,702	$9,573	$10,915,200	0.09%	$546,972	1.75%
Total	**39**	**$371,702**	**$9,573**	**$10,915,200**	**0.09%**	**$546,972**	**1.75%**
Total							
Career	4,306	$88,954,662	$20,658	$11,134,694	0.19%	$392,162	5.27%
Volunteer	1,626	$36,898,957	$22,690	$9,017,573	0.25%	$353,062	6.43%
Mixed	2,257	$58,100,126	$25,746	$6,645,065	0.39%	$282,998	9.10%
Total	**8,189**	**$183,953,745**	**$22,464**	**$9,528,799**	**0.24%**	**$356,908**	**6.29%**

Sources: OSHA derived from USFA, 2022; BLS, 2023; BLS, 2023; EPA, 2002; Rice, 2002; U.S. Census, 2021.
Note: Figures may not add to totals due to rounding.
[a] These annualized costs reflect lower costs than presented in the costs chapter because they are adjusted to reflect the percentage of medical exam costs that will be covered by insurance companies

B. Impacts and Regulatory Flexibility Screening Analysis—Small Entities

The discussion in the preceding section focused on the economic viability of each sector overall. This section considers the potential impact of the proposed rule specifically on small organizations. The RFA requires Federal agencies to consider the economic

impact that a proposed rulemaking will have on small entities. The RFA states that whenever a Federal agency is required to publish a general notice of proposed rulemaking for any proposed rule, the agency must prepare and make available for public comment an initial regulatory flexibility analysis (IRFA). 5 U.S.C. 603(a). Pursuant to section 605(b), in lieu of an IRFA, the head of an agency may certify that the proposed rule will not have a significant economic impact on a substantial number of small entities. The agency performed the following screening analysis to determine whether it can certify that the proposed rule will not have a significant economic impact on a substantial number of small entities.

Again, OSHA used a minimum threshold level of annualized costs equal to one percent of annual revenues—and, secondarily, annualized costs equal to ten percent of annual profits—below which the agency has concluded that the costs are unlikely to threaten the survival of small organizations. Compliance costs for organizations meeting the RFA or SBA definition of a small entity were calculated using compliance cost estimates for each provision of the proposed rule for each emergency response service sector.

Table VII–E–4 and Table VII–E–5 show economic impacts for organizations considered small by RFA (public organizations) and SBA (private organizations) definitions, respectively, where total costs include one-time and annual costs annualized using a 3 percent discount rate. The estimated average annualized cost per small public organization is $15,027, while the estimated average annualized cost per small private organization is $22,073. These average costs vary by emergency sector and organization type (career, volunteer, and mixed). For small public organizations, the estimated average cost ranges from $9,040 for volunteer technical search and rescue groups to $30,660 for volunteer emergency medical services. Small volunteer and mixed public fire departments are estimated to experience costs that exceed one percent of revenues. Costs as a percentage of locality revenues are estimated to vary from 0.01 percent or less for several public emergency response organizations to 0.17 percent for volunteer public fire departments. For private organizations, the estimated average cost per organization varies from $7,956 for technical search and rescue groups to $26,090 for both volunteer and mixed responder emergency medical services. All groups are estimated to incur costs that are less than one percent of revenues. Small private emergency medical services are estimated to experience costs that exceed ten percent of profits.

Based on these findings, OSHA is unable to certify that the proposed rule will not have a significant economic impact on a substantial number of small entities and has therefore prepared an IRFA, to further examine issues related to small entities and the proposed rule. The IRFA is presented in Chapter F of this PEA.

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Table VII-E-4. Economic Impacts Experienced by Organizations Affected by the Proposed Rule with Costs Calculated Using a 3 Percent Discount Rate - RFA Small Organizations

	Organizations	Total Annualized Costs [a]	Average Annualized Cost per Organization	Average Revenue per Organization	Costs as % of Revenue	Average Revenue per Locality	Costs as % of Locality Revenue
Fire Departments							
Career	3,297	$49,459,098	$15,001	$4,353,689	0.34%	$131,648,474	0.01%
Volunteer	5,199	$74,848,077	$14,397	$278,588	5.17%	$8,424,035	0.17%
Mixed	1,839	$28,300,040	$15,389	$1,476,936	1.04%	$44,660,155	0.03%
Total	**10,335**	**$152,607,215**	**$14,766**	**$1,495,659**	**0.99%**	**$45,226,308**	**0.03%**
Wildland Fire Services							
Emergency Medical Services							
Career	524	$12,842,892	$24,504	$6,070,423	0.40%	$183,559,703	0.01%
Volunteer	211	$6,461,895	$30,660	$6,070,423	0.51%	$183,559,703	0.02%
Mixed	552	$11,804,516	$21,397	$6,070,423	0.35%	$183,559,703	0.01%
Total	**1,287**	**$31,109,302**	**$24,180**	**$6,070,423**	**0.40%**	**$183,559,703**	**0.01%**
Technical Search and Rescue Groups							
Career	118	$1,679,532	$14,266	$15,079,160	0.09%	$455,969,256	0.00%
Volunteer	1,502	$13,579,128	$9,040	$4,229,050	0.21%	$127,879,578	0.01%
Total	**1,620**	**$15,258,660**	**$9,419**	**$4,834,888**	**0.19%**	**$146,199,132**	**0.01%**
Total							
Career	3,939	$63,981,521	$16,244	$4,902,708	0.33%	$148,249,901	0.01%
Volunteer	6,912	$94,889,100	$13,728	$1,795,450	0.76%	$54,291,487	0.03%
Mixed	2,391	$40,104,555	$16,775	$2,536,967	0.66%	$76,713,748	0.02%
Total	**13,241**	**$198,975,177**	**$15,027**	**$2,936,793**	**0.51%**	**$88,803,830**	**0.02%**

Sources: OSHA derived from USFA, 2022; BLS, 2023; BLS, 2023; EPA, 2002; Rice, 2002; U.S. Census, 2021.

Note: Figures may not add to totals due to rounding.

[a] These annualized costs reflect lower costs than presented in the Costs chapter because they are adjusted to reflect the percentage of medical exam costs that will be covered by insurance companies.

Table VII-E-5. Economic Impacts Experienced by Organizations Affected by the Proposed Rule with Costs Calculated Using a 3 Percent Discount Rate - SBA Small Organizations

	Organizations	Total Annualized Costs [a]	Average Annualized Cost per Organization	Average Revenue per Organization	Costs as % of Revenue	Average Profit per Organization	Costs as % of Profit
WEREs							
Career	1,500	$24,145,368	$16,097	$16,664,010	0.10%	$578,873	2.78%
Total	**1,500**	**$24,145,368**	**$16,097**	**$16,664,010**	**0.10%**	**$578,873**	**2.78%**
Fire Departments							
Career	218	$3,499,760	$16,054	$16,664,010	0.10%	$578,873	2.77%
Volunteer	450	$6,165,972	$13,702	$16,664,010	0.08%	$578,873	2.37%
Mixed	118	$2,203,011	$18,670	$16,664,010	0.11%	$578,873	3.23%
Total	**786**	**$11,868,743**	**$15,100**	**$16,664,010**	**0.09%**	**$578,873**	**2.61%**
Wildland Fire Services							
Career	507	$9,080,060	$17,909	$9,284,797	0.19%	$186,149	9.62%
Total	**507**	**$9,080,060**	**$17,909**	**$9,284,797**	**0.19%**	**$186,149**	**9.62%**
Emergency Medical Services							
Career	1,971	$47,628,769	$24,167	$2,863,241	0.84%	$125,331	19.28%
Volunteer	1,141	$29,769,590	$26,090	$2,863,241	0.91%	$125,331	20.82%
Mixed	2,075	$54,126,527	$26,090	$2,863,241	0.91%	$125,331	20.82%
Total	**5,186**	**$131,524,886**	**$25,359**	**$2,863,241**	**0.89%**	**$125,331**	**20.23%**
Technical Search and Rescue Groups							
Career	35	$275,941	$7,956	$10,113,051	0.08%	$506,775	1.57%
Total	**35**	**$275,941**	**$7,956**	**$10,113,051**	**0.08%**	**$506,775**	**1.57%**
Total							
Career	4,231	$84,629,898	$20,005	$9,296,695	0.22%	$319,928	6.25%
Volunteer	1,591	$35,935,562	$22,587	$6,766,629	0.33%	$253,610	8.91%
Mixed	2,193	$56,329,538	$25,691	$3,605,972	0.71%	$149,740	17.16%
Total	**8,014**	**$176,894,999**	**$22,073**	**$7,281,257**	**0.30%**	**$262,394**	**8.41%**

Sources: OSHA derived from USFA, 2022; BLS, 2023; BLS, 2023; EPA, 2002; Rice, 2002; U.S. Census, 2021.
Note: Figures may not add to totals due to rounding.
[a] These annualized costs reflect lower costs than presented in the Costs chapter because they are adjusted to reflect the percentage of medical exam costs that will be covered by insurance companies.

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F. Initial Regulatory Flexibility Analysis

I. Introduction

The RFA requires Federal agencies to consider the economic impact that a proposed rulemaking will have on small entities. The RFA states that whenever a Federal agency is required to publish a general notice of proposed rulemaking for any proposed rule, the agency must prepare and make available for public comment an initial regulatory flexibility analysis (IRFA). 5 U.S.C. 603(a). Pursuant to section 605(b), in lieu of an IRFA, the head of an agency may certify that the proposed rule will not have a significant economic impact on a substantial number of small entities. A certification must be supported by a factual basis. If the head of an agency makes a certification, the agency shall publish such certification in the **Federal Register** at the time of publication of a general notice of proposed rulemaking or at the time of publication of the final rule. 5 U.S.C. 605(b).

To determine whether OSHA can certify that the proposed emergency response rule will not have a significant economic impact on a substantial number of small entities, the agency has developed screening tests to consider minimum threshold effects of the proposed rule on small entities. These screening tests are similar in concept to the revenue and profit tests described in *Preliminary Economic Analysis and Initial Regulatory Flexibility Analysis,* section VII.E., to identify minimum threshold effects for purposes of demonstrating economic feasibility. For private entities, there are two differences. First, for each affected industry, the screening tests are applied, not to all establishments, but to small entities (called ''small business concerns'' by SBA). Second, although OSHA's regulatory flexibility screening test for revenues also uses a minimum threshold level of annualized costs equal to one percent of annual revenues, OSHA has established a minimum threshold level of annualized costs equal to five percent of annual profits for the average small entity. The agency has chosen a lower minimum threshold level for the profitability screening analysis and has applied its screening tests to small entities to ensure that certification will be made, and an IRFA will not be prepared, only if OSHA can be highly confident that a proposed rule will not have a significant economic impact on a substantial number of small entities in any affected industry.

As stated in Chapter VI, OSHA is not able to certify that the proposed rule will not result in a significant economic impact on a substantial number of small entities, thus triggering the need for an IRFA. Under the provisions of the RFA, as amended in 1996, each such analysis shall contain:

1. A description of the impact of the proposed rule on small entities;
2. A description of the reasons why action by the agency is being considered;
3. A succinct statement of the objectives of, and legal basis for, the proposed rule;
4. A description of and, where feasible, an estimate of the number of small entities to which the proposed rule will apply;
5. A description of the projected reporting, recordkeeping, and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirements and the type of professional skills necessary for preparation of the report or record;
6. An identification, to the extent practicable, of all relevant Federal rules which may duplicate, overlap, or conflict with the proposed rule; and
7. A description and discussion of any significant alternatives to the proposed rule which accomplish the stated objectives of applicable statutes and which minimize any significant economic impact of the proposed rule on small entities, such as:

(a) The establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities;

(b) The clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities;

(c) The use of performance rather than design standards; and

(d) An exemption from coverage of the rule, or any part thereof, for such small entities.

5 U.S.C. 603, 607. The RFA further states that the required elements of the IRFA may be performed in conjunction with or as part of any other agenda or analysis required by any other law if such other analysis satisfies the provisions of the IRFA. 5 U.S.C. 605. The remaining sections of this chapter address each of the components listed above.

II. Initial Regulatory Flexibility Analysis

A. Description of the Impact of the Proposed Rule on Small Entities

The potential small entity impacts of the proposed rule were derived and presented in Chapter VI. Table VII–E–4 of that chapter shows that small public volunteer and mixed fire departments are estimated to experience costs that exceed one percent of revenues. Costs as a percentage of locality revenues are estimated to vary from 0.01 percent or less for several types of public emergency response organizations to 0.17 percent for volunteer public fire departments. Additionally, Table VII–E–5 shows that small private wildland fire service and emergency medical service organizations, are estimated to experience costs that exceed five percent of profits. Note that the costs in these tables were annualized using a 3 percent discount rate.

B. Description of the Reasons Why Action by the Agency Is Being Considered

Emergency response workers in America face considerable occupational health and safety hazards in dynamic and often unpredictable work environments. Current OSHA emergency response and preparedness standards are outdated and incomplete. Specifically, the standards do not address the full range of hazards facing emergency responders, lag behind changes in protective equipment performance and industry practices, and conflict with current industry consensus standards. OSHA's current fire brigade standard, 29 CFR 1910.156, was promulgated in 1980 and has only had minor revisions since then.

Every day, the duties of an emergency responder may require making life and death decisions. A typical workday of an emergency responder could range from responding to a mild medical emergency to a more severe incident such as a multi-building fire. In doing their jobs of protecting the public, personal and real property, and the environment, emergency responders risk exposing themselves to safety and health hazards that may lead to injuries, illnesses, and death.

Some of the most common hazards emergency responders may face include:

- vehicle collisions while traveling to or from emergency incidents;
- falls from heights due to structural or building collapses;
- being struck by, caught in between, or crushed by falling objects and debris;
- burns and other injuries from flashovers and backdrafts;
- exposure to extreme temperatures, both hot and cold;
- excessive noise exposure;
- exposure to carbon monoxide and other toxic chemicals;
- oxygen depletion and inadequate fresh air to breathe; and
- over-exertion due to lifting heavy objects, wearing heavy protective

equipment, repetitive motion, and other similar activities.

Long-term exposure to the various hazards found at emergency incidents may lead not only to physical ailments among responders, but to mental health issues as well. Some longer-term adverse health effects may potentially be associated with the duties of emergency responders include:

- infectious diseases;
- cardiovascular diseases due to environmental stressors and exposures;
- cancer due to exposure to combustion products, asbestos, carcinogens, and other chemicals; and
- stress, PTSD, depression, anxiety, and suicidality resulting from exposure to traumatic events including workplace violence.

As described in the benefits analysis in Chapter VII (see Table VII–10), OSHA estimates that approximately 250 fatalities and approximately 22,000 non-fatal injuries among emergency responders occur annually.

C. Statement of the Objectives of and Legal Basis for the Proposed Rule

The objective of the proposed rule is to reduce the number of injuries, illnesses, and fatalities occurring among emergency responders in the course of their work. This objective will be achieved by requiring employers to establish risk management plans, provide training and medical surveillance, establish medical and physical requirements, develop standard operating procedures, and provide other protective measures enabling emergency responders to perform their duties safely. The legal basis for the rule is the responsibility delegated to the Secretary of Labor by the Occupational Safety and Health (OSH) Act of 1970 (29 U.S.C. 651 *et seq.*). The OSH Act was enacted ''to assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources.'' 29 U.S.C. 651(b). The legal authority for issuing safety and health standards is found in section 6(b) of the OSH Act (29 U.S.C. 655).

The OSH Act imposes a number of requirements OSHA must satisfy before adopting a safety standard. Among other things, the standard must be highly protective, materially reduce a significant risk to workers, be technologically feasible, and be economically feasible. See 58 FR 16612, 16614–16 (Mar. 30, 1993); *Int'l Union, United Auto., Aerospace & Agric. Implement Workers of Am.* v. *OSHA,* 37 F.3d 665, 668–69 (D.C. Cir. 1994). A standard is technologically feasible if the protective measures it requires already exist, can be brought into existence with available technology, or can be created with technology that can reasonably be expected to be developed. *United Steelworkers of Am.* v. *Marshall,* 647 F.2d 1189, 1272 (D.C. Cir. 1980). In determining economic feasibility, OSHA must consider the cost of compliance on an industry rather than on individual employers. In the preliminary and final economic analyses, OSHA follows the advice of the U.S. Court of Appeals for the D.C. Circuit to ''construct a reasonable estimate of compliance costs and demonstrate a reasonable likelihood that these costs will not threaten the existence or competitive structure of an industry.'' Id.

D. Description and Estimate of the Number of Small Entities to Which the Proposed Rule Will Apply

As described above, Chapter VI of this PEA presents OSHA's preliminary analysis of the impacts associated with this proposed rule, including an analysis of the type and number of small entities to which the proposed rule would apply. To estimate the number of small entities potentially affected by this rulemaking, OSHA used definitions developed by SBA for each emergency services sector as well as the definition of a small government according to the RFA. OSHA estimates that approximately 21,000 small entities would be affected by the proposed rule. Across these small entities, roughly 833,000 emergency responders would be protected by the proposed rule.

E. Description of the Projected Reporting, Recordkeeping, and Other Compliance Requirements of the Proposed Rule

Table VII–F–1 shows the average costs per small entity for each provision of the rule by organization type for public entities. Across all provisions of the proposed rule, the average public fire department is estimated to incur costs of $14,766 annually. The costs differ slightly across department type, ranging from $14,397 annually for all-volunteer departments to $15,389 annually for mixed fire departments. The average public emergency medical service organization is estimated to incur costs of $24,180 annually. Among emergency medical services ESO types, the average annual cost varies from $21,397 for mixed organizations to $30,660 for volunteer organizations. Technical search and rescue groups are estimated to incur costs of $9,419 on average annually, with career organizations incurring costs of $14,266 annually and volunteer organizations incurring costs of $9,040 annually. Training is the most expensive provision for fire departments and emergency medical services, accounting for 35 and 46 percent of costs overall, respectively. The program evaluation provision is the most expensive provision for technical search and rescue groups, accounting for 25 percent of their overall costs on average. The second most expensive provision for fire departments and technical search and rescue groups is the medical and physical requirements provision, which accounts for 16 and 14 percent of costs overall, respectively. For emergency medical services, the second most expensive provision is the post incident analysis provision, which accounts for 13 percent of their overall costs under the proposed rule.

Table VII–F–2 presents the average costs per small entity for each provision of the rule by organization type for private entities. WEREs are estimated to incur costs of $16,097 on average annually. Private fire departments are expected to spend $15,100 on average annually to comply with the proposed standard, with a range of $13,702 annually for volunteer fire departments to $18,670 annually for mixed departments. Private wildland fire services are estimated to incur compliance costs of $17,909 annually. Emergency medical service organizations are expected to spend $25,359 on average annually to comply with the proposed rule, with career EMS entities estimated to spend $24,167 on average and both volunteer and mixed emergency medical services entities expected to spend $26,090. The average technical search and rescue group would spend an estimated $7,956 annually. Training is the costliest provision of the proposed rule for all private emergency response service sector entities except for technical search and rescue groups, with costs ranging from 36 to 52 percent in total costs, depending on the ESO or WERE type and sector (excluding technical search and rescue; this group's training costs are estimated to account for 12 percent of their overall costs). For technical search and rescue groups, the most expensive provision of the proposed rule is the program evaluation provision, accounting for 21 percent of overall costs. The second most expensive provision for all private emergency response service sector entities except WEREs is the medical and physical requirements provision, accounting for 11 to 16 percent of costs overall, depending on the sector. For WEREs, the second most expensive provision is the equipment and PPE

provision, which accounts for 14 percent of the average WERE's costs.

OSHA welcomes comment on this analysis and these findings. While the RFA requires OSHA to show impacts on small entities and defines small government entities as those serving populations of less than 50,000, it is possible that, given the unique circumstances of volunteer fire departments, some other approach may be more useful for purposes of OSHA's analysis. Are there additional analyses that the agency should develop to demonstrate economic feasibility and illustrate economic impacts on small entities? If so, what analyses would be most useful for understanding the potential impacts on small entities? In addition, there appear to be limitations on the systematic data available to develop such analyses, particularly as they might focus on smaller governmental jurisdictions. The agency would welcome any suggestions in this area.

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Table VII-F-1. Average Costs for Small Public State-Plan State Entities Affected by the Proposed Emergency Response Rule by Emergency Response Service Sector and Organization Type

	Career	Volunteer	Mixed	Total
Fire Departments				
Rule Familiarization	$15	$15	$15	**$15**
Organization of the WERT and Establishment of the ERP and Emergency Service(s) Capability	$0	$0	$0	**$0**
ESO Establishment of ERP and Emergency Service(s) Capability	$778	$768	$783	**$774**
Team Member and Responder Participation	$43	$42	$44	**$43**
WERT and ESO Risk Management Plan	$393	$390	$395	**$392**
Medical and Physical Requirements	$1,405	$2,750	$2,825	**$2,335**
Training	$5,885	$4,671	$5,115	**$5,137**
WERE Facility Preparedness	$0	$0	$0	**$0**
ESO Facility Preparedness	$980	$970	$986	**$976**
Equipment and PPE	$1,837	$1,816	$1,848	**$1,828**
Vehicle Preparedness and Operation	$754	$747	$758	**$751**
WERE Pre-Incident Planning	$0	$0	$0	**$0**
ESO Pre-Incident Planning	$451	$447	$470	**$452**
Incident Management System Development	$25	$25	$25	**$25**
Emergency Incident Operations	$113	$10	$55	**$51**
Standard Operating Procedures	$164	$163	$170	**$164**
Post Incident Analysis	$690	$117	$378	**$346**
Program Evaluation	$1,468	$1,464	$1,522	**$1,476**
Total	**$15,001**	**$14,397**	**$15,389**	**$14,766**
Emergency Medical Services				
Rule Familiarization	$14	$14	$14	**$14**
Organization of the WERT and Establishment of the ERP and Emergency Service(s) Capability	$0	$0	$0	**$0**
ESO Establishment of ERP and Emergency Service(s) Capability	$745	$745	$745	**$745**
Team Member and Responder Participation	$38	$38	$38	**$38**
WERT and ESO Risk Management Plan	$379	$380	$379	**$379**
Medical and Physical Requirements	$1,351	$3,560	$2,137	**$2,050**
Training	$12,309	$15,202	$8,416	**$11,113**
WERE Facility Preparedness	$0	$0	$0	**$0**
ESO Facility Preparedness	$191	$191	$191	**$191**
Equipment and PPE	$1,351	$1,353	$1,351	**$1,351**

	Career	Volunteer	Mixed	Total
Vehicle Preparedness and Operation	$727	$728	$727	**$727**
WERE Pre-Incident Planning	$0	$0	$0	**$0**
ESO Pre-Incident Planning	$433	$439	$433	**$434**
Incident Management System Development	$25	$25	$25	**$25**
Emergency Incident Operations	$2,229	$2,624	$2,229	**$2,294**
Standard Operating Procedures	$159	$161	$159	**$159**
Post Incident Analysis	$3,090	$3,704	$3,090	**$3,191**
Program Evaluation	$1,462	$1,495	$1,462	**$1,468**
Total	**$24,504**	**$30,660**	**$21,397**	**$24,180**
Technical Search and Rescue Groups				
Rule Familiarization	$11	$18	N/A	**$17**
Organization of the WERT and Establishment of the ERP and Emergency Service(s) Capability	$0	$0	N/A	**$0**
ESO Establishment of ERP and Emergency Service(s) Capability	$602	$954	N/A	**$928**
Team Member and Responder Participation	$36	$1	N/A	**$4**
WERT and ESO Risk Management Plan	$309	$490	N/A	**$477**
Medical and Physical Requirements	$898	$1,362	N/A	**$1,328**
Training	$8,309	$269	N/A	**$853**
WERE Facility Preparedness	$0	$0	N/A	**$0**
ESO Facility Preparedness	$154	$244	N/A	**$238**
Equipment and PPE	$1,142	$1,224	N/A	**$1,218**
Vehicle Preparedness and Operation	$584	$925	N/A	**$900**
WERE Pre-Incident Planning	$0	$0	N/A	**$0**
ESO Pre-Incident Planning	$401	$642	N/A	**$624**
Incident Management System Development	$20	$31	N/A	**$31**
Emergency Incident Operations	$13	$20	N/A	**$19**
Standard Operating Procedures	$147	$235	N/A	**$229**
Post Incident Analysis	$137	$213	N/A	**$207**
Program Evaluation	$1,501	$2,411	N/A	**$2,345**
Total	**$14,266**	**$9,040**	**N/A**	**$9,419**

Sources: OSHA derived from USFA, 2022; BLS, 2023; BLS, 2023; EPA, 2002; Rice, 2002; U.S. Census, 2021.

Table VII-F-2. Average Costs for Small Private Entities Affected by the Proposed Emergency Response Rule by Emergency Response Service Sector and Organization Type

	Career	Volunteer	Mixed	Total
WEREs				
Rule Familiarization	$18	N/A	N/A	**$18**
Organization of the WERT and Establishment of the ERP and Emergency Service(s) Capability	$939	N/A	N/A	**$939**
ESO Establishment of ERP and Emergency Service(s) Capability	$0	N/A	N/A	**$0**
Team Member and Responder Participation	$58	N/A	N/A	**$58**
WERT and ESO Risk Management Plan	$478	N/A	N/A	**$478**
Medical and Physical Requirements	$189	N/A	N/A	**$189**
Training	$8,100	N/A	N/A	**$8,100**
WERE Facility Preparedness	$592	N/A	N/A	**$592**
ESO Facility Preparedness	$0	N/A	N/A	**$0**
Equipment and PPE	$2,329	N/A	N/A	**$2,329**
Vehicle Preparedness and Operation	$911	N/A	N/A	**$911**
WERE Pre-Incident Planning	$258	N/A	N/A	**$258**
ESO Pre-Incident Planning	$0	N/A	N/A	**$0**
Incident Management System Development	$31	N/A	N/A	**$31**
Emergency Incident Operations	$12	N/A	N/A	**$12**
Standard Operating Procedures	$202	N/A	N/A	**$202**
Post Incident Analysis	$144	N/A	N/A	**$144**
Program Evaluation	$1,837	N/A	N/A	**$1,837**
Total	**$16,097**	**N/A**	**N/A**	**$16,097**
Fire Departments				
Rule Familiarization	$15	$15	$15	**$15**
Organization of the WERT and Establishment of the ERP and Emergency Service(s) Capability	$0	$0	$0	**$0**
ESO Establishment of ERP and Emergency Service(s) Capability	$765	$779	$768	**$773**
Team Member and Responder Participation	$42	$43	$43	**$43**
WERT and ESO Risk Management Plan	$388	$394	$389	**$392**
Medical and Physical Requirements	$1,528	$2,513	$3,935	**$2,453**
Training	$6,864	$4,168	$7,349	**$5,393**
WERE Facility Preparedness	$0	$0	$0	**$0**
ESO Facility Preparedness	$966	$982	$968	**$976**
Equipment and PPE	$1,809	$1,840	$1,814	**$1,827**
Vehicle Preparedness and Operation	$745	$754	$748	**$751**
WERE Pre-Incident Planning	$0	$0	$0	**$0**
ESO Pre-Incident Planning	$452	$445	$472	**$451**
Incident Management System Development	$25	$26	$25	**$25**
Emergency Incident Operations	$111	$10	$54	**$44**

	Career	Volunteer	Mixed	Total
Standard Operating Procedures	$164	$162	$171	**$164**
Post Incident Analysis	$696	$117	$382	**$317**
Program Evaluation	$1,484	$1,454	$1,539	**$1,475**
Total	**$16,054**	**$13,702**	**$18,670**	**$15,100**
Wildland Fire Services				
Rule Familiarization	$15	N/A	N/A	**$15**
Organization of the WERT and Establishment of the ERP and Emergency Service(s) Capability	$0	N/A	N/A	**$0**
ESO Establishment of ERP and Emergency Service(s) Capability	$733	N/A	N/A	**$733**
Team Member and Responder Participation	$40	N/A	N/A	**$40**
WERT and ESO Risk Management Plan	$373	N/A	N/A	**$373**
Medical and Physical Requirements	$1,912	N/A	N/A	**$1,912**
Training	$9,412	N/A	N/A	**$9,412**
WERE Facility Preparedness	$0	N/A	N/A	**$0**
ESO Facility Preparedness	$928	N/A	N/A	**$928**
Equipment and PPE	$1,737	N/A	N/A	**$1,737**
Vehicle Preparedness and Operation	$718	N/A	N/A	**$718**
WERE Pre-Incident Planning	$0	N/A	N/A	**$0**
ESO Pre-Incident Planning	$401	N/A	N/A	**$401**
Incident Management System Development	$25	N/A	N/A	**$25**
Emergency Incident Operations	$12	N/A	N/A	**$12**
Standard Operating Procedures	$148	N/A	N/A	**$148**
Post Incident Analysis	$125	N/A	N/A	**$125**
Program Evaluation	$1,331	N/A	N/A	**$1,331**
Total	**$17,909**	**N/A**	**N/A**	**$17,909**
Emergency Medical Services				
Rule Familiarization	$14	$14	$14	**$14**
Organization of the WERT and Establishment of the ERP and Emergency Service(s) Capability	$0	$0	$0	**$0**
ESO Establishment of ERP and Emergency Service(s) Capability	$740	$740	$740	**$740**
Team Member and Responder Participation	$38	$38	$38	**$38**
WERT and ESO Risk Management Plan	$377	$377	$377	**$377**
Medical and Physical Requirements	$1,549	$3,473	$3,473	**$2,742**
Training	$12,783	$12,783	$12,783	**$12,783**
WERE Facility Preparedness	$0	$0	$0	**$0**
ESO Facility Preparedness	$190	$190	$190	**$190**
Equipment and PPE	$1,344	$1,344	$1,344	**$1,344**
Vehicle Preparedness and Operation	$723	$723	$723	**$723**
WERE Pre-Incident Planning	$0	$0	$0	**$0**
ESO Pre-Incident Planning	$428	$428	$428	**$428**

	Career	Volunteer	Mixed	Total
Incident Management System Development	$25	$25	$25	**$25**
Emergency Incident Operations	$1,853	$1,853	$1,853	**$1,853**
Standard Operating Procedures	$157	$157	$157	**$157**
Post Incident Analysis	$2,518	$2,518	$2,518	**$2,518**
Program Evaluation	$1,428	$1,428	$1,428	**$1,428**
Total	**$24,167**	**$26,090**	**$26,090**	**$25,359**
Technical Search and Rescue Groups				
Rule Familiarization	$16	N/A	N/A	**$16**
Organization of the WERT and Establishment of the ERP and Emergency Service(s) Capability	$0	N/A	N/A	**$0**
ESO Establishment of ERP and Emergency Service(s) Capability	$815	N/A	N/A	**$815**
Team Member and Responder Participation	$11	N/A	N/A	**$11**
WERT and ESO Risk Management Plan	$414	N/A	N/A	**$414**
Medical and Physical Requirements	$991	N/A	N/A	**$991**
Training	$944	N/A	N/A	**$944**
WERE Facility Preparedness	$0	N/A	N/A	**$0**
ESO Facility Preparedness	$211	N/A	N/A	**$211**
Equipment and PPE	$1,153	N/A	N/A	**$1,153**
Vehicle Preparedness and Operation	$795	N/A	N/A	**$795**
WERE Pre-Incident Planning	$0	N/A	N/A	**$0**
ESO Pre-Incident Planning	$497	N/A	N/A	**$497**
Incident Management System Development	$27	N/A	N/A	**$27**
Emergency Incident Operations	$24	N/A	N/A	**$24**
Standard Operating Procedures	$181	N/A	N/A	**$181**
Post Incident Analysis	$205	N/A	N/A	**$205**
Program Evaluation	$1,672	N/A	N/A	**$1,672**
Total	**$7,956**	**N/A**	**N/A**	**$7,956**

Sources: OSHA derived from USFA, 2022; BLS, 2023; BLS, 2023; EPA, 2002; Rice, 2002; U.S. Census, 2021.

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F. Federal Rules Which May Duplicate, Overlap, or Conflict With the Proposed Rule

OSHA has identified several Federal rules and guidelines that address emergency responders. Below, the agency discusses whether these rules and guidelines would duplicate, overlap, or conflict with the proposed regulatory language.

The first set of Federal rules or guidelines that OSHA identified are regulations promulgated by the Nuclear Regulatory Commission (NRC). NRC fire protection regulations specify requirements for fire brigades at nuclear reactor facilities. See 10 CFR 50.48 and appendix R.III(H) and (I).

OSHA and the NRC have a Memorandum of Understanding (MOU) pursuant to which the NRC has authority and responsibility for hazards related to radioactive materials, including facility conditions that could affect the safety of radioactive materials by, for example, causing a fire. Under the MOU, OSHA has authority and responsibility for industrial safety and health hazards not related to the use of radioactive materials. MOU (Sept. 6, 2013). Thus, pursuant to the MOU, the proposed standard would apply at nuclear reactor facilities to the extent it covers hazards not related to the use of radioactive materials.

The second set of Federal rules or guidelines that OSHA identified are regulations promulgated by the Federal Aviation Administration (FAA). The FAA establishes requirements for aircraft rescue and firefighting. (14 CFR 139.315, 139.317, 139.319)

Pursuant to section 4(b)(1) of the OSH Act, 29 U.S.C. 653(b)(1), and the Supreme Court's decision in *Chao* v. *Mallard Bay Drilling, Inc.,* 534 U.S. 235 (2002), OSHA's regulations are preempted if they conflict with an exercise of authority by another Federal agency to address working conditions under that agency's jurisdiction. Therefore, to the extent the FAA has exercised authority to regulate emergency response activities covered by the proposed standard that fall under FAA jurisdiction, the proposed standard would be preempted.

The third set of Federal rules or guidelines that OSHA identified are standards and a practice model put out by the National Highway Transportation Safety Administration (NHTSA), part of the Department of Transportation (DOT). NHTSA establishes standards for EMS providers and EMS training curriculums.

There would be no conflict between OSHA's proposed standard and the NHTSA standards and practice model because the NHTSA standards and practice model recommend practices but do not carry the force of law. Such non-mandatory guidelines do not constitute rules that would duplicate, overlap, or conflict with a rule as outlined in the proposed standard. *Cf. Ensign-Bickford Co.* v. *OSHRC,* 717 F.2d 1419, 1421 (D.C. Cir. 1983) (agency regulates working conditions only if it ''implements [a] regulatory apparatus''); *Marshall* v. *Northwest Orient Airlines, Inc.,* 574 F.2d 119, 122 (2d Cir. 1978) (''sister agency must actually be exercising a power to regulate safety conditions''). There would also be no conflict because OSHA's proposed standard would be performance-based and is intended to ensure that employers adopt and implement practices and training requirements that are consistent with the NHTSA standards.

The fourth set of Federal rules or guidelines that OSHA identified apply to the mining industry which is regulated by the Mine Safety and Health Administration (MSHA). MSHA regulations have extensive provisions for emergency incidents in mines including the enhanced emergency response and rescue requirements established by the Mine Improvement and New Emergency Response Act of 2006 (MINER Act).

Upon the creation of MSHA in 1977, OSHA and MSHA entered into an interagency agreement to delineate authority between them. The agreement stipulates that OSHA does not have jurisdiction where MSHA regulations apply. As such, there is no conflict between OSHA's proposed standard and MSHA's emergency response regulations.

The final set of Federal rules or guidelines that OSHA identified are existing OSHA standards that cover emergency response activities. OSHA has reviewed existing standards and determined that no standard conflicts or overlaps with the proposed Emergency Response standard. To the extent other standards are applicable, they are complementary of the proposed standard.

G. Alternatives to the Proposed Rule

This section first presents OSHA's responses to recommendations made by the SBREFA panel in response to comments made by SERs to potentially alleviate impacts on small entities. Next, the agency presents four regulatory alternatives to the proposed OSHA emergency response rule.

(i) SBREFA Panel Recommendations

Table VII–F–3 lists the SBAR Panel recommendations and OSHA's responses to these recommendations.

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Table VII-F-3. SBAR Panel Recommendations and OSHA Responses

Recommendation	OSHA's Response
The Panel recommends that OSHA thoroughly review and clearly present who is and who is not in the scope of this standard.	The Scope paragraph clearly identifies which employers would be covered by the rule. In the preamble, OSHA identifies that employers not under Federal jurisdiction could be covered by State Plan state requirements.
OSHA should conduct a thorough review to determine which states consider volunteers to be employees who would be covered by this standard and present this analysis as part of the proposed rule.	A thorough explanation is provided in the preamble. Related data are discussed in Industry Profile section of the PEA.
The Panel further recommends that OSHA thoroughly consider whether volunteers currently covered as employees would be negatively impacted by inclusion in all the provisions of this rule.	OSHA believes that volunteers could be negatively impacted by being *excluded* from parts of the proposal. However, to the extent possible, as discussed in the preamble, the agency has tailored the requirements to the specific needs of the affected responders.
The Panel recommends that OSHA consider the feasibility of implementation for small and volunteer ESOs and review whether exemption from some or all parts of the standard would be appropriate for some or all small or volunteer ESOs.	The agency has drafted a proposed standard that is designed to provide an appropriate level of protection for the hazards routinely encountered, has examined the economic impact on various types of departments, and has preliminarily determined that proposed standard is feasible. However, the agency is also seeking broad public comment on many issues and potential alternatives as well as its preliminary feasibility analysis.
The Panel recommends that OSHA continue working to identify additional areas where burdens could be reduced or eliminated for small and volunteer ESOs.	The agency drafted the proposal with this in mind. In addition, the proposed rule's preamble contains multiple solicitations for comment from the regulated community.

Recommendation	OSHA's Response
The Panel recognizes that OSHA must show that a standard is economically feasible as part of the agency's legal requirements but highlights here that it is especially important in this circumstance where infeasibility may affect public safety. There are also additional analytical challenges given that traditional government data sources may not adequately capture the financial situation of volunteer ESOs that rely entirely on donations to fund their operations and that typical methodologies and assumptions used to establish economic feasibility may not be applicable for all volunteer ESOs that lack a dedicated source of funding. The Panel recommends that OSHA thoroughly consider these unique situations, explain how the economic feasibility analysis took these situations into consideration, and what, if any, adjustments the agency made to the feasibility assessment, including to account for ESOs that are sustained wholly by donations from the community.	The agency has attempted to minimize feasibility issues in its proposed standard. It has also examined the potential economic impact of the proposal in the PEA and IRFA. Nonetheless, the agency welcomes comment on this issue.
The Panel recommends that OSHA not include skilled support employers in the scope of a proposed Emergency Response standard.	OSHA has not included skilled support employers in the scope of the proposed rule.
The Panel recommends that OSHA consider whether some minimum level of pre-incident familiarization, training, or coordination requirements for ESOs with respect to use of skilled support services would improve safety and should be included in the requirements of a proposed Emergency Response standard.	OSHA developed some requirements for WEREs and ESO to protect the health and safety of skilled support workers on emergency incident scenes.
The Panel recommends that OSHA evaluate whether the hazards encountered by workplace emergency response teams are adequately and appropriately addressed by the provisions of the draft standard.	OSHA drafted the proposed rule to clearly differentiate the requirements for WEREs and ESOs based on the differences in hazards encountered.
If OSHA finds they are not, the Panel further recommends that OSHA consider developing different requirements for workplace emergency response teams taking into consideration their unique characteristics relative to other ESOs.	OSHA drafted the proposed rule to clearly differentiate the requirements for WEREs and ESOs based on the differences in hazards encountered.

Recommendation	OSHA's Response
OSHA's draft regulatory text does not specify the number of hours of training that responders would need to complete. The Panel recommends that OSHA clarify that the draft standard does not require all responders to complete any set number of hours of training but rather that responders would be trained to a level appropriate for the complexity and requirements of their job duties or activities.	The proposed rule would require the WERE or ESO to determine the amount of training needed, based on the emergency services provided and duties performed.
The Panel recommends that OSHA closely evaluate the various planning requirements and eliminate or reduce those requirements where possible. OSHA should look closely at the labor costs associated with written planning requirements.	The agency believes the proposed standard includes only those planning requirements that are necessary and appropriate for emergency responder safety. The labor costs of those provisions are included in the PEA.
If OSHA's analysis determines that some planning requirements are unnecessary or infeasible, the Panel recommends that OSHA remove those entirely.	As indicated, OSHA believes unnecessary or infeasible planning requirements were not included in the proposal, but the agency welcomes comment on the issue.
Where the development and writing of a plan is found to be necessary to protect workers, the Panel recommends that OSHA simplify those requirements to the extent feasible and to make model plans, checklists, and other assistance available to small entities where possible.	Plan requirements would be based on individual circumstances for each WERE or ESO. Model plans, checklists, etc., could be provided with or subsequent to the final rule.
The Panel recommends that OSHA clarify, reduce, or eliminate the requirement for a health and fitness coordinator since the duties of this individual and the benefits they would provide are not clear.	The proposed rule does not include a requirement for a health and fitness coordinator. The rule would require an individual designated to oversee the health and fitness program, but that role can be staffed from within the ESO.
The Panel recommends that OSHA reconsider the necessity of recordkeeping of health and fitness data.	OSHA believes it is important to maintain health and fitness records for the reasons discussed in this preamble.
The Panel recommends that OSHA clarify the fitness for duty requirements and determine how to balance requirements that would improve responder safety with the necessity to allow volunteer ESOs and small ESOs of all types to adequately staff their ESO and to provide the necessary services to their constituent communities.	The proposed rule requires the WERE or ESO need only to confirm that the team member or responder can safely perform the job functions expected of them.

Recommendation	OSHA's Response
The Panel acknowledges the importance of mental health support for emergency responders. The Panel recommends that OSHA examine the costs and benefits associated with behavioral health and wellness programs as part of its assessment of whether to maintain the requirements for these programs.	The proposed rule allows the WERE or ESO to either provide behavioral health resources or identify those resources in the community. OSHA reviewed the available literature on mental health support for emergency responders and identified studies that demonstrate the effectiveness of these programs. This is further discussed in the Benefits section of the PEA and in the summary and explanation of paragraph (g).
The Panel further recommends that OSHA ensure that responder confidentiality is not compromised, and that the agency provide additional guidance and clarification on how ESOs can meet any behavioral health and wellness requirements.	Maintaining record confidentiality is a requirement in the proposed rule. OSHA has discussed the requirements of the proposed behavioral health section and how employers can comply with those requirements in the summary and explanation. Additional guidance could be provided with or subsequent to a final standard.
The Panel recommends that, unless the agency finds evidence showing that Good Samaritans and Spontaneous Unaffiliated Volunteers (SUVs) are exposing responders to an increased risk, OSHA remove the requirements related to Good Samaritans and SUVs.	As recommended, Good Samaritans and SUVs are not covered in the proposed standard.
The Panel recommends that OSHA clarify the use of NFPA provisions in the proposed rule and consider how incorporation by reference could affect small and volunteer ESOs.	Specific references to NFPA standards are explained in the preamble. The agency has only incorporated the NFPA guidance as mandatory to the extent necessary for responder safety. Relevant costs are reflected in the PEA and the economic impact has been assessed.
The agency should look closely at the feasibility of NFPA's recommendations for sun setting/retirement of PPE, vehicles, and equipment.	Sunset provisions are not included in the proposed standard.
The Panel recommends that OSHA conduct further research on the necessity and cost effectiveness of the NFPA recommended medical screenings, exams, and evaluations, and the appropriateness of requiring those screenings for responders with various levels of exposure and risk based on their duties and designated tasks.	The proposed standard's medical requirements have been modified in response to input from small entity panelists and the record as a whole. The preamble discusses the various potential options, and the PEA assesses the attendant costs and effectiveness.

Recommendation	OSHA's Response
The Panel recommends that OSHA consider replacing prescriptive provisions with performance-based provisions, where practical, and tailor, to the extent possible, certain requirements of this standard for small and volunteer ESOs.	The agency believes it has made the proposed standard as performance-oriented as reasonably possible. OSHA welcomes comment from the public on specific provisions that commenters believe could be enhanced in this regard.
OSHA should consider scaling the various analysis, planning, and written plans required by this standard to the size and complexity of the ESO and their operations.	The agency believes the proposal is sufficiently performance-oriented to accomplish this objective.

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(ii) Regulatory Alternatives

This section discusses four regulatory alternatives considered by OSHA for the proposed rule. Each regulatory alternative presented here is described and analyzed relative to the proposed rule and addresses the costs and benefits to all entities.

Alternatives 1, 2, and 3 change the threshold at which responders would qualify for the full medical exam requirement of the proposed standard. While the proposed rule sets this threshold at 15 combustion products exposure events per year, these alternatives set the threshold at one (alternative 1), ten (alternative 2), and thirty (alternative 3) combustion product exposure events per year. Alternative 4 would require that all responders, regardless of the number of times a responder is exposed to combustion products, undergo the full medical exam.

Table VII–F–4. presents the total annualized costs and incremental costs for each regulatory alternative. Alternative 4, where all responders receive the full NFPA 1582 exam, is the costliest, with ESOs incurring an additional $164.5 million annually compared to the proposed rule. The least costly alternative would set the number of exposure events at 30 per year, which results in approximately $13.2 million less in compliance costs per year.

Table VII-F-4. Costs for Regulatory Alternatives (2022$)

Alternative	Total Annualized Costs	Difference from Draft Rule
Draft Rule	$661,172,447	$0
1. Exposure threshold equals 1 event per year	$743,674,761	$82,502,314
2. Exposure threshold equals 10 events per year	$668,851,082	$7,678,634
3. Exposure threshold equals 30 events per year	$647,950,873	-$13,221,575
4. All responders receive the full NFPA 1582 exam	$825,678,832	$164,506,384

Source: OSHA.

Table VII–F–5 presents the estimated number and monetized benefits of fatalities and non-fatal injuries avoided by each of the four alternatives, compared to the proposed rule. As shown in the table, the alternatives only affect the number of fatalities that would be avoided by the proposed rule.

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Table VII-5. Summary of Benefits for Regulatory Alternatives

Alternative	Current Annual Cases	Average Annual Cases Prevented	Value of Average Annual Cases Prevented, Millions of Dollars (2022$)
Proposed Rule			
Total Fatalities	239	54	$670
Nonfatal injuries-EMTs and paramedics	7,694	3,847	$417
Nonfatal injuries-firefighters	14,335	7,168	$778
Average annualized value over 50 years, 3 percent discount rate			$2,628.5
1. Exposure threshold equals 1 event per year			
Total Fatalities	264	66	$825
Nonfatal injuries-EMTs and paramedics	7,694	3,847	$417
Nonfatal injuries-firefighters	14,335	7,168	$778
Average annualized value over 50 years, 3 percent discount rate			$2,841.6
Difference from Draft Rule			$213.0
2. Exposure threshold equals 10 events per year			
Total Fatalities	234	54	$676
Nonfatal injuries-EMTs and paramedics	7,694	3,847	$417
Nonfatal injuries-firefighters	14,335	7,168	$778
Average annualized value over 50 years, 3 percent discount rate			$2,637.2
Difference from Draft Rule			$8.7
3. Exposure threshold equals 30 events per year			
Total Fatalities	202	46	$574
Nonfatal injuries-EMTs and paramedics	7,694	3,847	$417
Nonfatal injuries-firefighters	14,335	7,168	$778
Average annualized value over 50 years, 3 percent discount rate			$2,496.6
Difference from Draft Rule			-$131.9
4. All responders receive the full NFPA 1582 exam			
Total Fatalities	264	66	$825
Nonfatal injuries-EMTs and paramedics	7,694	3,847	$417
Nonfatal injuries-firefighters	14,335	7,168	$778
Average annualized value over 50 years, 3 percent discount rate			$2,841.6
Difference from Draft Rule			$213.0

III. Net Benefits

Combining the results of the calculations in the *Costs of Compliance* and *Benefits* sections, OSHA estimates that the proposed rule would result in annualized net benefits (*i.e.,* benefits minus costs) of approximately $2 billion, with the results varying somewhat depending on the discount rate. The calculation is presented in Table VII–F–6.

Table VII-F-6. Annualized Net Benefits of Proposed Emergency Response Standard

Discount Rate	Annualized Benefits	Annualized Costs	Annualized Net Benefits
3%	$2,628,500,000	$661,172,447	$1,967,327,553
7%	$2,262,300,000	$668,538,219	$1,593,761,781

OSHA has also estimated the unannualized stream of benefits and costs over the next 50 years, as shown in Table VII–F–7.

Table VII-F-7. Unannualized Benefits and Costs by Year for a 50-Year Time Horizon

Year	Benefits	Costs
Year 1	$1,637,153,750	$832,711,890
Year 2	$1,665,803,941	$506,763,028
Year 3	$1,694,955,510	$654,055,969
Year 4	$1,724,617,232	$570,377,723
Year 5	$1,754,798,033	$643,824,865
Year 6	$1,785,506,999	$539,942,918
Year 7	$1,816,753,371	$668,350,844
Year 8	$1,848,546,555	$551,872,341
Year 9	$1,880,896,120	$628,947,752
Year 10	$2,061,898,074	$585,219,491
Year 11	$2,097,981,290	$832,711,890
Year 12	$2,134,695,963	$506,763,028
Year 13	$2,172,053,142	$654,055,969
Year 14	$2,210,064,072	$570,377,723
Year 15	$2,248,740,193	$643,824,865
Year 16	$2,288,093,147	$539,942,918
Year 17	$2,328,134,777	$668,350,844
Year 18	$2,368,877,135	$551,872,341
Year 19	$2,410,332,485	$628,947,752
Year 20	$2,745,388,364	$585,219,491
Year 21	$2,793,432,661	$832,711,890
Year 22	$2,842,317,732	$506,763,028
Year 23	$2,892,058,293	$654,055,969
Year 24	$2,942,669,313	$570,377,723
Year 25	$2,994,166,026	$643,824,865
Year 26	$3,046,563,931	$539,942,918
Year 27	$3,099,878,800	$668,350,844
Year 28	$3,154,126,679	$551,872,341
Year 29	$3,209,323,896	$628,947,752
Year 30	$3,265,487,064	$585,219,491
Year 31	$3,322,633,088	$832,711,890
Year 32	$3,380,779,167	$506,763,028

Year 33	$3,439,942,802	$654,055,969
Year 34	$3,500,141,801	$570,377,723
Year 35	$3,561,394,283	$643,824,865
Year 36	$3,623,718,683	$539,942,918
Year 37	$3,687,133,760	$668,350,844
Year 38	$3,751,658,600	$551,872,341
Year 39	$3,817,312,626	$628,947,752
Year 40	$3,884,115,597	$585,219,491
Year 41	$3,952,087,620	$832,711,890
Year 42	$4,021,249,153	$506,763,028
Year 43	$4,091,621,013	$654,055,969
Year 44	$4,163,224,381	$570,377,723
Year 45	$4,236,080,808	$643,824,865
Year 46	$4,310,212,222	$539,942,918
Year 47	$4,385,640,936	$668,350,844
Year 48	$4,462,389,652	$551,872,341
Year 49	$4,540,481,471	$628,947,752
Year 50	$4,619,939,897	$585,219,491

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VIII. Additional Requirements

A. Unfunded Mandates Reform Act

OSHA reviewed this proposed rule according to the Unfunded Mandates Reform Act of 1995 (UMRA), 2 U.S.C. 1501 *et seq.* Section 202 of the UMRA, 2 U.S.C. 1532(a), requires agencies to assess the anticipated costs and benefits of a rule before issuing ''any general notice of proposed rulemaking'' that includes a Federal mandate that may result in expenditures in any one year by State, local, and tribal governments, in the aggregate, or by the private sector, of at least $100 million, adjusted annually for inflation. In 2023, that threshold is $177 million.

This proposed rule does not place a mandate on State or local government, for purposes of the UMRA, because the agency's standards do not apply to State and local governments (29 U.S.C. 652(5)). States that have elected voluntarily to adopt a State Plan approved by the agency must adopt a standard at least as effective as the Federal standard, which must apply to State and local government agencies (29 U.S.C. 667(b), (c)(2) and (6)).

The OSH Act does not cover tribal governments in the performance of traditional governmental functions, such as firefighting, EMS, and search and rescue for the tribe in general. *Reich* v. *Mashantucket Sand & Gravel,* 95 F.3d 174, 180 (2nd Cir. 1996) (traditionally governmental activities are excepted from the rule that general Federal statutes apply to tribes); *cf. Snyder* v. *Navajo Nation,* 382 F.3d 892, 895 (9th Cir. 2004) (Fair Labor Standards Act does not apply to tribal police because the maintenance of law and order is a traditional governmental function). However, when tribes engage in activities of a commercial or service character, such as firefighting, EMS, and search and rescue for particular commercial enterprises, like casinos and sawmills, they are subject to general Federal statutes, including the OSH Act. *Menominee Tribal Enters.* v. *Solis,* 601 F.3d 669 (7th Cir. 2010) (OSH Act applies to tribal sawmill); *Mashantucket Sand & Gravel,* 95 F.3d at 180; *Smart* v. *State Farm Ins. Co.,* 868 F.2d 929 (7th Cir. 1989) (original version of Employment Retirement Income Security Act applied to tribal health center). However, this proposed rule would not require tribal governments to expend, in the aggregate, $100 million or more in any one year for these activities. As noted below, OSHA also reviewed this rulemaking in accordance with Executive Order 13175 on Consultation and Coordination with Indian Tribal Governments (65 FR 67249 (November 9, 2000)) and determined that it does not have ''tribal implications'' as defined in that Executive order.

Based on the analysis presented in the *Preliminary Economic Analysis and Initial Regulatory Flexibility Analysis,* section VII. of this preamble, OSHA concludes that the proposed rule would impose a Federal mandate on the private sector of $100 million or more annually, adjusted for inflation. The Preliminary Economic Analysis constitutes the written statement containing a qualitative and quantitative assessment of the anticipated costs and benefits required under section 202(a) of the UMRA (2 U.S.C. 1532).

B. Consultation and Coordination With Indian Tribal Governments/Executive Order 13175

OSHA reviewed this proposed rule in accordance with Executive Order 13175 (E.O. 13175), Consultation and Coordination with Indian Tribal Governments, 65 FR 67249 (Nov. 6, 2000), and determined that it does not have ''tribal implications'' as defined in that order. Section 5 of the Executive order requires agencies to consult with tribal officials early in the process of developing regulations that: (1) have tribal implications, impose substantial direct compliance costs on Indian governments, and are not required by statute; or (2) have tribal implications and preempt tribal law (E.O. 13175 section 5(b), (c)). The Executive order requires that such consultation occur to the extent practicable.

As explained above, the OSH Act does not cover tribal governments in the performance of traditional governmental functions, so the proposed rule would not have substantial direct effects on one or more Indian tribes in their sovereign capacity, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes (see E.O. 13175 section 1(a)). However, employees performing, for example, firefighting and search and rescue for particular tribal commercial enterprises,

would receive the same protections and benefits of the standard as all other covered employees.

On June 20, 2023, OSHA held a listening session with tribal representatives regarding this Emergency Response rulemaking. OSHA provided an overview of the rulemaking effort and invited comments and questions from tribal representatives. A summary of the meeting and list of attendees can be viewed in the docket (Document ID 0154).

C. Environmental Impacts/National Environmental Policy Act

OSHA reviewed the proposed rule according to the National Environmental Policy Act (NEPA) of 1969, 42 U.S.C. 4321 *et seq.,* the regulations of the Council on Environmental Quality (CEQ), 40 CFR chapter V, subchapter A, and the Department of Labor's NEPA procedures, 29 CFR part 11. The agency has preliminarily determined that the proposed rule would have no impact on air, water, or soil quality; plant or animal life; the use of land; or other aspects of the external environment. Therefore, OSHA preliminarily concludes that the proposed rule will have no significant environmental impacts.

D. Consensus Standards

OSHA must consider adopting existing national consensus standards that differ substantially from OSHA's proposed standard if the consensus standard would better effectuate the purposes of the Act (see National Technology Transfer and Advancement Act of 1995, Public Law 104–113, section 12(d), 15 U.S.C. 272 Note; see also 29 U.S.C. 655(b)(8)). Whenever an OSHA rule differs substantially from a national consensus standard, OSHA must publish in the **Federal Register** a statement of the reasons why the rule will better effectuate the purposes of the Act than the national consensus standard (29 U.S.C. 655(b)(8)). In the development of the proposed rule, OSHA relied heavily on NFPA national consensus standards. Many of the proposed provisions are based on or consistent with NFPA standards. Where a proposed provision does deviate substantially from the relevant consensus standard, OSHA has explained the departure in the *Summary and Explanation of the Proposed Rule* for that provision (see Section V. of this preamble).

E. Executive Order 13045 (Protecting Children From Environmental Health and Safety Risks)

Executive Order 13045 (E.O. 13045), on Protection of Children from Environmental Health Risks and Safety Risks, as amended by Executive Orders 13229 and 13296, requires that Federal agencies provide additional evaluation of economically significant regulatory actions that concern an environmental health or safety risk that an agency has reason to believe may disproportionately affect children. This proposed rule is intended to protect emergency responders from occupational hazards. OSHA has preliminarily determined that the proposed rule will not disproportionately affect children or have any adverse impact on children. Accordingly, E.O. 13045, Protection of Children from Environmental Health Risks and Safety Risks, requires no further agency action or analysis.

F. Federalism

The agency reviewed this proposed rule in accordance with Executive Order 13132 (E.O. 13132) on Federalism, which requires that Federal agencies, to the extent possible, refrain from limiting State policy options, consult with States before taking actions that would restrict States' policy options, and take such actions only when required by statute or when clear constitutional authority exists and the problem is of national scope (64 FR 43255, (August 10, 1999)). The Executive Order generally allows Federal agencies to preempt State law only as provided by Congress or where State law conflicts with Federal law. In such cases, Federal agencies must limit preemption of State law to the extent possible.

The Occupational Safety and Health Act is an exercise of Congress's Commerce Clause authority, and under section 18 of the Act, 29 U.S.C. 667, Congress expressly provided that States may adopt, with Federal approval, a plan for the development and enforcement of occupational safety and health standards. OSHA refers to the occupational safety and health plans that have been submitted by States and approved by OSHA as ''State Plans.'' Occupational safety and health standards developed by State Plans must be at least as effective in providing safe and healthful employment and places of employment as the Federal standards. Subject to these requirements, State Plans are free to develop and enforce their own occupational safety and health standards.

This proposed rule complies with E.O. 13132. The hazards addressed by this proposed rule and its goal of protecting firefighters and other emergency responders are national in scope. As explained in the *Need for the Standard* (Section II.A of this preamble), firefighters and other emergency responders face a significant risk of harm, and a national standard is necessary to ensure that a uniform, baseline approach is taken to protect them. Accordingly, the rulemaking establishes minimum requirements for employers in every State to protect these workers.

In States without OSHA-approved State Plans, Congress provided for OSHA standards to preempt State occupational safety and health standards for issues addressed by the Federal standards. In these States, this rulemaking limits State policy options in the same manner as every standard promulgated by the agency. Furthermore, public-sector fire departments and other public-sector emergency response providers in these States are not subject to the OSH Act. 29 U.S.C. 652(5). The following section addresses the effect of the proposed rule on States with OSHA-approved State Plans.

G. Requirements for States With OSHA-Approved State Plans

When Federal OSHA promulgates a new standard or a more stringent amendment to an existing standard, OSHA-approved State Plans must either amend their standards to be identical to or ''at least as effective as'' the new standard or amendment or show that an existing State Plan standard covering this area is already ''at least as effective'' as the new Federal standard or amendment. 29 CFR 1953.5(b). State Plan adoption must be completed within six months of the promulgation date of the final Federal rule.

OSHA preliminarily concludes that this proposed rule would increase protections beyond those provided by current standards, including 29 CFR 1910.156. Therefore, within six months of any final rule's promulgation date, State Plans would be required to adopt standards that are identical or ''at least as effective'' as this rule, unless they demonstrate that such amendments are not necessary because their existing permanent standards are already ''at least as effective'' in protecting workers. To avoid delays in worker protection, the effective date of the State standard and any of its delayed provisions must be the date of State promulgation or the Federal effective date, whichever is later. The Assistant Secretary may

permit a longer time period if the State timely demonstrates that good cause exists for extending the time limitation (29 CFR 1953.5(a)).

As with all non-identical State Plan standards, State Plans must submit to Federal OSHA for approval standards that differ from Federal standards addressing the same issues for such standards to become part of the State Plan. OSHA will review such non-identical State standards to determine whether they are at least as effective as any final rule which may be adopted.

Of the 29 States and Territories with OSHA-approved State Plans, 22 cover both public and private-sector employees: Alaska, Arizona, California, Hawaii, Indiana, Iowa, Kentucky, Maryland, Michigan, Minnesota, Nevada, New Mexico, North Carolina, Oregon, Puerto Rico, South Carolina, Tennessee, Utah, Vermont, Virginia, Washington, and Wyoming. The remaining seven States and Territories cover only State and local government employees: Connecticut, Illinois, Maine, Massachusetts, New Jersey, New York, and the Virgin Islands.

The proposed rule, if adopted, would impact municipal fire departments and other public-sector emergency response providers in States with OSHA-approved State Plans. Section 18(c)(6) of the Act, 29 U.S.C. 667(c), provides that a State Plan must ''establish and maintain an effective and comprehensive occupational safety and health program applicable to all employees of public agencies of the State and its political subdivisions, which program is as effective as the standards contained in an approved plan.'' Thus, States with OSHA-approved State Plans would be required to treat these public-sector employees the same as they do private-sector employees when adopting and enforcing a standard at least as effective as any final standard which may result from this rulemaking. *Cf.* Memorandum from Bruce Hillenbrand, Deputy Director, Federal Compliance and State Programs, to William W. Gordon, Regional Administrator-IV, Subject: Tennessee's Fire Protection Standard, Jan. 24, 1983 (Tennessee State Plan agency must apply its fire brigade standard analogue to public-sector employees as it does to private-sector employees) (Document ID 0322). Similarly, State Plans covering only State and local government employees would need to adopt and enforce a standard at least as effective as any such Federal standard.

H. OMB Review Under the Paperwork Reduction Act of 1995

I. Overview

In this NPRM, OSHA is proposing to revise its existing Fire Brigades standard, 29 CFR 1910.156. This proposal would change the title of § 1910.156 from Fire Brigades to Emergency Response as well as impose new requirements for emergency response employers. These new provisions contain collections of information that are subject to review by the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1995 (PRA), 44 U.S.C. 3501 *et seq.,* and OMB regulations at 5 CFR part 1320, with new 29 CFR 1910.156, Emergency Response. The agency is planning to revise and update the existing previously approved paperwork package under OMB control number 1218–0075 by replacing the existing collection of information requirements with the proposed collections.

The PRA defines ''collection of information'' to mean ''the obtaining, causing to be obtained, soliciting, or requiring the disclosure to third parties or the public of facts or opinions by or for an agency regardless of form or format'' (44 U.S.C. 3502(3)(A)). Under the PRA, a Federal agency cannot conduct or sponsor a collection of information unless OMB approves it and the agency displays a currently valid OMB control number (44 U.S.C. 3507). Also, notwithstanding any other provision of law, no employer shall be subject to penalty for failing to comply with a collection of information if the collection of information does not display a currently valid OMB control number (44 U.S.C. 3512).

II. Solicitation of Comments

OSHA prepared and submitted an Information Collection Request (ICR) to OMB proposing to revise certain collections of information currently contained in that paperwork package in accordance with 44 U.S.C. 3507(d). The agency is soliciting comments on the revision of these collection of information requirements, including comments on the following items:

- Whether the collections of information are necessary for the proper performance of the agency's functions, including whether the information is useful;
- The accuracy of OSHA's estimate of the burden (time and cost) of the collections of information, including the validity of the methodology and assumptions used;
- The quality, utility, and clarity of the information collected; and
- Ways to minimize the compliance burden on employers, for example, by using automated or other technological techniques for collecting and transmitting information (78 FR 56438).

III. Proposed Information Collection Requirements

As required by 5 CFR 1320.5(a)(1)(iv) and 1320.8(d)(2), the following paragraphs provide information about the ICR.

1. *Title:* Emergency Response Standard (29 CFR 1910.156).

2. *Description of the ICR:* The proposal would revise the currently approved Fire Brigades ICR by changing the title to Emergency Response ICR and revising the existing collection of information requirements currently approved by OMB.

3. *Brief Summary of the Information Collection Requirements:* This proposal would revise the collection of information contained in the existing ICR. Specifically, OSHA is proposing to (1) remove the existing language currently approved under § 1910.156(b)(1) that requires employers to develop and maintain an organizational statement that establishes the existence of a fire brigade; the basic organizational structure; the type, amount, and frequency of training to be provided to fire brigade members; the expected number of members in the brigade; and the functions that the fire brigade is to perform at the workplace; (2) remove the existing language currently approved under § 1910.156(b)(2) that requires employers to obtain a physician's certificate of certain employees' fitness to participate in fire brigade emergency activities; and (3) remove the existing language currently approved under § 1910.156(c)(4) that requires the employer to inform fire brigade members about special hazards such as storage and use of flammable liquids and gases, toxic chemicals, radioactive sources, and water reactive substances, to which they may be exposed during fire and other emergencies. In place of these collection of information requirements, the agency is proposing to add new collections contained in the proposed Emergency Response standard. See Table V–1.

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Table V-1 -- Collection of Information Requirements Being Revised in the Fire Brigades Standard[90]

Section number and title	Currently approved collection of information requirements	Proposed collection of information requirements
§ 1910.156 (b)(1)	***(1) Organizational statement.*** The employer shall prepare and maintain a statement or written policy which establishes the existence of a fire brigade; the basic organizational structure; the type, amount, and frequency of training to be provided to fire brigade members; the expected number of members in the fire brigade;	N/A

[90] Full details of the burden and cost estimates for each provision are available in the ICR's supporting statement at *reginfo.gov*.

Section number and title	Currently approved collection of information requirements	Proposed collection of information requirements
	and the functions that the fire brigade is to perform at the workplace. The organizational statement shall be available for inspection by the Assistant Secretary and by employees or their designated representatives.	
§ 1910.156 (b)(2)	(2) ***Personnel.*** The employer shall ensure that employees who are expected to do interior structural firefighting are physically capable of performing duties which may be assigned to them during emergencies. The employer shall not permit employees with known heart disease, epilepsy, or emphysema, to participate in fire brigade emergency activities unless a physician's certificate of the employees' fitness to participate in such activities is provided. For employees assigned to fire brigades before September 15, 1980, this paragraph is effective on September 15, 1990. For employees assigned to fire brigades on or after September 15, 1980, this paragraph is effective December 15, 1980.	N/A
§ 1910.156 (c)(1)	[none]	**(c) Organization of the WERT, and Establishment of the ERP and Emergency Service(s) Capability** (1) The WERE shall develop and implement a written ERP to provide protection for each of its employees (team members) who is designated to provide services at an emergency incident.
§ 1910.156 (c)(3)	[none]	**(c) Organization of the WERT, and Establishment of the ERP and Emergency Service(s) Capability** (3) The WERE shall conduct a facility vulnerability assessment for the purpose of establishing its emergency response capabilities and determining its ability to match the facility's vulnerabilities with available resources.
§ 1910.156 (c)(4)	**(c)Training and education…** (4) The employer shall inform fire brigade members about special hazards such as storage and use of flammable liquids and gases, toxic chemicals, radioactive sources, and water reactive substances, to which they may be exposed during fire and other emergencies. The fire brigade members shall also be advised of any changes that occur in relation to the special hazards. The employer shall	N/A

Section number and title	Currently approved collection of information requirements	Proposed collection of information requirements
	develop and make available for inspection by fire brigade members, written procedures that describe the actions to be taken in situations involving the special hazards and shall include these in the training and education program.	
§ 1910.156 (c)(8)	[none]	(8) The WERE shall define, and document in the ERP, the service(s) needed, based on paragraph (c)(3) of this section, that the WERE is unable to provide, and develop mutual aid agreements with other WEREs and ESOs as necessary to ensure adequate resources are available to safely mitigate foreseeable incidents.
§ 1910.156 (c)(9)	[none]	(9) Previous editions of documentation required by this section shall be maintained by the WERE for a minimum of five (5) years.
§ 1910.156 (c)(10)	[none]	(10) The WERE shall notify team members of any changes to the ERP and make the ERP and documents maintained in accordance with paragraph (c)(9) of this section available for inspection by team members, their representatives, and OSHA representatives.
§ 1910.156 (d)(1)	[none]	**(d) ESO Establishment of ERP and Emergency Service(s) Capability.** (1) The ESO shall develop and implement a written ERP to provide protection for each of its responders who is designated to operate at an emergency incident.
§ 1910.156 (d)(3)	[none]	**(d) ESO Establishment of ERP and Emergency Service(s) Capability** (3) The ESO shall perform a community or facility vulnerability assessment of hazards within the primary response area where the emergency service(s) it provides is/are expected to be performed.
§ 1910.156 (d)(8)	[none]	(8) In the ERP the ESO shall define the service(s) needed, based on paragraph (d)(4) of this section, that the ESO is unable to provide, and develop mutual aid agreements with WEREs or other ESOs as necessary to ensure adequate resources are available to safely mitigate foreseeable incidents.
§ 1910.156 (d)(9)	[none]	(9) Previous editions of documentation required by this section shall be maintained by the ESO for a minimum of five (5) years.

Section number and title	Currently approved collection of information requirements	Proposed collection of information requirements
§ 1910.156 (d)(10)	[none]	(10) The ESO shall notify responders of any changes to the ERP and make the ERP and documents maintained in accordance with paragraph (d)(9) of this section available for inspection by responders, their representatives, and OSHA representatives.
§ 1910.156 (e)(5)	[none]	**(e) Team Member and Responder Participation** (5) Encourage team members and responders to report safety and health concerns, such as hazards, injuries, illnesses, near-misses, and deficiencies in the ERP;
§ 1910.156 (e)(7)	[none]	**(e) Team Member and Responder Participation** (7) Post procedures for reporting safety and health concerns under paragraph (e)(5) of this section in a conspicuous place or places where notices to team members and responders are customarily posted.
§ 1910.156(f)(1)	[none]	**(f) WERT and ESO Risk Management Plan** (1) The WERE and the ESO shall develop and implement a written comprehensive risk management plan (RMP), based on the type and level of service(s) established in paragraphs (c) and (d) of this section[.]
§ 1910.156(g)(1)	[none]	**(g) Medical and Physical Requirements** (1) WERE and ESO medical requirements. (i) The WERE and ESO shall establish the minimum medical requirements for team members and responders, based on the type and level of service(s) established in paragraphs (c) and (d) of this section. The medical requirements will differ based on the tiers of team members and responders in accordance with paragraphs (c)(7) and (d)(7) of this section, except that team members and responders in a support tier are excluded from the requirements in paragraph (g) of this section; and (ii) The WERE and ESO shall maintain a confidential record for each team member and responder that records, at a minimum, duty restrictions based on medical evaluations; occupational illnesses and injuries; and exposures to combustion products, known or suspected toxic products, contagious diseases, and dangerous substances.

Section number and title	Currently approved collection of information requirements	Proposed collection of information requirements
§ 1910.156(g)(2)	[none]	**(g)(2)** WERE and ESO medical evaluation and surveillance. (i) The WERE and ESO shall establish a medical evaluation program for team members and responders, except for those in a support tier, based on the type and level of service(s) and tiers of team members and responders established in paragraphs (c) and (d) of this section;
§ 1910.156(g)(3)	[none]	**(g)(3)** Additional ESO medical evaluation and surveillance. (i) For ESOs whose responders are exposed to combustion products, medical evaluation and surveillance shall include a component based on the frequency and intensity of expected exposure to combustion products established in the risk management plan in paragraph (f) of this section. (ii) The ESO shall document each exposure to combustion products for each responder, for the purpose of determining the need for the medical surveillance specified in (g)(3)(i)(A) of this section, and for inclusion in the responder's confidential record, as required in (g)(1)(ii) of this section.
§ 1910.156(g)(4)	[none]	(i) The WERE and ESO shall provide, at no cost to the team member or responder, behavioral health and wellness resources for team members and responders, or identify where such resources are available at no cost in the community; (ii) The resources shall include, at minimum: (A) Diagnostic assessment; (B) Short-term counseling; (C) Crisis intervention; and (D) Referral services for behavioral health and personal problems that could affect the team member or responder's performance of emergency response duties.

Section number and title	Currently approved collection of information requirements	Proposed collection of information requirements
		(iii) The WERE and ESO shall inform each team member and responder of the resources available; and
§ 1910.156(g)(6)	[none]	(g)(6) ESO health and fitness for duty: (i) The ESO shall establish and implement a health and fitness program that enables responders to develop and maintain a level of physical fitness that allows them to safely perform their assigned functions, based on the type and level(s) of service(s) and tier of team members and responders established in paragraph (d) of this section;
§ 1910.156(i)(3)	[none]	(i) WERE Facility Preparedness – (1) General requirements. The WERE shall: . . . (3) Identify the location of each FHV, except for those clearly visible on standpipes in enclosed stairways, in a manner suitable to the location, such as with a sign, painted wall, or painted column, to ensure prompt access to FHVs.
§ 1910.156(k)(2)	[none]	(k) Equipment and PPE... (2) Personal protective equipment (PPE). The WERE and the ESO shall: (i) Conduct a PPE hazard assessment for the selection of the protective ensemble, ensemble elements, and other protective equipment for team members and responders, based on the type and level of service(s) established in paragraphs (c) and (d) of this section;
§ 1910.156(l)(2)	[none]	(2) To ensure vehicles are operated in a manner that will keep team members and responders safe, the WERE and ESO shall: … (vi) Establish and implement a procedure for operator training on vehicles with tiller steering that ensures when the instructor and trainee are both located at the tiller position, they are adequately secured to the vehicle whenever it is in motion; (viii) Establish and implement policies and procedures that provide alternative means

Section number and title	Currently approved collection of information requirements	Proposed collection of information requirements
		for ensuring the safety of team members and responders when the WERE or ESO determines it is not feasible for each team member, responder, or person to be belted in a seat, such as when reloading long lays of hose, standing as honor guards during a funeral procession, transporting people acting as holiday figures or other characters or mascots, parades, and for vehicles without seat belts; (ix) Establish and implement policies and procedures for operating vehicles not directly under the control of the WERE or ESO (i.e., privately owned/leased/operated by team members and responders), when the WERE or ESO authorizes team members or responders to respond directly to emergency incident scenes or to WERE or ESO facilities when alerted for an emergency incident response; and
§ 1910.156(m)(1)	[none]	**(m) WERE Pre-Incident Planning** (1) The WERE shall develop PIPs for locations within the facility where team members may be called to provide service, based on the facility vulnerability assessment and the type(s) and level(s) of service(s) established in paragraph (c) of this section.
§ 1910.156(n)(2) & (3)	[none]	**(n) ESO Pre-Incident Planning** (2) The ESO shall develop PIPs for facilities, locations, and infrastructure where emergency incidents may occur (3) The ESO shall prepare a PIP for each facility within the ESO's primary response area that is subject to reporting requirements under 40 CFR part 355 pursuant to the Emergency Planning and Community Right-to-Know Act (EPCRA) (also referred to as the Superfund Amendments and Reauthorization Act of 1986 (SARA), 42 U.S.C. 11001 et seq.).
§ 1910.156(n)(8)	[none]	(8) The ESO shall ensure that the most recent version of PIPs are disseminated as needed and are accessible and available to responders operating at emergency incidents.
§ 1910.156(p)(2)	[none]	(p) Emergency Incident Operations

Section number and title	Currently approved collection of information requirements	Proposed collection of information requirements
		… (2) Incident Commander. The WERE and the ESO shall ensure that: (iii) The IC conducts a comprehensive and ongoing size-up of the incident scene that places life safety as the highest priority; (iv) The IC conducts a risk assessment based on the size-up before actively engaging the incident; . . . (vi) The IC develops an Incident Action Plan (IAP) that prioritizes life safety for each incident, updates it as needed during the incident, and utilizes the information contained in the PIP.
§ 1910.156(p)(3)	[none]	(3) Control zones. The WERE and the ESO shall ensure that: … (iii) Any changes to the perimeters during the incident are communicated to all team members and responders on the scene; (iv) Control zones are established as follows: (A) Designated as no-entry, hot, warm, or cold; (B) Marked in a conspicuous manner, with colored tape, signage, or other appropriate means, unless such marking is not possible; and (C) Communicated to all team members and responders attending the incident before the team member or responder is assigned to a control zone;
§ 1910.156(q)(1)	[none]	**(q) Standard Operating Procedures** (1) The WERE and the ESO shall develop and implement SOPs for emergency events that the WERE or ESO is reasonably likely to encounter, based on the community or facility vulnerability assessment developed in accordance with paragraphs (c) and (d) of this section.

Section number and title	Currently approved collection of information requirements	Proposed collection of information requirements
§ 1910.156(r)(1) & (2)	[none]	**(r) Post-Incident Analysis** (1) The WERE or ESO shall promptly conduct a Post-Incident Analysis (PIA) to determine the effectiveness of the WERT's or ESO's response to an incident after a significant event such as a large-scale incident; a significant near-miss incident; a team member, responder or SSW injury or illness requiring off-scene treatment; or a team member, responder, or SSW fatality. (2) The PIA shall include, but not be limited to, a review and evaluation of the RMP, IMS, PIPs, SOPs, and IAPs for accuracy and adequacy.
§ 1910.156(s)(1)	[none]	**(s) Program Evaluation** (1) The WERE and ESO shall evaluate the adequacy and effectiveness of the ERP at least annually, and upon discovering deficiencies, and document when the evaluation(s) are conducted.

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4. *OMB Control Number:* 1218–0075.

5. *Affected Public:* Business or other for-profit and not for profit entities.

6. *Number of Respondents:* 22,551.

7. *Frequency of Responses:* On occasion.

8. *Number of Reponses:* 28,305,800.

9. *Average Time per Response:* Varies.

10. *Estimated Annual Total Burden Hours:* 3,896,763.

11. *Estimated Annual Total Cost (Operation and maintenance):* $104,682,854.

IV. Submitting Comments

Members of the public who wish to comment on the revisions to the paperwork requirements in this proposal must send their written comments to the Office of Information and Regulatory Affairs, Attn: OMB Desk Officer for the Department of Labor, OSHA (RIN: 1218–AD91), Office of Management and Budget, Room 10235, Washington, DC 20503, email: *OIRA_submission@omb.eop.gov*. The agency encourages commenters also to submit their comments on these paperwork requirements to the rulemaking docket (Docket Number OSHA–2007–0073) along with comments on other parts of the proposed rule. For instructions on submitting these comments to the rulemaking docket, see the sections of this **Federal Register** notice titled **DATES** and **ADDRESSES**. Comments submitted in response to this document are public records; therefore, OSHA cautions commenters about submitting personal information such as Social Security numbers and dates of birth.

V. Docket and Inquiries

To access the docket to read or download comments and other materials related to this paperwork determination, including the complete ICR (containing the Supporting Statement with attachments describing the paperwork determinations in detail), use the procedures described under the section of this document titled **ADDRESSES**.

You also may obtain an electronic copy of the complete ICR by visiting the web page at: *http://www.reginfo.gov/public/do/PRAMain.* Scroll under ''Currently Under Review'' to ''Department of Labor (DOL)'' to view all of the DOL's ICRs, including those ICRs submitted for proposed rulemakings. To make inquiries, or to request other information, contact Ms. Seleda Perryman, Directorate of Standards and Guidance, telephone (202) 693–2222.

List of Subjects in 29 CFR Part 1910

Emergency response, Emergency responder, Emergency medical service, Firefighter, Incorporation by reference, Search and rescue personal protective equipment, Occupational safety and health.

Authority and Signature

This document was prepared under the direction of Douglas L. Parker, Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, 200 Constitution Ave. NW, Washington, DC 20210. It is issued under the authority of sections 4, 6, and 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); 5 U.S.C. 553, Secretary of Labor's Order No. 8–2020 (85 FR 58383), and 29 CFR part 1911.

Signed at Washington, DC.

Douglas L. Parker,

Assistant Secretary of Labor for Occupational Safety and Health.

Proposed Amendments

For the reasons stated in the preamble, OSHA proposes to amend 29 CFR part 1910 to read as follows:

PART 1910—OCCUPATIONAL SAFETY AND HEALTH STANDARDS

Subpart A—General

■ 1. The authority citation for subpart A continues to read as follows:

Authority: 29 U.S.C. 653, 655, 657; Secretary of Labor's Order Numbers 12–71 (36 FR 8754), 8–76 (41 FR 25059), 9–83 (48 FR 35736), n1–90 (55 FR 9033), 6–96 (62 FR 111), 3–2000 (65 FR 50017), 5–2002 (67 FR 65008), 5–2007 (72 FR 31159), 4–2010 (75 FR 55355), or 1–2012 (77 FR 3912), as applicable. Sections 1910.6, 1910.7, 1910.8 and 1910.9 also issued under 29 CFR 1911. Section 1910.7(f) also issued under 31 U.S.C. 9701; 29 U.S.C. 9a; 5 U.S.C. 553; Public Law 106–113 (113 Stat. 1501A–222); Public Law 11–8 and 111–317; and OMB Circular A–25 (dated July 8, 1993) (58 FR 38142, July 15, 1993).

■ 2. Amend § 1910.6 by:
■ a. Throughout the section,
■ i. Removing the text ''The following material is available for purchase from the'';
■ ii. Removing the text ''The following materials are available for purchase from the'';
■ iii. Removing the text ''The following material is available from the''; and
■ iv. Removing the text ''The following materials are available from the'';
■ b. Revising paragraph (a) and the introductory text of paragraph (e);
■ c. In paragraph (e),
■ i. Removing the second sentence of paragraphs (e)(59) and (65);
■ ii. Revising paragraphs (e)(66), (67), and (69) through (71); and
■ iii. Adding paragraph (e)(80);
■ d. Revising the introductory text of paragraph (h);
■ e. Removing and reserving paragraph (k);
■ f. Adding introductory text to paragraph (r) and removing and reserving paragraphs (r)(1) and (2);
■ g. Revising the introductory text of paragraph (t);
■ h. Redesignating paragraphs (t)(2) through (37) as set forth in the following table:

Old paragraph	New paragraph
paragraphs (t)(2) through (8)	paragraphs (t)(3) through (9)
paragraphs (t)(9) through (15)	paragraphs (t)(12) through (18)
paragraphs (t)(17) through (33)	paragraphs (t)(19) through (35)
paragraph (t)(34)	paragraph (t)(49)
paragraphs (t)(35) through (36)	paragraphs (t)(10) through (11)
paragraph (t)(37)	paragraph (t)(2)

■ i. In newly redesignated paragraph (t)(10), removing the second sentence;
■ j. Adding new paragraphs (t)(36) and (37) and adding paragraphs (t)(38) through (48);
■ k. Revising newly-redesignated paragraph (t)(49);
■ l. Adding paragraphs (t)(50) through (57); and
■ m. Removing and reserving paragraph (v)(2).

The revisions and additions read as follows:

§ 1910.6 Incorporation by reference.

(a)(1) The standards of agencies of the U.S. Government and of organizations which are not agencies of the U.S. Government, which are incorporated by reference in this part, have the same force and effect as other standards in this part. The Occupational Safety and Health Administration (OSHA) adopts only the mandatory provisions (*i.e.,* provisions containing the word ''shall'' or other mandatory language) of material incorporated by reference as standards under the Occupational Safety and Health Act.

(2) Any changes in the material incorporated by reference in this part and an official historic file of such changes are available for inspection in the Docket Office at the national office of the Occupational Safety and Health Administration, U.S. Department of Labor, Washington, DC 20210; phone: 202–693–2350 (TTY: 877–889–5627).

(3) The material listed in this section are incorporated by reference into this part with the approval of the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, OSHA must publish a document in the **Federal Register** and the material must be available to the public. All approved incorporation by reference (IBR) material is available for inspection at OSHA and at the National Archives and Records Administration (NARA). Contact OSHA at: any OSHA Regional Office or at the OSHA Docket Office, U.S. Department of Labor, 200 Constitution Avenue NW, Room N–3508, Washington, DC 20210; phone: 202–693–2350 (TTY: 877–889–5627); email: *technicaldatacenter@dol.gov;* website: *www.osha.gov/contactus/byoffice/dtsem/technical-data-center.* For information on the availability of this material at NARA, visit *www.archives.gov/federal-register/cfr/ibr-locations* or email *fr.inspection@nara.gov.* The material may be obtained from the source(s) in the following paragraph(s) of this section or through a document reseller, including:

(i) Document Center Inc., 111 Industrial Road, Suite 9, Belmont, 94002; phone: 650–591–7600; fax: 650–591–7617; email: *info@document-center.com;* website: *www.document-center.com.*

(ii) Global Engineering Documents, 15 Inverness Way East, Englewood, CO 80112; phone: 800–854–7179 or 303–397–7956; fax: 303–397–2740; email: *global@ihs.com;* website: *https://global.ihs.com;*

(iii) Techstreet, a business of Thomson Reuters, 3916 Ranchero Drive, Ann Arbor, MI 48108; phone: 800–699–9277 or 734–780–8000; fax: 734–780–2046; email: *techstreet.service@thomsonreuters.com;* website: *www.Techstreet.com.*

(iv) Linda Hall Library, 5109 Cherry Street, Kansas City, Missouri, 64110–2498; phone: 816–363–4600; email: *requests@lindahall.org;* website: *https://www.lindahall.org/.*

* * * * *

(e) American National Standards Institute (ANSI), 25 West 43rd Street, 4th Floor, New York, NY 10036; phone: 212–642–4900; fax: 212–398–0023; website: *www.ansi.org.*

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(66) ANSI Z535.1–2006 (R2011), Safety Colors, reaffirmed July 19, 2011; IBR approved for §§ 1910.97(a) and 1910.145(d).

(67) ANSI Z535.2–2011, Environmental and Facility Safety Signs, published September 15, 2011; IBR approved for § 1910.261(c).

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(69) ANSI/ISEA Z87.1–2010, Occupational and Educational Personal Eye and Face Protection Devices,

Approved April 13, 2010; IBR approved for § 1910.133(b).

(70) ANSI Z87.1–2003, Occupational and Educational Eye and Face Personal Protection Devices Approved June 19, 2003; IBR approved for § 1910.133(b).

(71) ANSI Z87.1–1989 (R–1998), Practice for Occupational and Educational Eye and Face Protection, Reaffirmation approved January 4, 1999; IBR approved for § 1910.133(b).

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(80) ANSI/ISEA 207–2011, American National Standard for High-Visibility Safety Vests [2011 ed]; IBR approved for § 1910.156(k).

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(h) ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428–2959; phone: 610–832–9585; fax: 610–832–9555; email: *sevice@astm.org;* website: *www.astm.org.*

* * * * *

(r) International Standards Organization (ISO) through ANSI, 25 West 43rd Street, Fourth Floor, New York, NY 10036–7417; phone: 212–642–4980; fax: 212–302–1286; email: *info@ansi.org;* website: *www.ansi.org.*

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(t) National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02269; phone: 800–344–3555 or 617–770–3000; fax: 800–593–6372 or 508–895–8301; email: *custserv@nfpa.org;* website: *www.nfpa.org.*

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(36) NFPA 1001, Standard for Structural Fire Fighter Professional Qualifications, [2019 edition]; IBR approved for § 1910.156(h).

(37) NFPA 1002, Standard for Fire Apparatus Driver/Operator Professional Qualifications, [2017 edition]; IBR approved for § 1910.156(h).

(38) NFPA 1005, Standard for Professional Qualifications for Marine Fire Fighting for Land-Based Fire Fighters, [2019 edition]; IBR approved for § 1910.156(h).

(39) NFPA 1006, Standard for Technical Rescue Personnel Professional Qualifications, [2021 edition]; IBR approved for § 1910.156(h).

(40) NFPA 1021, Standard for Fire Officer Professional Qualifications, [2020 edition]; IBR approved for § 1910.156(h).

(41) NFPA 1081, Standard for Facility Fire Brigade Member Professional Qualifications, [2018 edition]; IBR approved for § 1910.156(h).

(42) NFPA 1140, Standard for Wildland Fire Protection, [2022 edition]; IBR approved for § 1910.156(h).

(43) NFPA 1407, Standard for Training Fire Service Rapid Intervention Crews, [2020 edition]; IBR approved for § 1910.156(h).

(44) NFPA 1582, Standard on Comprehensive Occupational Medical Program for Fire Departments, [2022 edition]; IBR approved for § 1910.156(g).

(45) NFPA 1910, Standard for the Inspection, Maintenance, Refurbishment, Testing, and Retirement of In-Service Emergency Vehicles and Marine Firefighting Vessels, [2024 edition]; IBR approved for § 1910.156(l).

(46) NFPA 1951, Standard on Protective Ensembles for Technical Rescue Incidents, [2020 edition]; IBR approved for § 1910.156(k).

(47) NFPA 1952, Standard on Surface Water Operations Protective Clothing and Equipment, [2021 edition]; IBR approved for § 1910.156(k).

(48) NFPA 1953, Standard on Protective Ensembles for Contaminated Water Diving, [2021 edition]; IBR approved for § 1910.156(k).

(49) NFPA 1971, Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting, [2018 edition]; IBR approved for § 1910.156(k).

(50) NFPA 1977, Standard on Protective Clothing and Equipment for Wildland Fire Fighting and Urban Interface Fire Fighting, [2022 edition]; IBR approved for § 1910.156(k).

(51) NFPA 1981, Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services, [2019 edition]; IBR approved for § 1910.156(k).

(52) NFPA 1982, Standard on Personal Alert Safety Systems (PASS), [2018 edition]; IBR approved for § 1910.156(k).

(53) NFPA 1984, Standards on Respirators for Wildland Fire-Fighting Operations and Wildland Urban Interface Operations, [2022 edition]; IBR approved for § 1910.156(k).

(54) NFPA 1986, Standard on Respiratory Protection for Tactical and technical Operations, [2023 edition]; IBR approved for § 1910.156(k).

(55) NFPA 1987, Standard on Combination Unit Respirator Systems for Tactical and Technical Operations, [2023 edition]; IBR approved for § 1910.156(k).

(56) NFPA 1990, Standard on Protective Ensembles for Hazardous Materials and CBRN Operations, [2022 edition]; IBR approved for § 1910.156(k).

(57) NFPA 1999, Standard on Protective Clothing and Ensembles for Emergency Medical Operations, [2018 edition]; IBR approved for § 1910.156(k).

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Subpart H—Hazardous Materials

■ 3. The authority citation for subpart H continues to read as follows:

Authority: Sections 4, 6, and 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Secretary of Labor's Order No. 12–71 (36 FR 8754), 8–76 (41 FR 25059), 9–83 (48 FR 35736), 1–90 (55 FR 9033), 6–96 (62 FR 111), 3–2000 (65 FR 50017), or 5–2007 (72 FR 31159), 4–2010 (75 FR 55355) or 1–2012 (77 FR 3912), as applicable; and 29 CFR part 1911.

Sections 1910.103, 1910.106 through 1910.111, and 1910.119, 1910.120, and 1910.122 through 1910.126 also issued under 29 CFR part 1911.

Section 1910.119 also issued under Section 304, Clean Air Act Amendments of 1990 (Pub. L. 101–549), reprinted at 29 U.S.C.A. 655 Note.

Section 1910.120 also issued under Section 126, Superfund Amendments and Reauthorization Act of 1986 as amended (29 U.S.C.A. 655 Note), and 5 U.S.C. 553.

■ 4. Amend § 1910.120 by:

■ a. In paragraph (c)(5)(iii), removing the text ''appendix B'' and adding in its place the text ''appendix D to this subpart'';

■ b. In paragraph (f)(4)(ii), removing the text ''appendix D'' and adding in its place the text ''appendix D to this subpart'';

■ c. In paragraphs (g)(3)(iv) and (v). removing the text ''appendix B'' and adding in its place the text ''appendix B to this subpart'';

■ d. In paragraphs (g)(4)(ii) and (iii), removing the text ''appendix A'' and adding in its place the text ''appendix A to this subpart'';

■ e. Revising paragraph (q)(3)(iii);

■ f. Redesignating the note immediately following the undesignated heading ''Appendices to § 1910.120'' as paragraph (r);

■ g. Removing the undesignated heading ''Appendices to § 1910.120''; and

■ h. Redesignating appendices A through E to § 1910.120 as appendices A through E to subpart H of part 29.

The revisions and addition read as follows:

§ 1910.120 Hazardous waste operations and emergency response.

* * * * *

(q) * * *

(3) * * *

(iii) Based on the hazardous substances and/or conditions present, the individual in charge of the ICS shall implement appropriate emergency operations, and ensure that the personal

protective equipment worn is appropriate for the hazards to be encountered. However, personal protective equipment shall meet, at a minimum, the criteria contained in § 1910.156(k) when worn while performing firefighting operations beyond the incipient stage for any incident.

(r) *Appendices to this subpart—Hazardous Waste Operations and Emergency Response.* Appendices A through E to this subpart serve as non-mandatory guidelines to assist employees and employers in complying with the appropriate requirements of this section. However, paragraph (g) of this section makes mandatory in certain circumstances the use of Level A and Level B PPE protection set forth in the appendices.

* * * * *

■ 5. Amend newly redesignated appendix B to subpart H by revising Part B.IV to read as follows:

Appendix B to Subpart H of Part 1910—General Description and Discussion of the Levels of Protection and Protective Gear

* * * * *

Part B * * *

IV. *Level D*—Level D protection should be used when:

1. The atmosphere contains no known hazard; and

2. Work functions preclude splashes, immersion, or the potential for unexpected inhalation of or contact with hazardous levels of any chemicals.

Note: As stated before, combinations of personal protective equipment other than those described for Levels A, B, C, and D protection may be more appropriate and may be used to provide the proper level of protection.

As an aid in selecting suitable chemical protective clothing, it should be noted that the NFPA has developed standards on chemical protective clothing. The standards that have been adopted include:

NFPA 1990, Standard on Protective Ensembles for Hazardous Materials and CBRN Operations, [2022 ed]. (as incorporated by reference, see § 1910.6).

This standard applies documentation and performance requirements to the manufacture of chemical protective suits. Chemical protective suits meeting these requirements are labelled as compliant with the appropriate standard. It is recommended that chemical protective suits that meet these standards be used.

Appendix C to Subpart H [Amended]

■ 6. Amend newly redesignated appendix C to subpart H by:

■ a. In section 2., removing the text ''appendix D'' and adding in its place the text ''appendix D to this subpart''; and

■ b. In section 5., removing the text ''appendix B'' and adding in its place the text ''appendix B to this subpart''.

Appendix E to Subpart H [Amended]

■ 7. Amend newly redesignated appendix E to subpart H by:

■ a. In paragraph B.1.(m), removing the text ''appendices to 29 CFR 1910.120'' and adding, in its place, the text ''appendices to this subpart''; and

■ b. In section 5., removing the text ''appendix B'' and adding, in its place, the text ''appendix B to this subpart''.

Subpart I—Personal Protective Equipment

■ 8. The authority citation for subpart I continues to read as follows:

Authority: 29 U.S.C. 653, 655, 657; Secretary of Labor's Order No. 12–71 (36 FR 8754), 8–76 (41 FR 25059), 9–83 (48 FR 35736), 1–90 (55 FR 9033), 6–96 (62 FR 111), 3–2000 (65 FR 50017), 5–2002 (67 FR 65008 preview citation details), 5–2007 (72 FR 31160), 4–2010 (75 FR 55355), or 1–2012 (77 FR 3912), as applicable, and 29 CFR part 1911.

■ 9. Amend § 1910.134 by:

■ a. In paragraph (b), removing the definition for ''*Interior structural firefighting*'';

■ b. Revising paragraph (g)(4); and

■ c. Removing Notes 1 and 2 to paragraph (g).

The revision reads as follows:

§ 1910.134 Respiratory protection.

* * * * *

(g) * * *

(4) *Procedures for interior structural firefighting.* (Refer to § 1910.156)

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Subpart L—Fire Protection

■ 10. The authority citation for subpart L continues to read as follows:

Authority: Sections 4, 6, and 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, and 657); Secretary of Labor's Order No. 12–71 (36 FR 8754), 8–76 (41 FR 25059), 9–83 (48 FR 35736), 1–90 (55 FR 9033), 6–96 (62 FR 111), 3–2000 (65 FR 50017), 5–2002 (67 FR 65008), or 5–2007 (72 FR 31160), as applicable, and 29 CFR part 1911.

■ 11. Amend § 1910.155 by revising paragraphs (a) and (c) to read as follows:

§ 1910.155 Scope, application and definitions applicable to this subpart.

(a) *Scope.* This subpart contains requirements for Workplace Emergency Response Employers and Emergency Service Organizations (as defined in § 1910.156), and all portable and fixed fire suppression equipment, fire detection systems, and fire or employee alarm systems installed to meet the fire protection requirements of this part.

* * * * *

(c) *Definitions applicable to this subpart—*

Aqueous film forming foam (AFFF) means a fluorinated surfactant with a foam stabilizer which is diluted with water to act as a temporary barrier to exclude air from mixing with the fuel vapor by developing an aqueous film on the fuel surface of some hydrocarbons which is capable of suppressing the generation of fuel vapors.

Approved means acceptable to the Assistant Secretary under the following criteria:

(i) If it is accepted, or certified, or listed, or labeled or otherwise determined to be safe by a nationally recognized testing laboratory; or

(ii) With respect to an installation or equipment of a kind which no nationally recognized testing laboratory accepts, certifies, lists, labels, or determines to be safe, if it is inspected or tested by another Federal agency and found in compliance with the provisions of the applicable National Fire Protection Association Fire Code; or

(iii) With respect to custom-made equipment or related installations which are designed, fabricated for, and intended for use by its manufacturer on the basis of test data which the employer keeps and makes available for inspection to the Assistant Secretary.

(iv) For the purposes of paragraph (c)(3) of this section:

(A) Equipment is listed if it is of a kind mentioned in a list which is published by a nationally recognized testing laboratory which makes periodic inspections of the production of such equipment and which states that such equipment meets nationally recognized standards or has been tested and found safe for use in a specified manner;

(B) Equipment is labeled if there is attached to it a label, symbol, or other identifying mark of a nationally recognized testing laboratory which makes periodic inspections of the production of such equipment, and whose labeling indicates compliance with nationally recognized standards or tests to determine safe use in a specified manner;

(C) Equipment is accepted if it has been inspected and found by a nationally recognized testing laboratory to conform to specified plans or to procedures of applicable codes; and

(D) Equipment is certified if it has been tested and found by a nationally recognized testing laboratory to meet nationally recognized standards or to be

safe for use in a specified manner or is of a kind whose production is periodically inspected by a nationally recognized testing laboratory, and if it bears a label, tag, or other record of certification.

(E) Refer to § 1910.7 for definition of nationally recognized testing laboratory.

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health or designee.

Automatic fire detection device means a device designed to automatically detect the presence of fire by heat, flame, light, smoke or other products of combustion.

Carbon dioxide means a colorless, odorless, electrically nonconductive inert gas (chemical formula CO_2) that is a medium for extinguishing fires by reducing the concentration of oxygen or fuel vapor in the air to the point where combustion is impossible.

Class A fire means a fire involving ordinary combustible materials such as paper, wood, cloth, and some rubber and plastic materials.

Class B fire means a fire involving flammable or combustible liquids, flammable gases, greases and similar materials, and some rubber and plastic materials.

Class C fire means a fire involving energized electrical equipment where safety to the employee requires the use of electrically nonconductive extinguishing media.

Class D fire means a fire involving combustible metals such as magnesium, titanium, zirconium, sodium, lithium and potassium.

Class K fire means a fire in a cooking appliance involving animal oils, vegetable oils, or fats.

Clean agent means an extinguishing agent that is odorless, colorless, electrically non-conducive, and leaves no residue.

Dry chemical means an extinguishing agent composed of very small particles of chemicals such as, but not limited to, sodium bicarbonate, potassium bicarbonate, urea-based potassium bicarbonate, potassium chloride, or monoammonium phosphate supplemented by special treatment to provide resistance to packing and moisture absorption (caking) as well as to provide proper flow capabilities. Dry chemical does not include dry powders.

Dry powder means a compound used to extinguish or control Class D fires.

Education means the process of imparting knowledge or skill through systematic instruction. It does not require formal classroom instruction.

Extinguisher classification means the letter classification given an extinguisher to designate the class or classes of fire on which an extinguisher will be effective.

Extinguisher rating means the numerical rating given to an extinguisher which indicates the extinguishing potential of the unit based on standardized tests developed by Underwriters' Laboratories, Inc.

Fixed extinguishing system means a permanently installed system that either extinguishes or controls a fire at the location of the system.

Foam means a stable aggregation of small bubbles which flow freely over a burning liquid surface and form a coherent blanket which seals combustible vapors and thereby extinguishes the fire.

Gaseous agent is a fire extinguishing agent which is in the gaseous state at normal room temperature and pressure. It has low viscosity, can expand or contract with changes in pressure and temperature, and has the ability to diffuse readily and to distribute itself uniformly throughout an enclosure.

Halogenated agent means a liquified gas extinguishing agent that chemically interrupts the combustion reaction between the fuel and oxygen to extinguish fires.

Halon 1211 means a colorless, faintly sweet smelling, electrically nonconductive liquefied gas (chemical formula $CBrC1F_2$) which is a medium for extinguishing fires by inhibiting the chemical chain reaction of fuel and oxygen. It is also known as bromochlorodifluoromethane.

Halon 1301 means a colorless, odorless, electrically nonconductive gas (chemical formula $CBrF_3$) which is a medium for extinguishing fires by inhibiting the chemical chain reaction of fuel and oxygen. It is also known as bromotrifluoromethane.

Incipient stage fire means a fire which is in the initial or beginning stage and which can be controlled or extinguished by portable fire extinguishers, Class II standpipe or small hose systems without the need for protective clothing or breathing apparatus.

Inspection means a visual check of fire protection systems and equipment to ensure that they are in place, charged, and ready for use in the event of a fire.

Interior structural firefighting means the physical activity of fire suppression, rescue or both, inside of buildings or enclosed structures which are involved in a fire situation beyond the incipient stage.

Local application system means a fixed fire suppression system which has a supply of extinguishing agent, with nozzles arranged to automatically discharge extinguishing agent directly on the burning material to extinguish or control a fire.

Maintenance means the performance of services on fire protection equipment and systems to assure that they will perform as expected in the event of a fire. Maintenance differs from inspection in that maintenance requires the checking of internal fittings, devices and agent supplies.

Multipurpose dry chemical means a dry chemical which is approved for use on Class A, Class B and Class C fires.

Pre-discharge employee alarm means an alarm which will sound at a set time prior to actual discharge of an extinguishing system so that employees may evacuate the discharge area prior to system discharge.

Sprinkler alarm means an approved device installed so that any waterflow from a sprinkler system equal to or greater than that from single automatic sprinkler will result in an audible alarm signal on the premises.

Sprinkler system means a system of piping designed in accordance with fire protection engineering standards and installed to control or extinguish fires. The system includes an adequate and reliable water supply, and a network of specially sized piping and sprinklers which are interconnected. The system also includes a control valve and a device for actuating an alarm when the system is in operation.

Standpipe systems. (i) *Class I standpipe system* means a 21/2″ (6.3 cm) hose connection for use by fire departments and those trained in handling heavy fire streams.

(ii) *Class II standpipe system* means a 11/2″ (3.8 cm) hose system which provides a means for the control or extinguishment of incipient stage fires.

(iii) *Class III standpipe system* means a combined system of hose which is for the use of employees trained in the use of hose operations and which is capable of furnishing effective water discharge during the more advanced stages of fire (beyond the incipient stage) in the interior of workplaces. Hose outlets are available for both 11/2″ (3.8 cm) and 21/2″ (6.3 cm) hose.

(iv) *Small hose system* means a system of hose ranging in diameter from 5/8″ (1.6 cm up to 11/2″ (3.8 cm) which is for the use of employees and which provides a means for the control and extinguishment of incipient stage fires.

Training means the process of making proficient through instruction and hands-on practice in the operation of equipment, including respiratory protection equipment, that is expected to be used and in the performance of assigned duties.

Total flooding system means a fixed suppression system which is arranged to automatically discharge a predetermined concentration of agent into an enclosed space for the purpose of fire extinguishment or control.

Wet chemical means an aqueous solution of organic or inorganic salts, or a combination thereof, that forms an extinguishing agent.

Wetting agent means a concentrate mixed with water that reduces the surface tension of the water which increases its ability to spread and penetrate, thus extending the efficiency of the watering extinguishing fires.

■ 12. Revise § 1910.156 to read as follows:

§ 1910.156 Emergency response.

(a) *Scope.* (1) This section applies to:

(i) Employers that have a workplace emergency response team, as defined in paragraph (b) of this section. The employees on the team, as a collateral duty to their regular daily work assignments, respond to emergency incidents to provide service such as firefighting, emergency medical service, and technical search and rescue. For the purposes of this section, this type of employer is called a Workplace Emergency Response Employer (WERE), the team is called a Workplace Emergency Response Team (WERT), and the employees assigned to the team are called team members; and

(ii) Employers that are emergency service organizations as defined in paragraph (b) of this section, that provide one or more of the following emergency response services as a primary function; or the employees perform the emergency service(s) as a primary duty for the employer: firefighting, emergency medical service, and technical search and rescue. For the purposes of this section, this type of employer is called an Emergency Service Organization (ESO), and the employees are called responders.

(2) This section does not apply to:

(i) Employers performing disaster site clean-up or recovery duties following natural disasters such as earthquakes, hurricanes, tornados, and floods; and human-made disasters such as explosions and transportation incidents.

(ii) Activities covered by § 1910.120 (Hazardous Waste Operations and Emergency Response (HAZWOPER)), § 1910.146 (Permit-Required Confined Spaces in General Industry).

(b) *Definitions.*

Combustion product means the heat, volatized liquids and solids, particulate matter (microscopic and small unburned particles), ash, and toxic gases released as a result of combustion (fire).

Community means a state, region, municipality or portion thereof, such as a village, town, township, borough, city, county, or parish.

Community vulnerability assessment means the process of identifying, quantifying, and prioritizing the potential and known vulnerabilities of the overall community that may require emergency service from the ESO, including the community's structures, inhabitants, infrastructure, organizations, and hazardous conditions or processes. The assessment is intended to include both human-created vulnerabilities and natural disasters.

Control zone means an area at an incident that is designated based upon safety and the degree of hazard to team members and responders. A control zone may be designated as cold, warm, hot, or no-entry.

(i) *Cold zone* means the area immediately outside the boundary of the established warm zone where team members and responders are not exposed to dangerous areas or contaminants from fire, toxic chemicals, or carcinogens. The cold zone typically contains the command post and such other support functions as are deemed necessary to control the incident. It may also be known as the support zone.

(ii) *Warm zone* means the area immediately outside the boundary of the hot zone that serves to transition to the cold zone. The warm zone typically is where team member and responder and equipment decontamination and hot zone support take place. It may also be known as the contamination reduction zone.

(iii) *Hot zone* means the area including and immediately surrounding the physical location of a fire or other hazardous area, having a boundary that extends far enough away to protect team members and responders outside the hot zone from being directly exposed to the hazards present in the hot zone.

(iv) *No-entry zone* means an area designated to keep out team members and responders, due to the presence of dangers such as imminent hazard(s), potential collapse, or the need to preserve the scene.

Emergency Medical Service (EMS) means the provision of patient treatment, such as basic life support, advanced life support, and other pre-hospital procedures, and may include transportation to a medical facility. It does not include the provision of first aid within the scope of § 1910.151.

Emergency Response Program (ERP) means a written program, developed by the WERE or ESO, to ensure that the WERE or ESO is prepared to safely respond to and operate at emergency incidents and non-emergency service situations, and to provide for the occupational safety and health of team members and responders. The ERP shall be composed of at least the information and documents required in this section.

Emergency Service Organization (ESO) means an organization that provides one or more of the following emergency response services as a primary function: firefighting, emergency medical service, and technical search and rescue; or the employees perform the emergency service(s) as a primary duty for the employer. Personnel (called responders in this section), as part of their regularly assigned duties, respond to emergency incidents to provide service such as firefighting, emergency medical service, and technical search and rescue. It does not include organizations solely engaged in law enforcement, crime prevention, facility security, or similar activities.

Facility means a structure or structures and surrounding locations, including industrial, commercial, mercantile, warehouse, power plant (utility), assembly occupancy, institutional or similar occupancy; and public and private as well as for-profit, not-for-profit, and governmental location, campus, compound, base, or similar establishment.

Facility vulnerability assessment means the process of identifying, quantifying, and prioritizing the potential and known vulnerabilities of the entire facility, including the facility's structures and surrounding locations, inhabitants, infrastructure, and hazardous conditions or processes.

Gross decontamination means the initial phase of the decontamination process, during which the surface contaminants and foreign materials on a team member's or responder's skin, clothing, personal protective equipment (PPE), and equipment are removed or significantly reduced, such as by brushing, rinsing, wiping, use of detergents, and use of personal hygiene wipes.

Immediately dangerous to life or health (IDLH) means an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

Incident means any situation to which a WERE or an ESO responds to perform services, such as firefighting; emergency medical service; technical search and rescue; other situations such as responses to downed electrical power lines, and outside propane or natural gas leaks.

Incident action plan (IAP) means the incident objectives, strategy, and tactics necessary to manage an incident. The IAP is developed at the incident site and provides essential information for actionable incident organization, work assignments, management of resources, risk management, and team member or responder safety when operating at an incident.

Incident Commander (IC) means the team member or responder who fulfills the incident command function of the Incident Management System; who is responsible for the overall management of an incident and the safety of all team members or responders involved in the response; and who is responsible for all incident activities, including the development of strategies and tactics, the direction and control of all team members and responders at the incident, and the ordering and release of resources.

Incident Management System (IMS) means a system used for managing and directing incident scene operations and activities. It includes establishing functions for managing incidents, describes the roles and responsibilities to be assumed by team members and responders, and standard operating procedures to be utilized. Incident command is a function of the IMS.

Incident Safety Officer (ISO) means the team member or responder at an incident scene who is responsible for monitoring and assessing safety hazards and unsafe situations and for developing measures for ensuring team member and responder safety.

Incident scene means the physical location where activities related to a specific incident are conducted. It includes nearby areas that are subject to incident-related hazards or used by the WERE or ESO for team members, responders, and equipment.

Living area means the room(s) or area(s) of the ESO's facility where responders may cook, eat, relax, read, study, watch television, complete paperwork or data entry, and similar daily living activities. Examples include day room, kitchen/dining area, classroom, office, and TV room. Areas such as maintenance shops, utility and storage areas, and interior vehicle parking bays are not considered living areas.

Mayday means an emergency procedure term used to signal that a team member or responder is in distress, needs assistance and is unable to self-rescue; it is typically used when safety or life is in jeopardy.

Mutual aid agreement means a written agreement or contract between WEREs and ESOs, or between ESOs, that they will assist one another upon request by furnishing personnel, equipment, materials, expertise, or other associated services as specified.

Non-emergency service means a situation where a WERT or ESO is called upon to provide a service that does not involve an immediate threat to health, life, or property, such as assisting law enforcement with equipment and scene lighting; removing people from a stuck elevator; resetting an accidentally activated fire alarm system; or assisting a mobility-challenged person downstairs during an elevator outage.

Personal protective equipment (PPE) means the clothing and equipment worn and utilized to prevent or minimize exposure to serious workplace injuries and illnesses. Examples include gloves, safety glasses and goggles, safety shoes and boots, earplugs and muffs, hard hats and helmets, respirators and Self-Contained Breathing Apparatus (SCBA), protective coats and pants, hoods, coveralls, vests, and full body suits.

Physician or other licensed health care professional (PLHCP) means an individual whose legally permitted scope of practice (*i.e.,* license, registration, or certification) allows the individual to independently provide, or be delegated the responsibility to provide, some or all of the health care services required by paragraph (g) of this section.

Pre-incident plan (PIP) means a written document developed by gathering general and detailed data about a particular facility or other location that is used by team members or responders in effectively and safely managing an emergency incident there. It is developed before an incident occurs and is intended to be used during an incident to aid in the safe mitigation of hazards.

Rapid intervention crew (RIC) means a group of team members or responders dedicated solely to serve as a stand-by rescue team available for the immediate search and rescue of any missing, trapped, injured or unaccounted-for team member(s) or responder(s).

Responder means an employee or member of an ESO who is, or will be, assigned to perform duties at emergency incidents.

Size-up means the observation and evaluation of the influencing factors at an incident used to determine the scope of the incident and to develop strategic goals and tactical objectives.

Skilled support worker (SSW) means an employee of an employer whose primary function is not as an emergency service provider and who is skilled in certain tasks or disciplines that can support a WERT or ESO. Examples include operators of heavy-duty wrecker/rotator tow vehicles, mechanized earth moving or digging equipment, or crane and hoisting equipment; utility service employees (gas, water, electricity); public works employees; and technical experts.

Sleeping area means designated room(s) or area(s) of the ESO's facility where responders sleep in beds.

Standard operating procedure (SOP) means a written directive that establishes a course of action or administrative method to be followed routinely and explains what is expected of team members or responders in performing the prescribed action, duty, or task.

Team member means an employee of the WERE whose primary job duties are typically associated with the business of the WERE (*e.g.,* production, manufacturing, processing, warehousing, administration) and who is assigned to the WERT to perform certain designated duties at emergency incidents at the WERE facility. Emergency response is a collateral duty for team members.

Technical search and rescue/ Technical rescue means a type of service that utilizes special knowledge and skills and specialized equipment to resolve complex search and rescue situations, such as rope, vehicle/ machinery, structural collapse, trench, and technical water rescue.

Unified command (UC) means a structure for managing an incident that allows for all agencies with jurisdictional responsibility for an incident, either geographical or functional, to manage an incident by establishing a common set of incident objectives and strategies.

Workplace Emergency Response Employer (WERE) means an employer who has a workplace emergency response team; and whose employees on the team, as a collateral duty to their regular daily work assignments, respond to emergency incidents to provide service such as firefighting, emergency medical service, and technical search and rescue.

Workplace Emergency Response Team (WERT) means a group of WERE employees (known as team members) who, as a collateral duty, prepare for and respond to emergency incidents in the WERE workplace.

(c) *Organization of the WERT, and Establishment of the ERP and Emergency Service(s) Capability.* (1) The WERE shall develop and implement a written ERP that provides protection for each of its employees (team members)

who is designated to provide services at an emergency incident.

(2) In the ERP, the WERE shall establish the existence of a WERT; describe the basic organizational structure of the WERT; and include how the WERE is addressing the provisions in the following paragraphs of this section: (c), (e) through (i), (k) through (m), and (o) through (s). The ERP must include an up-to-date copy of all written plans and procedures, except for PIPs, required by this section.

(3) The WERE shall conduct a facility vulnerability assessment for the purpose of establishing its emergency response capabilities and determining its ability to match the facility's vulnerabilities with available resources.

(4) The assessment required by paragraph (c)(3) of this section shall identify structures, facilities, and other locations where PIPs are needed.

(i) The assessment shall identify each vacant structure and location at the facility that is unsafe for team members to enter due to conditions such as previous fire damage, damage from natural disasters, and deterioration due to age and lack of upkeep.

(ii) The WERE shall provide a means for notifying team members of the vacant structures and locations identified in paragraph (c)(4)(i) of this section.

(5) The WERE shall specify the resources needed, including personnel and equipment, for mitigation of emergency incidents identified in the facility vulnerability assessment.

(6) The WERE shall establish, and document in the ERP, the type(s) and level(s) of emergency service(s) that it intends for the WERT to perform.

(7) The WERE shall establish, and document in the ERP, tiers of team members based on responsibilities, qualifications, and capabilities for the type(s) and level(s) of service it intends to perform.

Examples of tiers include, but are not limited to:

(i) For firefighting types of operations, tiers such as: trainee, incipient stage, advanced exterior, interior structural, both advanced exterior and interior firefighter, support.

(ii) For technical search and rescue types of operations, tiers such as: trainee, awareness, operation, technician, support.

(iii) For emergency medical types of services, tiers such as: trainee, Emergency Medical Responder (EMR), Emergency Medical Technician (EMT), advanced EMT (EMT–A), paramedic, nurse, physician, support.

(8) The WERE shall define, and document in the ERP, the service(s) needed, based on paragraph (c)(3) of this section, that the WERE is unable to provide, and develop mutual aid agreements with other WEREs and ESOs as necessary, or contract with an ESO(s), to ensure adequate resources are available to safely mitigate foreseeable incidents.

(9) Previous editions of ERP documents required by this section shall be maintained by the WERE for a minimum of five (5) years.

(10) The WERE shall notify team members of any changes to the ERP and make the ERP and documents maintained in accordance with paragraph (c)(9) of this section available for inspection by team members, their representatives, and OSHA representatives.

(d) *ESO Establishment of ERP and Emergency Service(s) Capability.* (1) The ESO shall develop and implement a written ERP that provides protection for each of its responders who is designated to operate at an emergency incident.

(2) In the ERP the ESO shall include how the ESO is addressing the provisions in the following paragraphs of this section: (d) through (h), (j) through (l), and (n) through (s). The ERP must include an up-to-date copy of all written plans and procedures, except for PIPs, required by this section.

(3) The ESO shall perform a community or facility vulnerability assessment of hazards within the primary response area where the emergency service(s) it provides is/are expected to be performed.

Note 1 to paragraph (d)(3): An ESO whose primary response area is a community would assess the community it serves. An ESO whose primary response area is, for example: a manufacturing facility, a military facility, a research and development facility, or similar occupational facility or workplace, would assess that facility.

(4) The assessment required by paragraph (d)(3) of this section shall identify structures, facilities, and other locations where PIPs are needed.

(i) The assessment shall identify each vacant structure and location that is unsafe for responders to enter due to conditions such as previous fire damage, damage from natural disasters, and deterioration due to age and lack of upkeep.

(ii) The ESO shall provide a means for notifying responders of the vacant structures and locations identified in paragraph (d)(4)(i) of this section.

(5) All facilities within the ESO's service area that are subject to reporting requirements under 40 CFR part 355 pursuant to the Emergency Planning and Community Right-to-Know Act (EPCRA) (also referred to as the Superfund Amendments and Reauthorization Act of 1986 (SARA), 42 U.S.C. 11001 *et seq.*), shall be included in the ESO's community vulnerability assessment.

(6) The ESO shall evaluate the resources needed, including personnel and equipment, for mitigation of emergency incidents identified in the community or facility vulnerability assessment, and establish in the ERP the type(s) and level(s) of emergency service(s) it intends to perform.

(7) In the ERP the ESO shall establish tiers of responders based on responsibilities, qualifications and capabilities for the type(s) and level(s) of service it intends to perform. Examples of tiers include, but are not limited to:

(i) For firefighting types of operations, tiers such as: trainee, basic firefighter, advanced firefighter, officer/crew leader, command officer, pilot, support.

(ii) For technical search and rescue types of operations, tiers such as: awareness, operation, technician, support.

(iii) For emergency medical types of services, tiers such as: EMR, EMT, advanced EMT (EMT–A), paramedic, nurse, pilot, support.

(8) In the ERP the ESO shall define the service(s) needed, based on paragraph (d)(4) of this section, that the ESO is unable to provide, and develop mutual aid agreements with WEREs or other ESOs as necessary to ensure adequate resources are available to safely mitigate foreseeable incidents.

(9) Previous editions of documentation required by this section shall be maintained by the ESO for a minimum of five (5) years.

(10) The ESO shall notify responders of any changes to the ERP and make the ERP and documents maintained in accordance with paragraph (d)(9) of this section available for inspection by responders, their representatives, and OSHA representatives.

(e) *Team Member and Responder Participation.* Each WERE and ESO shall establish and implement a process to:

(1) Involve team members and responders in developing and updating the ERP;

(2) Involve team members and responders in implementing and evaluating the ERP, and in the review and change process;

(3) Request input from team members and responders regarding modifications to the WERE's or ESO's own facility(ies);

(4) Involve team members and responders in walkaround inspections, inspections conducted in response to a

health or safety concern raised, and incident investigations at the WERE and ESO's own facility(ies);

(5) Encourage team members and responders to report safety and health concerns, such as hazards, injuries, illnesses, near misses, and deficiencies in the ERP;

(6) Respond to reports made in accordance with paragraph (e)(5) of this section in a reasonable period; and

(7) Post procedures for reporting safety and health concerns under paragraph (e)(5) of this section in a conspicuous place or places where notices to team members and responders are customarily posted.

(f) *WERT and ESO Risk Management Plan.* (1) The WERE and the ESO shall develop and implement a written comprehensive risk management plan (RMP), based on the type and level of service(s) established in paragraphs (c) and (d) of this section, that:

(i) Covers, at a minimum, risks to team members and responders associated with the following:

(A) Activities at WERE and ESO facilities;

(B) Training;

(C) Vehicle operations;

(D) Operations at emergency incidents;

(E) Non-emergency services and activities; and

(F) Activities that lead to exposure to combustion products, carcinogens, and other incident-related health hazards.

(ii) Includes, at a minimum, the following components with respect to hazards faced by team members and responders operating at incidents:

(A) Identification of actual and reasonably anticipated hazards;

(B) Evaluation of the likelihood of occurrence of a given hazard and the severity of its potential consequences;

(C) Establishment of priorities for action based upon a particular hazard's severity and likelihood of occurrence;

(D) Risk control techniques for elimination or mitigation of potential hazards, and a plan for implementation of the most effective solutions; and

(E) A plan for post-incident evaluation of effectiveness of risk control techniques.

(iii) Includes, at a minimum, the following:

(A) A personal protective equipment (PPE) hazard assessment that meets the requirements of § 1910.132(d);

(B) A respiratory protection program that meets the requirements of § 1910.134;

(C) An infection control program that identifies and limits or prevents the exposure of team members and responders to infectious and contagious diseases; and

(D) A bloodborne pathogens exposure control plan that meets the requirements of § 1910.1030.

(2) The RMP shall include a policy for extraordinary situations when a team member or responder, after making a risk assessment determination based on the team member or responder's training and experience, is permitted to attempt to rescue a person in imminent peril, potentially without benefit of, for example, PPE or equipment.

(3) The WERE and ESO shall review the RMP when review is required by paragraph (r) or (s) of this section, but not less than annually, and update it as needed.

(g) *Medical and Physical Requirements*—(1) *WERE and ESO medical requirements.* (i) The WERE and ESO shall establish the minimum medical requirements for team members and responders, based on the type and level of service(s) established in paragraphs (c) and (d) of this section. The medical requirements will differ based on the tiers of team members and responders in accordance with paragraphs (c)(7) and (d)(7) of this section, except that team members and responders in a support tier are excluded from the requirements in paragraph (g) of this section; and

(ii) The WERE and ESO shall maintain a confidential record for each team member and responder that records, at a minimum, duty restrictions based on medical evaluations; occupational illnesses and injuries; and exposures to combustion products, known or suspected toxic products, contagious diseases, and dangerous substances.

(iii) The WERE and ESO shall ensure that medical records are maintained and made available in accordance with § 1910.1020, Access to employee exposure and medical records.

(iv) Medical evaluations, tests, and laboratory analysis required to comply with paragraph (g) of this section shall be provided at no cost to team members or responders and without loss of pay.

(2) *WERE and ESO medical evaluation and surveillance.* (i) The WERE and ESO shall establish a medical evaluation program for team members and responders, except for those in a support tier, based on the type and level of service(s), and tiers of team members and responders established in paragraphs (c) and (d) of this section;

(ii) Prior to performing emergency response duties, each team member and responder shall be medically evaluated to determine fitness for duty by a physician or other licensed health care professional (PLHCP), in accordance with paragraphs (g)(2)(iii) through (vi) of this section, and each responder shall also be evaluated in accordance with paragraph (g)(3) of this section. The WERE and ESO must make medical surveillance required by this paragraph (g) available at no cost to the team members and responders, and at a reasonable time and place, to each team member and responder;

(iii) All medical evaluations must include the following to detect any physical or medical condition(s) that could adversely affect the team member or responder's ability to safely perform the essential job functions:

(A) Medical and work history with emphasis on symptoms of cardiac and respiratory disease;

(B) Physical examination with emphasis on the cardiac, respiratory, and musculoskeletal systems;

(C) Spirometry; and

(D) An assessment of heart disease risk including blood pressure, cholesterol levels, and relevant heart disease risk factors.

(iv) Additional screening shall be provided as deemed appropriate by the PLHCP;

(v) The medical evaluation shall be repeated biennially (every two years) thereafter unless the PLHCP deems more frequent evaluations are necessary with the exception of spirometry which will be repeated when deemed appropriate by the PLHC; and

(vi) The WERE and ESO shall establish protocols regarding the length of time that absence from duty due to injury or illness requires a team member or responder to have a return-to-duty medical evaluation by a PLHCP.

(3) *Additional ESO surveillance.* (i) For ESOs whose responders are exposed to combustion products, medical surveillance shall include a component based on the frequency and intensity of expected exposure to combustion products established in the risk management plan in paragraph (f) of this section. The surveillance component shall include:

(A) For responders who are, or based on experience may be, exposed to combustion products 15 times or more a year without regard to the use of respiratory protection, medical surveillance shall be provided, at least as effective as the occupational medical examination criteria specified in a national consensus standard, such as NFPA 1582 (incorporated by reference, see § 1910.6); and

(B) For responders who, either immediately or subsequently, exhibit signs or symptoms which may have resulted from exposure to combustion products, medical consultation shall be

provided and, if medically indicated, ongoing medical surveillance.

(ii) The ESO shall document each exposure to combustion products for each responder, for the purpose of determining the need for the medical surveillance specified in paragraph (g)(3)(i)(A) of this section, and for inclusion in the responder's confidential record, as required in paragraph (g)(1)(ii) of this section.

(4) *WERE and ESO behavioral health and wellness.* (i) The WERE and ESO shall provide, at no cost to the team member or responder, behavioral health and wellness resources for team members and responders, or identify where such resources are available at no cost in the community;

(ii) The resources shall include, at minimum:

(A) Diagnostic assessment;

(B) Short-term counseling;

(C) Crisis intervention; and

(D) Referral services for behavioral health and personal problems that could affect the team member or responder's performance of emergency response duties.

(iii) The WERE and ESO shall inform each team member and responder, on a regular and recurring basis, and following each potentially traumatic event, of the resources available; and

(iv) The WERE and ESO shall ensure that if there are any records of team member or responder use of these resources in possession of the WERE or ESO, the records are kept confidential.

(5) *WERE and ESO fitness for duty.* The WERE and ESO shall establish and implement a process to evaluate and re-evaluate annually the ability of team members and responders to perform essential job functions, based on the type and level of service(s), and tiers of team members and responders established in paragraphs (c) and (d) of this section.

(6) *ESO health and fitness program.* (i) The ESO shall establish and implement a health and fitness program that enables responders to develop and maintain a level of physical fitness that allows them to safely perform their assigned functions, based on the type and level of service(s), and tiers of responders established in paragraph (d) of this section; and

(ii) The program shall include the following components:

(A) An individual designated to oversee the responder health and fitness program;

(B) A periodic (not to exceed 3 years) fitness assessment for all responders;

(C) Exercise training that is available to all responders during working hours; and

(D) Education and counseling regarding health promotion for all responders.

(h) *Training*—(1) *Minimum training.* The WERE and the ESO shall:

(i) Establish the minimum knowledge and skills required for each team member and responder to participate safely in emergency operations, based on the type and level of service(s), and tiers of team members and responders established in paragraphs (c) and (d) of this section;

(ii) Provide initial training, ongoing training, refresher training, and professional development for each team member and responder commensurate with the safe performance of expected duties and functions based on the tiers of team members and responders and the type and level of service(s) established in paragraphs (c) and (d) of this section;

(iii) Restrict the activities of each new team member and responder during emergency operations until the team member or responder has demonstrated to a trainer/instructor, supervisor/team leader/officer, the skills and abilities to safely complete the tasks expected;

(iv) Ensure each instructor/trainer has the knowledge, skills, and abilities to teach the subject matter being presented.

(v) Ensure training is provided in a language and at a literacy level that team members and responders understand, and that the training provides an opportunity for interactive questions and answers with the instructor/trainer.

(vi) Provide each team member and responder with training on the RMP established in paragraph (f)(1) of this section;

(vii) Train each team member and responder about the safety and health policy established in paragraph (f)(2) of this section and the Standard Operating Procedures (SOPs) established in paragraph (q) of this section;

(viii) Provide each team member and responder with training that covers the selection, use, limitations, maintenance, and retirement criteria for all PPE used by the team member or responder based on the type and level of service(s), and tiers of team members and responders established in paragraphs (c) and (d) of this section;

(ix) Train each team member and responder in the selection, proper use, and limitations of portable fire extinguishers provided for employee use in the WERE or ESO's facility and vehicles, in accordance with § 1910.157;

(x) Train each team member and responder in the incident management system (IMS) established in paragraph (o) of this section, in order to operate safely within the scope of the IMS.

(xi) Ensure training for each team member and responder engaged in emergency activities includes procedures for the safe exit and accountability of team members and responders during orderly evacuations, rapid evacuations, equipment failure, or other dangerous situations and events.

(xii) Ensure each team member and responder is trained to meet the requirements of § 1910.120(q)(6)(i) (HAZWOPER), First Responder Awareness Level.

(xiii) Ensure each team member and responder who is not trained and authorized to enter specific hazardous locations (*e.g.,* confined spaces, trenches, and moving water) is trained to an awareness level (similar to the requirements in § 1910.120(q)(6)(i)) to recognize such locations and their hazards and avoid entry;

(xiv) Train each team member and responder to perform cardiopulmonary resuscitation (CPR) and use an automatic external defibrillator (AED).

(2) *Vocational training.* The WERE and ESO shall:

(i) Ensure each WERT team member who is designated to perform firefighting duties is trained to safely perform the duties assigned, to a level that is at least equivalent to the job performance requirements of NFPA 1081(incorporated by reference see § 1910.6);

(ii) Ensure each ESO responder who is designated to perform interior structural firefighting duties is trained to safely perform the duties assigned, to a level that is at least equivalent to the job performance requirements of NFPA 1001 (incorporated by reference see § 1910.6);

(iii) Ensure each team member and responder who is designated to perform interior structural firefighting duties is trained to safely perform search and rescue operational capabilities at least equivalent to the job performance requirements of NFPA 1407 (incorporated by reference see § 1910.6);

(iv) Ensure each team member and responder who is a vehicle operator is trained to safely operate the vehicle at a level that is at least equivalent to the job performance requirements of NFPA 1002 (incorporated by reference see § 1910.6), or similar Emergency Vehicle Operator qualifications based on the type of vehicle the team member or responder operates;

(v) Ensure each team member and responder who is a manager/supervisor (crew leader/officer) is trained to safely perform at a level that is at least equivalent to the job performance

requirements of NFPA 1021 (incorporated by reference see § 1910.6);

(vi) Ensure each wildland ESO responder is trained to safely perform at a level that is at least equivalent to the job performance requirements of NFPA 1140 (incorporated by reference see § 1910.6), or has a ''Red Card'' in accordance with the National Wildfire Coordinating Group—Interagency Fire Qualifications;

(vii) Ensure each technical search and rescue team member and responder who is designated to perform a technical rescue is trained to safely perform at a level that is at least equivalent to the technician capabilities of the job performance requirements of NFPA 1006 (incorporated by reference see § 1910.6);

(viii) Ensure each firefighting team member and responder who operates in a marine environment is trained to safely perform at a level that is at least equivalent to the job performance requirements of NFPA 1005 (incorporated by reference see § 1910.6); and

(ix) Ensure, based on the type and level of service(s) established in paragraphs (c) and (d) of this section, that each EMS team member and responder possesses the relevant professional qualification, certification, or license required in the WERE's and ESO's jurisdiction.

(3) *Proficiency.* The WERE and ESO shall provide annual skills checks to ensure each team member and responder maintains proficiency in the skills and knowledge commensurate with the safe performance of expected duties and functions, based on the type and level of service(s) established in paragraphs (c) and (d) of this section.

(i) *WERE Facility Preparedness.* (1) The WERE shall:

(i) Ensure the facility complies with subpart E of this part;

(ii) Provide facilities for the decontamination, disinfection, cleaning, and storage of PPE and equipment. If PPE is to be decontaminated off-site, the WERE must provide for bagging and storage of contaminated PPE while it is still at the WERE facility; and

(iii) Ensure that fire detection, suppression, and alarm systems, and occupant notification systems are installed, tested, and maintained in accordance with manufacturer's instructions and subpart L of this part.

(2) Ensure that, for prompt firefighting support from mutual aid WERTs and ESOs, fire hose connections and fittings are compatible with, or adapters are provided for, firefighting infrastructure such as fire hydrants, sprinkler system and standpipe system inlet connections, and fire hose valves (FHV); and

(3) Identify the location of each FHV, except for those clearly visible on standpipes in enclosed stairways, in a manner suitable to the location, such as with a sign, painted wall, or painted column, to ensure prompt access to FHVs.

(j) *ESO Facility Preparedness*—(1) *General requirements.* The ESO shall:

(i) Ensure each ESO facility complies with subpart E of this part;

(ii) Provide facilities for the decontamination, disinfection, cleaning, and storage of PPE and equipment. If PPE is to be decontaminated off-site, the ESO must provide for bagging and storage of contaminated PPE while it is still at the ESO facility;

(iii) For fire poles, slides and chutes;

(A) Ensure each responder using a fire pole maintains contact with the pole using all four extremities and does not hold anything other than the pole;

(B) Ensure each fire pole has a landing cushion that is at least 30 inches in diameter, has a contrasting color to the surrounding floor, and has impact absorption to reduce the likelihood and severity of injury;

(C) Ensure each floor hole with a fire pole, chute, or slide that provides rapid access to a lower level is secured or protected in accordance with subpart D of this part to prevent unintended falls through the floor hole; and

(iv) Ensure fire detection, suppression, and alarm systems, and occupant notification systems are installed, tested, and maintained in accordance with manufacturer's instructions and subpart L of this part.

(2) *Sleeping and living areas.* The ESO shall:

(i) Ensure interconnected hard-wired smoke alarms with battery back-up are installed inside each sleeping area, and outside in the immediate vicinity of each opening (door) to a sleeping area, and on all levels of the facility, including basements;

(ii) Ensure each new ESO facility with one or more sleeping area(s) (approved for construction, as determined by building permit, after [2 years after date of publication of the final rule in the **Federal Register**]) is protected throughout by an automatic sprinkler system, installed in accordance with § 1910.159;

(iii) Ensure each sleeping and living area has functioning carbon monoxide alarms installed;

(iv) Prevent responder exposure to, and contamination of sleeping and living areas by, vehicle exhaust emissions; and

(v) Ensure that contaminated PPE is not worn or stored in sleeping and living areas.

(k) *Equipment and PPE*—(1) *Equipment needed for emergency operations.* The WERE and the ESO shall:

(i) Provide or ensure access to the equipment needed to train for and safely perform emergency services, at no cost to team members and responders, based on the type and level of service(s) established in paragraphs (c) and (d) of this section;

(ii) Ensure newly purchased or acquired equipment is safe for use in the manner the WERE or ESO intends to use it;

(iii) Inspect, maintain, functionally test, and service test equipment as follows:

(A) At least annually;

(B) In accordance with manufacturer's instructions and industry practices; and

(C) As necessary to ensure equipment is in safe working order; and

(iv) Immediately remove from service equipment found to be defective or in an unserviceable condition.

(2) *Personal protective equipment (PPE).* The WERE and the ESO shall:

(i) Conduct a PPE hazard assessment for the selection of the protective ensemble, ensemble elements, and other protective equipment for team members and responders, based on the type and level of service(s) established in paragraphs (c) and (d) of this section;

(ii) Provide, at no cost to team members and responders, protective ensembles, ensemble elements, and protective equipment designed to provide protection from the hazards to which the team members and responders are likely to be exposed and suitable for the task the team members and responders are expected to perform, as determined by the PPE hazard assessment in paragraph (k)(2)(i) of this section;

(iii) Ensure PPE complies with subpart I of this part;

(iv) Ensure existing PPE complies with the requirements of the edition of the respective standard, listed in paragraph (k)(2)(v) of this section, that was current when it was manufactured;

(v) Ensure new PPE complies with the appropriate following standard(s):

(A) NFPA 1951 (incorporated by reference see § 1910.6);

(B) NFPA 1952 (incorporated by reference see § 1910.6);

(C) NFPA 1953 (incorporated by reference see § 1910.6);

(D) NFPA 1971 (incorporated by reference see § 1910.6);

(E) NFPA 1977, (incorporated by reference see § 1910.6);

(F) NFPA 1981 (incorporated by reference see § 1910.6);
(G) NFPA 1982 (incorporated by reference see § 1910.6);
(H) NFPA 1984 (incorporated by reference see § 1910.6);
(I) NFPA 1986 (incorporated by reference see § 1910.6);
(J) NFPA 1987 (incorporated by reference see § 1910.6);
(K) NFPA 1990 (incorporated by reference see § 1910.6);
(L) NFPA 1999 (incorporated by reference see § 1910.6); and
(M) ANSI/ISEA 207–2011 (incorporated by reference see § 1910.6).

(vi) Ensure air-purifying respirators are not used in IDLH atmospheres and are only used for those contaminants that NIOSH certifies them against;

(vii) Ensure each team member and responder properly uses or wears the protective ensemble, ensemble elements, and protective equipment whenever the team member or responder is exposed, or potentially exposed, to the hazards for which it is provided;

(viii) Ensure protective ensembles, ensemble elements, and protective equipment are decontaminated, cleaned, cared for, inspected and maintained in accordance with the manufacturer's instructions;

(ix) Immediately remove from service any defective or damaged protective ensembles, ensemble elements, or protective equipment;

(x) Ensure, when a WERE or an ESO permits a team member or responder to provide their own protective ensemble, ensemble element, or other protective equipment for personal use, the requirements of paragraphs (k)(2)(iii) through (ix) of this section are met;

(3) *Protection from contaminants.* To the extent feasible, the WERE and ESO shall:

(i) Ensure contaminated PPE and non-PPE equipment undergo gross decontamination or are separately contained before leaving the incident scene; and

(ii) Ensure team members and responders are not exposed to contaminated PPE and non-PPE equipment in the passenger compartment(s) of vehicles.

(l) *Vehicle preparedness and operation.* (1) To ensure vehicles are prepared for safe use by team members and responders, the WERE and the ESO shall:

(i) Inspect, maintain, and repair each WERE and ESO provided vehicle operated by team members and responders, as specified by the manufacturer;

(ii) Immediately remove from service any vehicle with safety-related deficiencies; (iii) Ensure each riding position is provided with a seat and functioning seat belt or vehicle safety harness that is designed to accommodate a team member or responder with and without heavy clothing, unless the vehicle is designed, built, and intended for use without seat belts or vehicle safety harnesses;

(iv) Inspect, maintain, and service test aerial devices on vehicles, to ensure they are safe for use, as specified by the manufacturer, or to a standard at least equivalent to NFPA 1910 (incorporated by reference see § 1910.6); and

(v) Inspect, maintain, and service test vehicle-mounted water pumps as specified by the manufacturer, or to a standard at least equivalent to NFPA 1910 (incorporated by reference see § 1910.6).

(2) To ensure vehicles are operated in a manner that will keep team members and responders safe, the WERE and ESO shall:

(i) Ensure each vehicle is operated by a team member or responder who has successfully completed a training program commensurate with the type of vehicle the team member or responder will operate, or by a trainee operator who is under the supervision of a qualified operator;

(ii) Ensure each vehicle is operated in accordance with SOP developed in paragraph (q)(2)(iv) of this section;

(iii) Ensure the team member or responder operating the vehicle does not move the vehicle until all team members or responders in or on the vehicle are seated and secured with seat belts or vehicle safety harnesses in approved riding positions, other than as specifically excepted in paragraph (l)(1)(iii) of this section or as provided in paragraph (l)(2)(viii) of this section;

(iv) Ensure team members and responders remain seated and secured any time that the vehicle is in motion, except when standing as permitted in paragraphs (l)(2)(vii) and (viii) of this section, and that seat belts and vehicle safety harnesses are not released or loosened for any purpose while the vehicle is in motion, including the donning or doffing of PPE;

(v) Ensure team members and responders actively performing necessary emergency medical care while the vehicle is in motion are secured to the vehicle by a seat belt, or by a vehicle safety harness designed for occupant restraint, to the extent consistent with the effective provision of such emergency medical care;

(vi) Establish and implement a procedure for operator training on vehicles with tiller steering that ensures when the instructor and trainee are both located at the tiller position, they are adequately secured to the vehicle whenever it is in motion;

(vii) Provide a vehicle safety harness designed for occupant restraint to secure the team member or responder in a designated stand-up position during pump-and-roll operations;

(viii) Establish and implement policies and procedures that provide alternative means for ensuring the safety of team members and responders when the WERE or ESO determines it is not feasible for each team member, responder, or person to be belted in a seat, such as when reloading long lays of hose, standing as honor guards during a funeral procession, transporting people acting as holiday figures or other characters or mascots, parades, and for vehicles without seat belts;

(ix) Establish and implement policies and procedures for operating vehicles not directly under the control of the WERE or ESO (*i.e.,* privately owned/leased/operated by team members and responders), when the WERE or ESO authorizes team members or responders to respond directly to emergency incident scenes or to WERE or ESO facilities when alerted for an emergency incident response; and

(x) Ensure, where equipment or respiratory protection are carried within enclosed seating areas of vehicles, each is secured either by a positive mechanical means of holding the item in its stowed position or by placement in a compartment with an effective latching closure.

(m) *WERE Pre-Incident Planning.* (1) The WERE shall develop PIPs for locations within the facility where team members may be called to provide service, based on the facility vulnerability assessment and the type(s) and level(s) of service(s) established in paragraph (c) of this section.

(2) PIPs shall include locations of unusual hazards that team members may encounter, such as storage and use of flammable liquids and gases, explosives, toxic and biological agents, radioactive sources, water-reactive substances, permit-required confined spaces, and hazardous processes.

(3) PIPs shall include locations of fire pumps, fire hose valves, control valves, control panels, and other equipment for fire suppression systems, fire detection and alarm systems, and smoke control and evacuation systems.

(4) The WERE shall ensure that the most recent versions of PIPs are provided to the WERT and are accessible and available to team members operating at emergency incidents.

(5) To the extent feasible, PIPs shall include actions to be taken by team members if the scope of the incident is beyond the capability of the WERT.

(6) PIPs shall be reviewed annually and when conditions or hazards change at the facility. They shall be updated as needed.

(n) *ESO Pre-Incident Planning.* (1) The ESO shall determine the locations and facilities where responders may be called to provide service that need a PIP, based on the community or facility vulnerability assessment and the type(s) and level(s) of service(s) established in paragraph (d) of this section.

(2) The ESO shall develop PIPs for facilities, locations, and infrastructure where emergency incidents may occur.

(3) The ESO shall prepare a PIP for each facility within the ESO's primary response area that is subject to reporting requirements under 40 CFR part 355 pursuant to the Emergency Planning and Community Right-to-Know Act (EPCRA) (also referred to as the Superfund Amendments and Reauthorization Act of 1986 (SARA), 42 U.S.C. 11001 *et seq.*).

(4) The ESO shall ensure facility personnel consulted are knowledgeable about the facility's use, contents, processes, hazards, and occupants.

Note 2 to paragraph (n)(4): The ESO should develop and implement a written policy to protect proprietary business information.

(5) The ESO shall ensure the responder(s) responsible for PIP preparation are knowledgeable in identifying the information to be collected and included in the PIP.

(6) The PIP shall have a level of detail commensurate with the facility's complexity and hazards.

(7) PIPs shall include actions to be taken by responders if the scope of the incident is beyond the capability of the ESO.

(8) The ESO shall ensure that the most recent versions of PIPs are disseminated as needed and are accessible and available to responders operating at emergency incidents.

(9) PIPs shall be reviewed annually and updated as needed.

(o) *Incident Management System Development.* (1) The WERE and the ESO shall develop and implement an Incident Management System (IMS) to manage all emergency incidents, based on:

(i) The type and level of service(s) established in paragraphs (c) and (d) of this section;

(ii) The facility or community vulnerability assessment conducted in accordance with paragraphs (c) and (d) of this section; and

(iii) The PIPs developed in accordance with paragraphs (m) and (n) of this section.

(2) To provide structure and coordination to the management of emergency incident operations, for the safety and health of team members and responders involved in those activities, the IMS shall:

(i) Include flexible and scalable components that are adaptable to any situation;

Note 3 to paragraph (o)(2)(i): Standardization of the IMS, such as provided in the National Incident Management System and the National Response Framework, developed by the Federal Emergency Management Agency, an agency of the U.S. Department of Homeland Security; is essential to the successful coordination and function of WERTs and ESOs in incident response.

(ii) Ensure that, in the absence of a dedicated Incident Safety Officer (ISO), the Incident Commander (IC) assesses the incident scene for existing and potential hazards and oversees incident safety;

(iii) Include a means for team members and responders to notify the ISO, IC or Unified Command (UC) of unsafe conditions and unsafe actions on the incident scene; and

(iv) Consist of collaborative components that provide the basis for clear communication and effective operations.

(3) The WERE and the ESO shall designate the responsibilities of the IC. The IC shall be responsible for, at least:

(i) Front-line management of the incident;

(ii) Overall incident safety;

(iii) Tactical planning and execution; and

(iv) Determining whether additional assistance is needed and relaying requests for internal resources, mutual aid, and skilled support assistance through the communications or emergency operations center, as appropriate.

(4) The WERE and ESO shall ensure the IC has the training and authority to perform the assigned duties.

(p) *Emergency incident operations*—(1) *Incident command and management.* The WERE and the ESO shall ensure that:

(i) The IMS, developed in accordance with paragraph (o) of this section, is utilized at each emergency incident;

(ii) Each emergency incident has an IC or a UC;

(iii) The task of overseeing incident safety is addressed, or an ISO is assigned and designated to monitor and assess the incident scene for safety hazards and unsafe situations and develop measures for ensuring team member and responder safety;

(iv) If an incident escalates in size and complexity, the IC divides the incident into strategic or tactical-level management components;

(v) A UC structure is utilized on incidents where the complexity requires a shared responsibility among two or more WEREs, ESOs, or other agencies; and

(vi) The IC(s), team members, and responders are rotated or replaced during complex or extended operations, as determined by the WERE or ESO.

(2) *Incident Commander.* The WERE and the ESO shall ensure that:

(i) A team member or responder is assigned as the IC;

(ii) The identity of the IC and the location of command post are communicated to other team members or responders who are on the incident scene or responding to it;

(iii) The IC conducts a comprehensive and ongoing size-up of the incident scene that places life safety as the highest priority;

(iv) The IC conducts a risk assessment based on the size-up before actively engaging the incident;

(v) The IC coordinates and directs all activities for the duration of the incident; and

(vi) The IC develops an Incident Action Plan (IAP) that prioritizes life safety for each incident, updates it as needed during the incident, and utilizes the information contained in the PIP.

(3) *Control zones.* The WERE and the ESO shall ensure that:

(i) Control zones are established at every emergency incident to identify the level of risk to team members and responders and the appropriate protective measures needed, including PPE;

(ii) The perimeters of the control zones are designated by the IC;

(iii) Any changes to the perimeters during the incident are communicated to all team members and responders on the scene;

(iv) Control zones are established as follows:

(A) Designated as no-entry, hot, warm, or cold;

(B) Marked in a conspicuous manner, with colored tape, signage, or other appropriate means, unless such marking is not possible; and

(C) Communicated to all team members and responders attending the incident before the team member or responder is assigned to a control zone;

(v) Only team members and responders with an assigned task are permitted in the hot zone;

(vi) Where a no-entry zone is designated, team members and

responders are prohibited from entering the zone; and

(vii) The designation of appropriate protective measures, including PPE, is commensurate with the hazards in the zone the team member and responder will be operating in, and that each team member and responder appropriately uses the protective measures for that zone.

(4) *On-scene safety and health measures.* The WERE and the ESO shall:

(i) Identify minimum staffing requirements needed to ensure incidents are mitigated safely and effectively;

(ii) Ensure operations are limited to those that can be safely performed by the team members and responders available on the scene;

(iii) Ensure that at least four team members or responders are assembled before operations are initiated in an IDLH atmosphere in a structure or enclosed area, unless upon arrival at an emergency scene, the initial team member(s) or responder(s) find an imminent life-threatening situation where immediate action could prevent the loss of life or serious injury, in which case such action is permitted with fewer than four team members or responders present;

(iv) Ensure at least two team members or responders enter the structure or enclosed area with an IDLH atmosphere as a team and remain in visual or voice contact with one another at all times, unless there is insufficient space for more than one team member or responder, such as for example, in a confined space or collapsed structure;

(v) Ensure that outside the structure or enclosed area with the IDLH atmosphere, a minimum of two team members or responders are present to provide assistance to, or rescue of, the team operating in the IDLH atmosphere. One of the two team members or responders located outside the IDLH atmosphere may be assigned to an additional role, such as IC, so long as this team member or responder is able to perform assistance or rescue activities without jeopardizing the safety or health of other team members or responders operating at the incident;

(vi) Ensure each team member and responder in the IDLH atmosphere uses positive-pressure SCBA or a supplied-air respirator in accordance with the respiratory protection program specified in paragraph (f)(1)(iii)(B) of this section;

(vii) Ensure each supplied-air respirator used in an IDLH atmosphere is equipped with a NIOSH-certified emergency escape air cylinder and pressure-demand facepiece; and

(viii) Ensure each team member and responder uses NIOSH-certified respiratory protection during post–fire extinguishment activities, such as overhaul and investigation.

(5) *Communication.* The WERE and the ESO shall:

(i) Ensure, to the extent feasible, adequate dispatch and monitoring of on-scene radio transmissions by an emergency communications and dispatch center;

(ii) Ensure effective communication capability between team members or responders and the IC; and

(iii) Ensure that communications equipment allows mutual aid team members and responders to communicate with the IC and other team members and responders.

(6) The WERE and the ESO shall ensure the personnel accountability system established in paragraph (q)(2)(vii) of this section is utilized at each emergency incident.

(7) The WERE and the ESO shall implement a Rapid Intervention Crew (RIC) at each structural fire incident where team members or responders are operating in an IDLH atmosphere, in accordance with the SOP established in paragraph (q)(2)(viii) of this section.

(8) The WERE and the ESO shall implement the medical monitoring and rehabilitation procedures, as needed, in accordance with the SOP established in paragraph (q)(2)(ix) of this section.

(9) The WERE and the ESO shall implement the traffic safety procedures, as needed, in accordance with the SOP established in paragraph (q)(2)(x) of this section.

(10) Use of skilled support workers (SSW). Prior to participation by SSWs at an emergency incident, the WERE or the ESO shall ensure that:

(i) Each SSW has and utilizes PPE appropriate to the task(s) to be performed;

(ii) An initial briefing is provided to each SSW that includes, at a minimum, what hazards are involved, what safety precautions are to be taken, and what duties are to be performed by the SSW;

(iii) An effective means of communication between the IC and each SSW is provided;

(iv) Where appropriate, a team member or responder is designated and escorts the SSW at the emergency incident scene; and

(v) All other appropriate on-scene safety and health precautions provided to team members and responders are used to ensure the safety and health of each SSW.

(q) *Standard Operating Procedures.* (1) The WERE and the ESO shall develop and implement SOPs for emergency events that the WERE or ESO is reasonably likely to encounter, based on the type(s) and level(s) of service(s) established in paragraphs (c) and (d) of this section, and the community or facility vulnerability assessment developed in accordance with paragraphs (c) and (d) of this section.

(2) The WERE and ESO shall establish SOPs that:

(i) Describe the actions to be taken by team members and responders in situations involving unusual hazards, such as downed power lines, natural gas or propane leaks, flammable liquid spills, and bomb threats;

(ii) Address how team members and responders are to operate at incidents that are beyond the capability of the WERT or ESO, as specified in paragraphs (c) and (d) of this section;

(iii) Provide a systematic approach to team member and responder protection from contaminants, and for decontamination of team members, responders, PPE, and equipment, including at a minimum:

(A) Proper techniques for doffing (removing) contaminated PPE;

(B) On-scene gross decontamination, and decontamination at the WERE's or ESO's facility, of PPE, equipment, and team members and responders;

(C) Encouraging team members and responders to shower with soap and water, as soon as reasonably practicable, and change into clean clothing; and

(D) Protecting team members and responders from contaminated PPE after an incident;

(iv) Meet the requirements for vehicle operation found in paragraph (l)(2) of this section and include procedures for safely driving vehicles during both non-emergency travel and emergency response; criteria for actions to be taken at stop signs and signal lights; vehicle speed; crossing intersections; driving on the opposite side of the road with oncoming traffic; use of cross-over/turnaround areas on divided highways; traversing railroad grade crossings; the use of emergency warning devices; and the backing of vehicles. For backing vehicles with obstructed views to the rear, the SOP shall require use of at least one of the following: a spotter, a 360-degree walk-around of the vehicle by the operator, or a back-up camera;

(v) Provide for the use of standard protocols and terminology for radio communication at all types of incidents;

(vi) Establish procedures for operating at structures and locations that are identified as, or determined to be vacant, structurally unsound, or otherwise unsafe for entry by team members and responders;

(vii) Establish a system for maintaining personnel accountability and coordinating evacuation of all team members and responders operating at an incident that includes periodic accountability checks and reports; procedures for orderly evacuation of team members and responders; and procedures for rapid evacuation of team members and responders from escalating situations, such as rapid growth of fire, impending collapse, impending explosion; in case of PPE or equipment failure; and acts of active violence against team members and responders;

(viii) Establish procedures for Mayday situations, such as when a team member or responder becomes lost, trapped, injured, or ill, including the use of the radio's emergency alert button and implementation of a RIC for immediate deployment to search and rescue any missing, disoriented, injured, ill, lost, unaccounted-for, or trapped team members or responders. The SOP shall specify the minimum number of team members or responders needed for the RIC, based on the size and complexity of potential incidents; and a standard list of equipment to be assembled by the RIC, for foreseeable incidents; and

(ix) Establish a systematic approach to provide team members and responders with medical monitoring and rehabilitation at emergency incidents as needed, such as rest, medical treatment, rehydration (fluid replacement), active warming or cooling, and protection from extreme elements.

(3) The ESO shall establish SOPs that:

(i) Establish procedures for protecting responders from vehicular traffic while operating at an emergency incident on, or adjacent to, roadways and highways, including setting up a safe work zone beginning with proper placement of the first arriving ESO vehicle and subsequent ESO vehicles, a means of coordination with law enforcement and mutual aid WERTs or ESOs, and use of safety vests that have high visibility and are reflective;

(ii) Establish procedures for operating at incident scenes that are primarily related to law enforcement, such as crime scenes, active shooters, and civil disturbances; and

(iii) Establish procedures for incidents where responders are called upon to conduct non-emergency services, including a requirement for responders to present themselves in uniforms, PPE, vests, or other apparel that clearly identifies them as fire/rescue/EMS responders and a requirement that responders wear ballistic vests, if provided by the ESO and appropriate for the type of incident.

(r) *Post-Incident Analysis.* (1) The WERE or ESO shall promptly conduct a Post-Incident Analysis (PIA) to determine the effectiveness of the WERT's or ESO's response to an incident after a significant event such as a large-scale incident; a significant near-miss incident; a team member, responder or SSW injury or illness requiring off-scene treatment; or a team member, responder, or SSW fatality.

(2) The PIA shall include, but not be limited to, a review and evaluation of the RMP, IMS, PIPs, SOPs, and IAPs for accuracy and adequacy.

(3) The WERE or ESO shall promptly identify and implement changes needed to the RMP, IMS, PIPs, IAPs, and SOPs based on the lessons learned as a result of the PIA; or if the changes cannot be promptly implemented, the WERE or ESO shall develop a written timeline for implementation as soon as feasible.

(s) *Program Evaluation.* (1) The WERE and ESO shall evaluate the adequacy and effectiveness of the ERP at least annually, and upon discovering deficiencies, and document when the evaluation(s) are conducted.

(2) Review of the ERP shall include determining whether the ERP was implemented as designed and whether modifications are necessary to correct deficiencies.

(3) The WERE and ESO shall identify and implement recommended changes to the ERP, with written timelines for correcting identified deficiencies as soon as feasible, based on the review of the program, giving priority to recommendations that most significantly affect team member or responder safety and health.

(t) *Severability.* Each section of this standard, and each provision within those sections, is separate and severable from the other sections and provisions. If any provision of this standard is held to be invalid or unenforceable on its face, or as applied to any person, entity, or circumstance, or is stayed or enjoined, that provision shall be construed so as to continue to give the maximum effect to the provision permitted by law, unless such holding shall be one of utter invalidity or unenforceability, in which event the provision shall be severable from this standard and shall not affect the remainder of the standard.

■ 13. Amend § 1910.157 by:

■ a. Revising paragraph (c)(3);

■ b. Adding paragraph (d)(7); and

■ c. In paragraph (f):

■ i. Redesignating Table L–1 as table 1 to paragraph (f)(3);

■ ii. Removing the text ''Table L–1'' wherever it appears, and adding in its place the text ''table 1 to paragraph (f)(3)''; and

■ iii. Revising newly redesignated table 1 to paragraph (f)(3).

The revisions and addition read as follows:

§ 1910.157 Portable fire extinguishers.

* * * * *

(c) * * *

(3) The employer shall not provide or make available in the workplace portable fire extinguishers using carbon tetrachloride, chlorobromomethane, or methyl bromide extinguishing agents.

* * * * *

(d) * * *

(7) The employer shall distribute portable fire extinguishers of Class K extinguishing agent for use by employees so that the travel distance from the Class K hazard area to any extinguisher is 30 feet (9.15 m) or less.

* * * * *

(f) * * *

(3) * * *

TABLE 1 TO PARAGRAPH (f)(3)

Type of extinguisher	Test interval (years)
AFFF (aqueous film-forming foam)	5
Carbon dioxide	5
Dry chemical with stainless steel shells	5
FFFP (film-forming fluoroprotein foam	5
Wet chemical	5
Wetting agent	5
Stored-pressure water, water mist, loaded steam, and/or antifreeze	5
Dry chemical, cartridge- or cylinder-operated, with mild steel shells	12
Dry chemical, stored-pressure, with mild steel shells, brazed brass shells, or aluminum shells	12
Dry powder, stored-pressure, cartridge- or cylinder-operated, with mild steel shells	12
Halogenated agents	12

* * * * *

■ 14. Amend § 1910.158 by adding paragraph (c)(2)(iii) to read as follows:

§ 1910.158 Standpipe and hose systems.

* * * * *

(c) * * *

(2) * * *

(iii) The employer shall ensure that standpipe system inlet connections and fittings are compatible with, or adapters are provided for, the fire hose couplings used by the fire department(s) or Workplace Emergency Response Team(s) that pump water into the

standpipe system through the connections or fittings.

* * * * *

■ 9. Amend § 1910.159 by adding paragraph (c)(12) to read as follows:

§ 1910.159 Automatic sprinkler systems.

* * * * *

(c) * * *

(12) *Inlet connections.* The employer shall ensure that sprinkler system inlet connections and fittings are compatible with, or adapters are provided for, the fire hose couplings used by the fire department(s) or Workplace Emergency Response Team(s) that pump water into the sprinkler system through the connections or fittings.

[FR Doc. 2023–28203 Filed 2–2–24; 8:45 am]

BILLING CODE 4510–26–P