NFPA®

1521

Standard for Fire Department Safety Officer Professional Qualifications

2020

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Text revisions are shaded. A Δ before a section number indicates that words within that section were deleted and a Δ to the left of a table or figure number indicates a revision to an existing table or figure. When a chapter was heavily revised, the entire chapter is marked throughout with the Δ symbol. Where one or more sections were deleted, a • is placed between the remaining sections. Chapters, annexes, sections, figures, and tables that are new are indicated with an ***N***.

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NFPA® 1521

Standard for

Fire Department Safety Officer Professional Qualifications

2020 Edition

This edition of NFPA 1521, *Standard for Fire Department Safety Officer Professional Qualifications*, was prepared by the Technical Committee on Fire Service Occupational Safety and Health and released by the Correlating Committee on Professional Qualifications. It was issued by the Standards Council on November 4, 2019, with an effective date of November 24, 2019, and supersedes all previous editions.

This edition of NFPA 1521 was approved as an American National Standard on November 24, 2019.

Origin and Development of NFPA 1521

The first edition of the *Standard for Fire Department Safety Officer* was issued in 1977 as NFPA 1501 and established a standard for a new role in the fire service. Very few fire departments had safety officers, and their role was not well defined. The second edition was issued in 1987 to coincide with and support a new document, NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*. The 1987 edition of NFPA 1501 provided more specific direction on the duties, responsibilities, and qualifications for the position based on the experience and insight gained since the first edition.

In 1992, the document was redesignated as NFPA 1521, and the concept of assistants serving as safety officers under a fire department safety officer was introduced, recognizing that the safety job requires many persons operating in the system. The text was revised in several areas to emphasize the role of the fire department safety officer as the program manager.

The 1997 edition focused on differentiating between the incident safety officer (ISO) and the health and safety officer (HSO) in response to questions concerning the roles, responsibilities, qualifications, and training required for each of these positions. That edition also showed how each position fit into a fire department's risk management plan, and it included sample forms for fire station inspections.

The 2002 edition was a reconfirmation of the standard with editorial changes to bring the document in line with the *Manual of Style for NFPA Technical Committee Documents*.

The 2008 edition updated the standard to reflect current practices in organizing and appointing an HSO within a fire department. The qualifications and functions of both an HSO and an ISO were updated to reflect both current requirements and best practices. A role was defined for a person with special technical expertise to serve as an assistant to the ISO when the technical complexities of the incident are beyond the expertise of an ISO.

In the 2008 edition, the requirement for the HSO to be a fire department officer was deleted, as this position is sometimes filled by a person who is not a uniformed member of the fire department. The requirement for the ISO to be a fire department officer was also changed to allow persons who have certain professional qualifications to fill that role even if they are not appointed as fire department officers.

Annex material was added to the 2008 edition to assist the ISO in writing a post-incident analysis (PIA) report, along with examples of forms that can be used to track the items the ISO is responsible for at the incident scene.

For the 2015 edition, the document was entirely rewritten to match the formatting of the job performance requirement (JPR) documents that reside within the Professional Qualifications project. Previous editions of NFPA 1521 were written in standard *Manual of Style for NFPA Technical Committee Documents* formatting. This marked change in the formatting of the document came after

several years of discussion, questions, and committee work within the Fire Service Occupational Safety and Health Technical Committee, the Professional Qualifications project, and the Correlating Committee for the Professional Qualifications.

The real impetus for this change came as an indirect result of the Professional Qualifications "Now and Beyond Workshop" that was held back in 2011. One item that was discussed at the workshop was how certifications were being provided by the Pro Board and International Fire Service Accreditation Congress (IFSAC) on NFPA documents that were not in the JPR format. At the time, NFPA 472, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, and NFPA 1521 were two such documents. The work by the committee responsible for NFPA 472 was well underway; however, the recurring question was, "Should NFPA 1521 be rewritten into the JPR format at its next revision?" This was brought back to the committee by the committee chair at the time, Chairman Glenn Benarick, as he was in attendance at the workshop, to see if the committee was interested in following a similar approach that was being addressed by the committee responsible for NFPA 472.

Revising the 2015 edition of NFPA 1521 was a completely new process in which a committee that had never developed a JPR document was doing just that — developing a JPR document based on an existing document. Another interesting twist in this process was that this document now written in JPR format, was required be a part of the Professional Qualifications project, and thus report to the Professional Qualifications Correlating Committee. Also unique is that NFPA 1521 is the only document that the Fire Service Occupational Safety and Health Technical Committee is responsible for that reports through a correlating committee.

The 2015 edition revisions, both in reformatting and rewriting the document, and the fact that the document became part of the Professional Qualifications project and correlating committee, required the collaboration and hard work of many. While that revision cycle was a learning experience for all those involved in the process, the document became better at meeting the needs and demands of the end user and the responder community.

In the 2020 edition, NFPA 1521 includes additional detail, as it is the first revision cycle of the standard since it became a professional qualifications document in the JPR format. The technical committee has added knowledge points to the competencies for ISOs primarily in two areas: contamination control and traffic incident safety. Those sections have been updated to match the contamination control requirements in NFPA 1500. This includes critical knowledge points regarding the removal, care, and washing of personal protective equipment (PPE). For traffic incidents, vehicle location details and PPE knowledge points have been added. The department safety officer section also includes additional contamination control detail.

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NOTE: Membership on a committee shall not in and of itself constitute an endorsement of the Association or any document developed by the committee on which the member serves.

Committee Scope: This Committee shall have primary responsibility for the management of the NFPA Professional Qualifications Project and documents related to professional qualifications for fire service, public safety, and related personnel.

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Committee Scope: This Committee shall have primary responsibility for documents on occupational safety and health in the working environment of the fire service. The Committee shall also have responsibility for documents related to medical requirements for fire fighters, and the professional qualifications for Fire Department Safety Officer.

Contents

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Standard for

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2020 Edition

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Information on referenced and extracted publications can be found in Chapter 2 and Annex F.

Chapter 1 Administration

1.1 Scope. This standard identifies the minimum job performance requirements (JPRs) for health and safety officer (HSO) and incident safety officer (ISO) for a fire department.

1.2* Purpose. The purpose of this standard is to specify the minimum JPRs for service as a fire department HSO and ISO.

1.2.1 This standard shall define HSO and ISO for a fire department.

1.2.2 The intent of this standard shall be to ensure that personnel serving as HSOs and ISOs for a fire department are qualified.

1.2.3* This standard shall not address organization or management responsibility.

1.2.4 It is not the intent of this standard to restrict any jurisdiction from exceeding or combining these minimum requirements.

1.2.5 JPRs for each level or position are the tasks personnel shall be able to perform to carry out the job duties. *(See Annex D.)*

1.2.6* The HSO and ISO shall remain current with the general knowledge, skills, and JPRs for each qualification level.

Δ **1.2.7** The JPRs shall be accomplished in accordance with the requirements of the authority having jurisdiction (AHJ), NFPA 1500, and NFPA 1561.

1.3 Application. The application of this standard is to specify which requirements within the document shall apply to an HSO and ISO for a fire department.

1.3.1 The requirements of this standard shall apply to members serving in organizations providing rescue, fire suppression, emergency medical services, hazardous materials mitigation, special operations, and other emergency services, including public, military, private, and industrial fire departments.

1.3.2 This standard shall not apply to members serving in facility fire brigades, which might also be known as emergency brigades, emergency response teams, fire teams, plant emergency organizations, or mine emergency response teams.

1.3.3 The JPRs shall be accomplished in accordance with the requirements of the AHJ and all applicable NFPA standards.

1.3.4 It shall not be required that the JPRs be mastered in the order in which they appear. The AHJ shall establish instructional priority and the training program content to prepare personnel to meet the JPRs of this standard. *(See Annex D.)*

1.3.5* Performance of each requirement of this standard shall be evaluated by personnel approved by the AHJ.

1.3.6 The JPRs for each level shall be completed in accordance with recognized practices and procedures or as defined by law or by the AHJ.

1.3.7 Personnel assigned the duties in Chapter 4 shall meet all the requirements defined in Chapter 4 prior to being qualified. Personnel assigned the duties in Chapter 5 shall meet all the requirements defined in Chapter 5 prior to being qualified.

1.3.8 The AHJ shall provide personal protective clothing and the equipment necessary to conduct assignments.

1.3.9 JPRs involving exposure to products of combustion shall be performed in approved PPE.

1.3.10 Prior to training to meet the requirements of the standard, personnel shall meet the following requirements:

(1) Educational requirements established by the AHJ
(2) Age requirements established by the AHJ
(3)* Medical requirements as developed and validated by the AHJ and in compliance with applicable legal requirements
(4) Job-related physical performance requirements as developed and validated by the AHJ

1.3.11 Wherever in this standard the terms *rules*, *regulations*, *policies*, *procedures*, *supplies*, *apparatus*, or *equipment* are referred to, it is implied that they are those of the AHJ.

1.4 Units. In this standard, values for measurement are followed by an equivalent in SI units, but only the first stated value shall be regarded as the requirement. Equivalent values in SI units shall not be considered as the requirement, as these values can be approximate. *(See Table 1.4.)*

Table 1.4 U.S.-to-SI Conversions

Quantity	U.S. Unit/ Symbol	SI Unit/ Symbol	Conversion Factor
Length	inch (in.)	millimeter (mm)	1 in. = 25.4 mm
	foot (ft)	meter (m)	1 ft = 0.305 m
Area	square foot (ft^2)	square meter (m^2)	1 ft^2 = 0.0929 m^2

Chapter 2 Referenced Publications

2.1 General. The documents or portions thereof listed in this chapter are referenced within this standard and shall be considered part of the requirements of this document.

Δ **2.2 NFPA Publications.** National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 414, *Standard for Aircraft Rescue and Fire-Fighting Vehicles,* 2020 edition.

NFPA 472, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents,* 2018 edition.

NFPA 1006, *Standard for Technical Rescue Professional Qualifications,* 2017 edition.

NFPA 1021, *Standard for Fire Officer Professional Qualifications,* 2020 edition.

NFPA 1072, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications,* 2017 edition.

NFPA 1403, *Standard on Live Fire Training Evolutions,* 2018 edition.

NFPA 1451, *Standard for a Fire and Emergency Vehicle Operations Training Program,* 2018 edition.

NFPA 1500™, *Standard on Fire Department Occupational Safety, Health, and Wellness Program,* 2020 edition.

NFPA 1561, *Standard on Emergency Services Incident Management System and Command Safety,* 2020 edition.

NFPA 1581, *Standard on Fire Department Infection Control Program,* 2015 edition.

NFPA 1582, *Standard on Comprehensive Occupational Medical Program for Fire Departments,* 2018 edition.

NFPA 1584, *Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises,* 2015 edition.

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 edition.

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 edition.

NFPA 1851, *Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting,* 2020 edition.

NFPA 1901, *Standard for Automotive Fire Apparatus,* 2016 edition.

NFPA 1906, *Standard for Wildland Fire Apparatus,* 2016 edition.

NFPA 1911, *Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Emergency Vehicles,* 2017 edition.

NFPA 1912, *Standard for Fire Apparatus Refurbishing,* 2016 edition.

NFPA 1917, *Standard for Automotive Ambulances,* 2019 edition.

NFPA 1951, *Standard on Protective Ensembles for Technical Rescue Incidents,* 2020 edition.

Δ **2.3 Other Publications.**

N **2.3.1 FEMA Publications.** Federal Emergency Management Agency, U.S. Department of Homeland Security, 500 C Street, SW, Washington, DC 20472.

FEMA/USFA FA-168, *Safety and Health Considerations for the Design of Fire and Emergency Medication Services Stations,* 1997.

2.3.2 U.S. Government Publications. U.S. Government Publishing Office, 732 North Capitol Street, NW, Washington, DC 20401–0001.

Centers for Disease Control and Prevention (CDC), *Basic Infection Prevention and Control Procedures.* https://www.cdc.gov/infectioncontrol/basics/standard-precautions.html

Homeland Security Presidential Directive 5, "Management of Domestic Incidents," February 28, 2003.

Presidential Policy Directive 8, "National Preparedness," March 30, 2011.

Public Law 91-596, The Occupational Safety and Health Act of 1970.

Title 29, Code of Federal Regulations, Part 1910.120, "Hazardous Waste Operations and Emergency Response," August 27, 2002.

Title 29, Code of Federal Regulations, Part 1910.146, "Permit-Required Confined Spaces," April 16, 1999.

Title 29, Code of Federal Regulations, Part 1910.1030, "Occupational Exposure to Bloodborne Pathogens," December 6, 1991.

The William-Steiger Occupational Safety and Health Act of 1970.

2.3.3 Other Publications.

Merriam-Webster's Collegiate Dictionary, 11th edition, Merriam-Webster, Inc., Springfield, MA, 2003.

Ryan White HIV/AIDS Treatment Extension Act (S.1793) and Part G: The Ryan White Life Threatening Disease List and Reporting Guidelines, 2009.

Δ **2.4 References for Extracts in Mandatory Sections.**

NFPA 472, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents,* 2018 edition.

NFPA 600, *Standard on Facility Fire Brigades,* 2020 edition.

NFPA 1002, *Standard for Fire Apparatus Driver/Operator Professional Qualifications,* 2017 edition.

NFPA 1006, *Standard for Technical Rescue Professional Qualifications,* 2017 edition.

NFPA 1026, *Standard for Incident Management Personnel Professional Qualifications,* 2018 edition.

NFPA 1451, *Standard for a Fire and Emergency Service Vehicle Operations Training Program,* 2018 edition.

NFPA 1500™, *Standard on Fire Department Occupational Safety, Health, and Wellness Program,* 2020 edition.

NFPA 1561, *Standard on Emergency Services Incident Management System and Command Safety,* 2020 edition.

NFPA 1670, *Standard on Operations and Training for Technical Search and Rescue Incidents,* 2017 edition.

NFPA 1901, *Standard for Automotive Fire Apparatus,* 2016 edition.

Chapter 3 Definitions

3.1 General. The definitions contained in this chapter shall apply to the terms used in this standard. Where terms are not defined in this chapter or within another chapter, they shall be defined using their ordinarily accepted meanings within the context in which they are used. *Merriam-Webster's Collegiate Dictionary,* 11th edition, shall be the source for the ordinarily accepted meaning.

3.2 NFPA Official Definitions.

3.2.1* Approved. Acceptable to the authority having jurisdiction.

3.2.2* Authority Having Jurisdiction (AHJ). An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.

3.2.3 Shall. Indicates a mandatory requirement.

3.2.4 Should. Indicates a recommendation or that which is advised but not required.

N **3.2.5 Standard.** An NFPA Standard, the main text of which contains only mandatory provisions using the word "shall" to indicate requirements and that is in a form generally suitable for mandatory reference by another standard or code or for adoption into law. Nonmandatory provisions are not to be considered a part of the requirements of a standard and shall be located in an appendix, annex, footnote, informational note, or other means as permitted in the NFPA Manuals of Style. When used in a generic sense, such as in the phrase "standards development process" or "standards development activities," the term "standards" includes all NFPA Standards, including Codes, Standards, Recommended Practices, and Guides.

3.3 General Definitions.

3.3.1 Accident. An unplanned occurrence, which results in a loss such as unintended injury, illness, death, property damage, or damage to the environment.

3.3.2 Active Cooling. See 3.3.6.1.

3.3.3 Assistant. Title for subordinates of the command staff positions; this title indicates a level of technical capability, qualifications, and responsibility subordinate to the primary functions.

3.3.4 Cold Zone. See 3.3.5.1.

3.3.5 Control Zones. The areas at an incident that are designated based upon safety and the degree of hazard. [**1500,** 2020]

3.3.5.1 *Cold Zone.* The control zone of an incident that contains the command post and such other support functions as are deemed necessary to control the incident. [**1500,** 2020]

3.3.5.2 *Environmental Factors.* A collection of characteristics such as weather, terrain, access/egress pathways, structural components, smoke production, fire spread potential, and other physical features at a given incident scene.

3.3.5.3 *Hostile Fire Event.* A general descriptor for hazardous fire conditions, including flashover, backdraft, smoke-explosion, flameover, and rapid fire spread.

3.3.5.4 *Hot Zone.* The control zone immediately surrounding a hazardous area, which extends far enough to prevent adverse effects to personnel outside the zone. [**1500,** 2020]

3.3.5.5 *No-Entry Zone.* Those areas at an incident scene that no person(s) are allowed to enter, regardless of what personal protective equipment (PPE) they are wearing due to dangerous conditions.

3.3.5.6 *Warm Zone.* The control zone outside the hot zone where personnel and equipment decontamination and hot zone support takes place. [**1500,** 2020]

3.3.6 Cooling.

3.3.6.1 *Active Cooling.* The process of using external methods or devices (e.g., hand and forearm immersion, misting fans, ice vests) to reduce elevated core body temperature.

3.3.6.2 *Passive Cooling.* The process of using natural evaporative cooling (e.g., sweating, doffing personal protective equipment) to reduce elevated core body temperature.

3.3.7 Emergency Incident. Any situation to which the emergency services organization responds to deliver emergency services, including rescue, fire suppression, emergency medical care, special operations, law enforcement, and other forms of hazard control and mitigation. [**1561,** 2020]

3.3.8 Emergency Medical Care. The provision of treatment to patients, including first aid, cardiopulmonary resuscitation, basic life support (first responder or EMT level), advanced life support (paramedic level), and other medical procedures that occur prior to arrival at a hospital or other health care facility.

3.3.9 Emergency Operations. Activities of the fire department relating to rescue, fire suppression, emergency medical care, and special operations, including response to the scene of the incident and all functions performed at the scene. [**1500,** 2020]

Δ **3.3.10 Facility Fire Brigade.** An organized group of employees at a facility who are knowledgeable, trained, and skilled in at least basic fire-fighting operations, and whose full-time occupation might be the provision of fire suppression and related activities for their employer. [**600,** 2020]

3.3.11 Fire Apparatus. A vehicle designed to be used under emergency conditions to transport personnel and equipment, and to support the suppression of fires and mitigation of other hazardous situations. [**1901,** 2016]

3.3.12 Fire Chief. The highest ranking officer in charge of a fire department.

3.3.13* Fire Department. An organization providing rescue, fire suppression, emergency medical care, special operations, and related services.

3.3.14* Fire Department Facility. Any building or area owned, operated, occupied, or used by a fire department on a routine basis. [**1500,** 2020]

3.3.15 Fire Department Member. See 3.3.32, Member.

3.3.16 Fire Department Safety Officer. See 3.3.47, Safety Officer.

3.3.17 Fire Department Vehicle. Any vehicle, including fire apparatus, operated by a fire department. [**1002,** 2017]

3.3.18* Fire Suppression. The activities involved in controlling and extinguishing fires. [**1500,** 2020]

3.3.19* Hazard. A condition that presents the potential for harm or damage to people, property, or the environment.

3.3.20 Hazardous Energy Sources. Electrical, mechanical, hydraulic, pneumatic, chemical, nuclear, thermal, gravitational, or any other form of energy that could cause injury due to the unintended motion energizing, start-up, or release of such stored or residual energy in machinery, equipment, piping, pipelines, or process systems.

3.3.21 Health and Safety Management System. A management system that integrates and directs the risk management process to enable an organization to control and/or reduce the frequency and severity of the risks associated with fire department emergency and nonemergency operations in order to realize the fire department's health and safety goals. Health and safety programs are elements of a health and safety management system.

3.3.22 Health and Safety Officer (HSO). See 3.3.47.1.

3.3.23 Health Hazard. Any property of a material that either directly or indirectly can cause injury, illness, or incapacitation, either temporary or permanent, from exposure by contact, inhalation, or ingestion.

3.3.24 Hot Zone. See 3.3.5.4.

3.3.25 Imminent Hazard. An act or condition that is judged to present a danger to persons or property that is so urgent and severe that it requires immediate corrective or preventive action.

3.3.26 Incident Action Plan. The objectives reflecting the overall incident strategy, tactics, risk management, and member safety that are developed by the incident commander. Incident action plans are updated throughout the incident. [**1500,** 2020]

3.3.27 Incident Commander (IC). The individual responsible for all incident activities, including the development of strategies and tactics and the ordering and the release of resources. [**472,** 2018]

3.3.28* Incident Management System (IMS). A system that defines the roles and responsibilities to be assumed by responders and the standard operating procedures to be used in the management and direction of emergency incidents and other functions. [**1561,** 2020]

3.3.29 Incident Safety Officer (ISO). See 3.3.47.2.

3.3.30 Incident Safety Plan. Hazard control strategies developed by the incident safety officer to address the incident action plan and the type of incident encountered.

3.3.31* Incident Scene. The location where activities related to a specific incident are conducted. [**1561,** 2020]

3.3.32* Member. A person involved in performing the duties and responsibilities of a fire department, under the auspices of the organization. [**1500,** 2018]

3.3.33 No-Entry Zone. See 3.3.5.5.

3.3.34 Occupational Illness. An illness or disease contracted through or aggravated by the performance of the duties, responsibilities, and functions of a fire department member. [**1500,** 2020]

3.3.35 Occupational Injury. An injury sustained during the performance of the duties, responsibilities, and functions of a fire department member. [**1500,** 2020]

3.3.36* Occupational Safety and Health Program. An occupation specific program, implemented to reduce the risks associated with the occupation, that outlines the components of a program and the roles and responsibilities of the fire department and its members.

3.3.37 Operational Factors. The collection of strategic and tactical assignments, positions, equipment, resources, and processes utilized by incident personnel.

3.3.38 Passive Cooling. See 3.3.6.2.

3.3.39 Procedure. An organizational directive issued by the authority having jurisdiction or by the department that establishes a specific policy that must be followed. [**1561,** 2020]

3.3.40* Rapid Intervention Crew/Company (RIC). A minimum of two fully equipped personnel on site, in a ready state, for immediate rescue of disoriented, injured, lost, or trapped rescue personnel. [**1006,** 2017]

3.3.41 Recovery. Those activities directed at locating and removing persons who have obviously or likely sustained fatal consequences from the incident.

3.3.42* Rehabilitation. An intervention designed to mitigate against the physical, physiological, and emotional stress of fire fighting in order to sustain a member's energy, improve performance, and decrease the likelihood of on-scene injury or death.

3.3.43 Rescue. Those activities directed at locating endangered persons at an emergency incident, removing those persons from danger, treating the injured, and providing for transport to an appropriate health care facility. [**1500,** 2020]

3.3.44 Risk. A measure of the probability and severity of adverse effects that result from exposure to a hazard. [**1451,** 2018]

3.3.45* Risk Management. Identification and analysis of exposure to hazards, selection of appropriate techniques to control exposures, implementation of chosen techniques, and monitoring of results to ensure the health and safety of members.

3.3.46 Risk Management Plan. A risk management plan is a written document that evaluates all the activities typically performed by a fire department and identifies the risk associated with those activities.

3.3.47 Safety Officer. A generic title given to a member within a fire department or emergency service organization who performs the functions of a health and safety officer, an

incident safety officer, or who serves as an assistant to a person in either of those positions.

3.3.47.1* ***Health and Safety Officer (HSO).*** The individual assigned and authorized by the fire chief as the manager of the health and safety program.

3.3.47.1.1 ***Assistant Health and Safety Officer.*** The individual assigned and authorized by the AHJ to assist the fire department HSO in the performance of the duties and responsibilities of the HSO.

3.3.47.2* ***Incident Safety Officer (ISO).*** A member of the command staff responsible for monitoring and assessing safety hazards or unsafe situations and for developing measures for ensuring personnel safety.

3.3.47.2.1 ***Assistant Incident Safety Officer.*** A member of the fire department appointed to respond or assigned at an incident scene by the IC to assist the ISO in the performance of the ISO functions.

3.3.48 Service Test. The regular, periodic inspection and testing of apparatus and equipment, according to an established schedule and guideline, to ensure that they are in safe and functional operating condition. [**1500,** 2020]

3.3.49* Special Operations. Those emergency incidents to which the fire department responds that require specific and advanced training and specialized tools and equipment. [**1500,** 2020]

3.3.50 Standard Operating Guideline. A written organizational directive that establishes or prescribes specific operational or administrative methods to be followed routinely, which can be varied due to operational need in the performance of designated operations or actions.

3.3.51* Standard Operating Procedure. A written organizational directive that establishes or prescribes specific operational or administrative methods to be followed routinely for the performance of designated operations or actions.

3.3.52 Tactical Level Management Component (TLMC). A management unit identified in an incident management system commonly known as "division" or "group."

Δ **3.3.53 Technical Search and Rescue.** The application of special knowledge, skills, and equipment to resolve unique and/or complex search and rescue situations. [**1670,** 2017]

3.3.54* Technical Specialist. A person with specialized skills, training, and/or certification who can be used anywhere within the incident management system organization where their skills might be required.

3.3.55 Warm Zone. See 3.3.5.6.

Chapter 4 Health and Safety Officer

4.1 General.

4.1.1 The fire department health and safety officer (HSO) shall meet the job performance requirements (JPRs) defined in Sections 4.2 through 4.12.

4.1.2* A fire department HSO shall recuse himself/herself from any investigatory process where a conflict of interest exists.

4.2* Risk Management.

Δ **4.2.1*** Develop an organizational risk management plan that addresses the risks specified in Chapter 4 of NFPA 1500, given injury reports, vehicle incident reports, near-miss or equipment malfunction or failure reports, and other reports as determined by the AHJ, so that risks are identified, categorized, and control measures are implemented and monitored.

(A) Requisite Knowledge. Standard operating procedures/guidelines (SOP/Gs), regulations and standards as determined by AHJ; fire behavior, building construction, proper use and performance limitations of protective clothing and protective equipment; national and local injury and health data.

(B) Requisite Skills. Ability to identify risks; develop goals, objectives, and action plans to manage those risks; analyze data; perform cost-benefit analysis.

4.2.2* Manage an organizational risk management plan, given an organization, organizational activities, a risk management plan and a communications method for distributing the plan, so that the plan is communicated to the members of the organization, elements of the plan are integrated into the organizational operation, needed modifications are identified, and the modifications are implemented.

(A) Requisite Knowledge. SOP/Gs, regulations and standards as determined by the AHJ; fire behavior, building construction, proper use and performance limitations of protective clothing and protective equipment, hazards associated with various types of emergency and nonemergency locations; national and local injury and health statistics; and communications methods used by the AHJ.

(B) Requisite Skills. Ability to identify risks, develop goals, objectives, and action plans to manage those risks; perform cost-benefit analysis; compile and analyze data, obtain feedback from personnel, and observe performance and behavior changes; revise plans and communicate the revisions.

4.2.3* Implement safety provisions of the organization's risk management plan into training and education programs, given an organizational risk management plan, a training or education program, and organizational goals and objectives, so that the organization's risk management program is incorporated into the training and education programs, records are maintained, and the training and education programs meet the stated operational safety goals and objectives for emergency and nonemergency incidents.

(A) Requisite Knowledge. AHJ risk management plan; data analysis from AHJ safety and incident reports; local, state, and federal safety programs; organizations with safety programs; outreach sources available from professional organizations for safety development programs; risks associated with administration, facilities, training, vehicle operations (both emergency and nonemergency); proper use and performance limitations of protective clothing and protective equipment; operations at emergency incidents, operations at nonemergency incidents, and other related activities.

(B) Requisite Skills. Ability to educate and integrate health and safety aspects of the risk management program into training and education programs; risk identification, risk evaluation, establishment of priorities for action (frequency and severity), risk control techniques, and risk management monitoring (process and outcome evaluations).

Δ **4.2.4*** Develop an operational risk management plan given the requirements of Chapter 8 of NFPA 1500, so that an incident management system (IMS) that meets the requirements of NFPA 1561 is established with written SOP applying to all members involved in emergency operations.

Δ **(A) Requisite Knowledge.** IMS for the AHJ; NFPA 1561; Homeland Security Presidential Directive 5 (National Incident Management System) and Presidential Policy Directive 8 (National Response Framework); other applicable federal, state, and local regulations and applicable NFPA standards.

(B) Requisite Skills. Utilize the IMS at all emergency incidents, drills, and exercises; management of the incident and the safety of all members involved at the scene by the IC; divide the incident into tactical-level management components as incidents escalate in size and complexity, assign an ISO to assess the incident scene for hazards or potential hazards; establish the organization of the command staff and general staff to control the position and function of all members operating at the scene and to ensure that safety requirements are satisfied.

4.2.5 Develop a plan for the treatment and transport of an injured or ill member to a medical or health care facility, given applicable resources, policies and procedures, and SOP/Gs, so that the procedure ensures that all members with life-threatening and non-life-threatening occupational injuries, illnesses, and exposures will receive immediate emergency medical care and, if necessary, transportation to the most appropriate medical or health care facility.

(A) Requisite Knowledge. SOP/Gs and health and safety policies used by the AHJ; life-threatening and non-life-threatening occupational injuries, and illnesses; and the technical knowledge necessary to develop and review SOP/Gs and EMS policy and procedures.

(B) Requisite Skills. The ability to determine the level of care needed if a member becomes ill or injured; and develop SOP/Gs for transportation of injured members.

4.3 Laws, Codes, and Standards.

4.3.1 Establish SOP/Gs for an occupational health and safety program, given an organization, applicable laws, codes, and standards, an established SOP/Gs template, so that the information is in a presentable format for fire department official review and adoption, the procedures and guidelines comply with applicable laws, codes, and standards, and the SOPs/Gs are reviewed and revised, as needed.

(A) Requisite Knowledge. Applicable health and safety laws, codes, and standards pertaining to the fire service; standardized format or template for writing SOP/Gs; criteria to determine effectiveness of fire department operations and training practices; and a list of required safety subjects to address, including selection criteria.

(B) Requisite Skills. Writing and critical thinking skills; ability to understand health and safety laws, codes, and standards pertaining to the fire service; and transcribe applicable material into SOP/Gs.

4.3.2* Assess and report the adequacy and effectiveness of compliance with occupational health and safety SOP/Gs, given access to current state/provincial and federal safety and health legislation, codes, regulations, and standards and a thorough knowledge of organizational operations, policies and training, so that accurate information on fire department compliance with the applicable laws, codes, standards, and SOP/Gs is communicated to the AHJ.

(A) Requisite Knowledge. Applicable laws, codes, and standards pertaining to the fire service, fire department SOP/Gs, and a method for evaluating compliance.

(B) Requisite Skills. Writing and critical thinking skills; ability to understand health and safety laws, codes, and standards pertaining to the fire service; and communicate the information.

4.4 Training and Education.

Δ **4.4.1** Develop and distribute health and safety information for the education of fire department members, given NFPA 1500, SOP/Gs, and health and safety policies used by the AHJ, and a means for conveying clear, concise, and correct information to update and train members.

Δ **(A) Requisite Knowledge.** SOP/Gs, health and safety policies used by the AHJ; NFPA 1500; AHJ codes, standards, and regulations that relate to the fire department occupational safety and health program.

(B) Requisite Skills. Analyze information from different data sources; interpersonal and organizational interaction; use various means to communicate information.

Δ **4.4.2** Implement the training and education of fire department members on the organization's health and safety procedures and NFPA 1500, given NFPA 1500, SOP/Gs, and health and safety policies used by the AHJ, so that all emergency and nonemergency functions are evaluated, level of compliance is documented and communicated to the appropriate person(s).

Δ **(A) Requisite Knowledge.** SOP/Gs and health and safety policies used by the AHJ; NFPA 1500; AHJ codes, standards, and regulations that relate to the fire department occupational safety and health program.

(B) Requisite Skills. Analyze information from different data sources; interpersonal and organizational interaction; use various means to communicate information.

Δ **4.4.3** Develop a safety procedure for live fire training exercises, given a list of live training evolutions utilized by the AHJ, instruction plans for live fire training exercises, and NFPA 1403, so that safety procedures for instructors and students are documented, and the requirements of NFPA 1403 are met.

(A) Requisite Knowledge. SOP/Gs and health and safety policies used by the AHJ; live training evolutions used by the AHJ; life-threatening and non-life-threatening occupational injuries and illnesses; requirements of NFPA 1403.

(B) Requisite Skills. Ability to develop SOP/Gs; use resources for determining code compliance; complete reporting and documentation requirements.

4.5 Accident Prevention.

4.5.1* Manage a fire department accident prevention program by utilizing engineering controls, administrative policies and procedures, education, protective clothing and protective equipment, given the fire department's risk management plan, accident, occupational injury, and occupational illnesses data, and reports on department functions, so that the

program meets the requirements of Section 4.2, the work practices are identified, and recommendations are communicated to the appropriate person(s).

(A) Requisite Knowledge. Understand the necessary components of a fire department accident prevention program; proper use and performance limitations of protective clothing and protective equipment; procedures for developing recommendations based on fire department audits, incident reports, surveys, accident reports, occupational injury reports, inspection reports, and other applicable department information.

(B) Requisite Skills. Analyze the components necessary to be included in a fire department accident prevention program based on the requirements of Section 4.2. Analyze information from different sources; interact with or interview personnel associated with fire department operations, apparatus, equipment, fire department facilities, and SOP/Gs.

4.5.2* Implement training for safe work practices on emergency and nonemergency operations, given a risk management plan, SOP/Gs, and a training curriculum, so that the training class is delivered and members are given the necessary information to perform their job tasks in accordance with the risk management plan.

(A) Requisite Knowledge. Procedures for conducting job task analysis based on department SOP/Gs, the department's risk management plan, health and safety policies used by the AHJ, and the technical knowledge necessary to perform various job tasks.

(B) Requisite Skills. Analyze information from different sources; interact with or interview personnel involved in the training of department members; and understand delivery methods of instructional materials.

4.5.3 Develop an emergency vehicle safety program, given fire department SOP/Gs, applicable traffic laws, and an emergency vehicle operator manual, so that applicable SOP/Gs are communicated to members.

Δ **(A) Requisite Knowledge.** Procedures for driving and operating fire apparatus based on department SOP/Gs, health and safety policies used by the AHJ, applicable traffic laws, and NFPA 1451.

(B) Requisite Skills. Analyze information from different sources; interact with or interview personnel involved in the training of department members; and understand delivery methods of instructional materials.

Δ **4.5.4*** Conduct a periodic safety audit, given NFPA 1500, fire department operations, apparatus, equipment, facilities, training and education programs, SOP/Gs, and an audit template, so that work practices and procedures are conducted in compliance with applicable federal, state/provincial, and local laws, codes and standards; and the safety audit report and recommendations are communicated to the appropriate person(s).

Δ **(A) Requisite Knowledge.** Work practices and procedures for fire department operations, apparatus, equipment, training, and fire department facilities based on SOP/Gs, NFPA 1500, audit template, and federal, state/provincial, local laws, and codes and standards.

(B) Requisite Skills. Analyze information from different sources; interact with or interview personnel involved in the training of department members; document information, utilizing an audit template, and develop reports.

4.6 Accident Investigation, Procedures, and Review.

4.6.1 Conduct a safety and health investigation, given an incident or planned event involving an occupational injury, illness, exposure, fatality, near miss, or other potentially hazardous condition involving fire department members, fire department vehicles, apparatus, equipment or facilities, SOP/Gs, health and safety policies, so that the facts and the root cause of the incident are correctly identified, deviations from SOP/Gs established by the AHJ and health and safety policies are noted, recommendations are made for preventing similar losses in the future, and all information gathered in the investigation is documented, reported, and recorded according to policies established by the AHJ.

(A) Requisite Knowledge. Procedures for conducting, documenting, recording, and reporting a safety and health investigation; SOP/Gs and health and safety policies used by the AHJ; procedures for preserving evidence and documentation; and the technical knowledge pertinent to the incident under investigation, and federal, state/provincial, and local laws.

(B) Requisite Skills. Analyze information from different data sources; conduct root cause analysis; interact with or interview personnel associated with the incident; complete safety investigation documentation; identify cause(s) of injury, death, or property damage; and develop recommendations to prevent similar losses in the future.

4.6.2 Develop a policy for reporting accident and injury investigations, given an incident or planned event, applicable documents, techniques, SOP/Gs, and all applicable laws, regulations, and standards, so that the accident and/or injury is documented, procedures are reviewed, and all local, state/provincial, and federal requirements are met, documentation is completed, and recommendations for revision are made.

(A) Requisite Knowledge. Procedures for developing and reviewing accident and injury reporting and investigation; SOP/Gs and health and safety policies used by the AHJ; all applicable federal, state/provincial, and local laws, regulations, and standards.

(B) Requisite Skills. Analyze information from different data sources; interact with or interview personnel associated with the incident, often under conditions of personal stress; complete safety investigation documentation; identify cause(s) of injury, death, or property damage; and develop recommendations to prevent similar losses in the future.

4.6.3 Establish procedures for a health and safety component of a post-incident analysis, given an incident or planned event, incident information, data, reports or records, SOP/Gs, necessary technical knowledge, and all applicable laws, regulations, and standards, so that risks to personnel are identified and reduced or eliminated at future incidents, and the applicable AHJ SOP/Gs are reviewed and revised as needed.

Δ **(A) Requisite Knowledge.** Knowledge of applicable hazards related to the incident; NFPA 1500; NFPA 1584; NFPA 1561; SOP/Gs and health and safety policies used by the AHJ; all applicable federal, state/provincial, and local laws, regulations, and standards.

(B) Requisite Skills. Recognize hazards at an emergency scene; determine methods for correcting health and safety hazards; analyze information from different data sources; interact with or interview personnel; write SOP/Gs.

4.6.4* Coordinate the development of a corrective action plan, given a team, a list of recommendations arising from the investigation of occupational accidents, injuries, deaths, illnesses, exposures, observation of incident scene activities, and departmental policies and procedures, so that root causes are determined, the plan is documented, and controls are implemented according to departmental policies and procedures.

(A) Requisite Knowledge. Applicable federal, state, and local laws, standards, and regulations; SOP/Gs and health and safety policies used by the AHJ; life-threatening and non-life-threatening occupational injuries and illnesses; procedures for conducting, documenting, recording, and reporting a safety and health investigation; procedures for preserving evidence and documentation; and the technical knowledge pertinent to the incident(s) under investigation.

(B) Requisite Skills. Analyze information from different data sources; interact with or interview personnel associated with the incident, often under conditions of personal stress; complete safety investigation documentation; identify cause(s) of injury, death, or property damage; and develop recommendations to prevent similar losses in the future.

4.7 Records Management and Data Analysis.

Δ **4.7.1** Manage the collection and analysis of data related to accidents, occupational deaths, injuries, illnesses, and exposures to infectious agents and communicable diseases, given incident-related data, a data collection and storage system, the requirements of Chapter 4 of NFPA 1500, so that the data summarizes fire department experience in different categories, comparisons can be made with other fire departments, national trends, and other occupations and industries, and the information can be accessed for future reference and use.

Δ **(A) Requisite Knowledge.** Procedures for tabulating and compiling accident and injury data, including statistical applications, national statistical and investigative reports, NFPA 1500, SOP/Gs, and health and safety policies used by the AHJ.

(B) Requisite Skills. Basic statistical analysis in spreadsheets or other appropriate software; identify cause(s) and trends in injury, death, or property damage; and determine corrections to prevent similar losses in the future.

Δ **4.7.2** Verify records are maintained regarding the periodic inspection and service testing of fire apparatus and equipment, inspection and service testing of protective clothing and protective equipment, and fire department facilities, given NFPA 1500, inspection and service testing records for fire apparatus, equipment, protective clothing and protective equipment, so that records are secure, accessible, and in a format that can be easily analyzed.

Δ **(A) Requisite Knowledge.** Procedures for management of records, NFPA 1500, all applicable federal, state/provincial, and local laws, regulations, and standards.

(B) Requisite Skills. Records management and organization.

4.7.3 Maintain records of corrective actions taken to mitigate health and safety hazards or unsafe practices, given evidence of corrective actions implemented, so that records of corrective actions are accessible and in a format that is appropriate for analysis.

(A) Requisite Knowledge. Procedures for management of records.

(B) Requisite Skills. Records management and organization.

4.7.4 Develop a report on fire department accidents, occupational injuries, illnesses, deaths, and exposures, given the accident and injury data and necessary equipment, so that the report, which may include recommendations, is communicated to the appropriate person(s).

(A) Requisite Knowledge. Procedures for developing reports and recommendations based on fire department audits, incident reports, surveys, accident reports, injury reports, inspection reports, and other applicable department information.

(B) Requisite Skills. Analyze information from different sources; interact with or interview personnel associated with fire department operations, apparatus, equipment, fire department facilities, and SOP/Gs; basic statistical analysis in spreadsheets or other appropriate software; identify cause(s) and trends in injury, death, or property damage; and develop recommendations to prevent similar losses in the future.

4.8 Apparatus and Equipment.

4.8.1 Recommend safety-related specifications for fire apparatus and fire equipment, given new or existing fire apparatus and fire equipment specifications, information on new fire apparatus and fire equipment technology, and risks identified in the risk management plan, so that the specifications meet the fire department needs identified in the risk management plan, and federal, state/provincial, local laws, and NFPA standards are complied with, and the specifications are documented.

Δ **(A) Requisite Knowledge.** Chapter 6 of NFPA 1500; federal, state/provincial, and local laws that relate to fire apparatus specifications; new fire apparatus and fire equipment technology, and current fire apparatus specification procedures.

(B) Requisite Skills. Ability to develop safety-related fire apparatus and equipment specifications; determine compliance with federal, state/provincial, and local laws that relate to fire apparatus and equipment specifications.

4.8.2 Recommend safety-related specifications for protective clothing and protective equipment, given new or existing protective clothing and protective equipment specifications, new protective clothing and protective equipment technology, and risks identified in the risk management plan, so that the specifications meet the fire department needs identified in the risk management plan, federal, state/provincial, local laws, and NFPA standards are complied with, and the specifications are documented.

Δ **(A) Requisite Knowledge.** Chapter 7 of NFPA 1500, federal, state/provincial, and local laws that relate to fire equipment specifications; current protective clothing and protective equipment specification procedures; current state of technology in the appropriate areas of protective clothing and protective equipment; procedures, training, equipment, and safety precautions for use of protective clothing and protective equipment; the organization's risk management plan.

(B) Requisite Skills. Ability to develop safety-related protective clothing and equipment specifications; determine compliance with federal, state/provincial, and local laws related to protective clothing and protective equipment.

Δ **4.8.3** Verify performance testing of fire apparatus and fire equipment is being conducted, given performance testing requirements, applicable provisions of Chapter 6 of NFPA 1500, so that a determination can be made for the suitability of continued service.

Δ **(A) Requisite Knowledge.** Chapter 6 of NFPA 1500, federal, state/provincial, and local laws that relate to performance testing of apparatus and equipment; current apparatus and equipment service testing procedures and results.

(B) Requisite Skills. Ability to verify service testing of apparatus and equipment; determine compliance with federal, state/provincial, and local laws.

Δ **4.8.4** Verify the development of an annual evaluation plan for the organization's in-service fire and emergency vehicles, given the organization's emergency vehicles and current NFPA minimum vehicle safety standards, so that a plan to retire, refurbish, or replace them based on the requirements in NFPA 1911 is developed and implemented.

Δ **(A) Requisite Knowledge.** NFPA 1911, NFPA 1906, NFPA 414, NFPA 1912, and NFPA 1917.

(B) Requisite Skills. Ability to identify safety-related features on fire and emergency vehicles and verify whether they are in compliance with NFPA standards.

Δ **4.8.5** Verify the development of an annual evaluation plan for the organization's in-service fire and emergency vehicles, given the organization's emergency vehicles and current NFPA minimum vehicle safety standards, so that a plan to retire, refurbish, or replace them based on the recommendations in Annex D of NFPA 1901 and NFPA 1911 is developed and implemented.

Δ **(A) Requisite Knowledge.** NFPA 1901, NFPA 1911, NFPA 1906,NFPA 414, NFPA 1912, and NFPA 1917.

(B) Requisite Skills. Ability to identify safety-related features on fire and emergency vehicles and verify whether they are in compliance with NFPA standards.

Δ **4.8.6** Verify the development, implementation, and maintenance of a protective clothing and protective equipment program that provides for the selection, care, maintenance, storage, and periodic inspection and evaluation of all protective clothing and equipment; given NFPA 1500, protective clothing and protective equipment, care, storage, and maintenance resources, SOP/Gs established by the AHJ, and all applicable laws, regulations, and standards, so that a determination can be made for the suitability of continued service.

(A) Requisite Knowledge. Chapter 7 of NFPA 1500, and federal, state/provincial, and local laws that relate to protective clothing and equipment programs.

(B) Requisite Skills. Ability to develop a protective clothing and protective equipment program; determine compliance with federal, state/provincial, and local laws.

4.9 Facility Inspection.

4.9.1* Develop a health and safety facility inspection SOP/G, process, and checklist for a fire department facility, given the requirements of Chapter 9 of NFPA 1500, and available resources, so that the appropriate inspection procedures are developed, and safety and health hazards are noted in accordance with all applicable laws, regulations, and standards.

Δ **(A) Requisite Knowledge.** Chapter 9 of NFPA 1500, federal, state/provincial, and local laws; current facility inspection procedures; resources for conducting a facility inspection; procedures, equipment, and safety precautions for conducting facility inspections.

(B) Requisite Skills. Develop SOP/Gs and procedures; acquire resources to initiate and coordinate a facility inspection; use resources for determining code compliance; complete reporting and documentation requirements; and understand and comply with all applicable laws, regulations, and standards.

Δ **4.9.2*** Conduct a health and safety inspection for a fire department facility, given the requirements of Chapter 9 of NFPA 1500, a facility that requires an inspection, and available resources, so that the appropriate inspection procedures are selected and implemented in accordance with all applicable laws, regulations, and standards, the inspection is conducted safely, all the required reports are completed; and ensure the violations are corrected.

Δ **(A) Requisite Knowledge.** Chapter 9 of NFPA 1500, federal, state/provincial, and local laws; current facility inspection procedures; resources for conducting a facility inspection; procedures, equipment, and safety precautions for conducting facility inspections.

(B) Requisite Skills. Use resources to determine code compliance; complete reporting and documentation requirements; and understand and comply with all applicable laws, regulations, and standards..

4.10 Health Maintenance.

Δ **4.10.1** Analyze the fire department health maintenance program, given a fire department health maintenance program and the medical and physical requirements of Chapter 10 of NFPA 1500, so that the program includes medical, physical performance, and health and fitness requirements, as well as a health database, infectious control procedures, a fire department physician, and fitness for duty evaluations; and recommendations are made to correct any noted deficiencies.

Δ **(A) Requisite Knowledge.** Chapters 10, 11, and 12 of NFPA 1500; AHJ codes, standards, and regulations that relate to the fire department health maintenance program; fire department health maintenance program; medical surveillance, wellness programs, physical fitness, nutrition, and injury and illness rehabilitation programs; resources for conducting a fire department health maintenance program; procedures, equipment, and safety precautions for the fire department health maintenance program.

(B) Requisite Skills. Analyze and incorporate information from health maintenance programs; interact with or interview personnel associated with health and wellness.

Δ **4.10.2** Coordinate the fire department health maintenance program, given a fire department health maintenance program and the medical and physical requirements of Chapter 10 of NFPA 1500, so that the program includes medical, physical performance, and health and fitness requirements, as well as a health database, infectious control procedures, a fire department physician, and fitness for duty evaluations; and recommendations are made to correct any noted deficiencies.

Δ **(A) Requisite Knowledge.** Chapters 10, 11, and 12 of NFPA 1500; AHJ codes, standards, and regulations that relate to the fire department health maintenance program; fire department health maintenance program; medical surveillance, wellness programs, physical fitness, nutrition, and injury and illness rehabilitation programs; resources for conducting a fire department health maintenance program; procedures, equipment, and safety precautions for the fire department health maintenance program.

(B) Requisite Skills. Analyze and incorporate information from health maintenance programs; interact with or interview personnel associated with health and wellness.

4.11 Liaison.

4.11.1 Communicate recommendations from the fire department occupational health and safety committee to the appropriate person(s), given SOP/Gs and health and safety policies used by the AHJ, a fire department occupational health and safety committee, and committee recommendations, so that all recommendations are documented and forwarded to the appropriate person(s).

Δ **(A) Requisite Knowledge.** SOP/Gs and health and safety policies used by the AHJ; NFPA 1500; AHJ codes, standards, and regulations that relate to the fire department occupational safety and health committee.

(B) Requisite Skills. Evaluate recommendations and communicate them in a manner such that recommendations and objectives are met.

4.11.2 Provide information and assistance to personnel for surveying their districts regarding potential health and safety hazards, given a scenario, the fire department's risk management plan, and SOP/Gs, so that they will be able to identify and report health and safety hazards that could have adverse effects on fire department operations.

(A) Requisite Knowledge. Procedures for conducting job tasks based on department SOP/Gs, the department's risk management plan, health and safety policies used by the AHJ, and the technical knowledge necessary to perform various job tasks.

(B) Requisite Skills. Ability to evaluate and prioritize hazards, utilize critical thinking to analyze the hazard, select the most appropriate control measure, and evaluate its effectiveness in enhancing fire fighter safety.

4.11.3 Develop recommendations for changes in equipment, procedures, and methods based on results of evaluations; given recommendations from the fire department occupational safety and health committee, safety audits, an analysis of injury statistics or other reliable sources of hazardous conditions or injury data, so that the recommendations for equipment, procedures and methods can be accepted and approved in accordance with the AHJ.

(A) Requisite Knowledge. Hazard recognition, assessment, controls, and evaluation; health and safety recommendations; use of safety audits; injury statistics.

(B) Requisite Skills. Analyze and interpret injury statistics; interpersonal skills; and report writing.

4.11.4 Verify medical advice and treatment are available to members of the fire department, given a fire department physician, fire department members, understanding of occupational medicine for the fire service and the IAFF/IAFC Fire Service Joint Labor Management Wellness-Fitness Initiative, so that members receive the necessary information to maximize their health, wellness, and safety.

Δ **(A) Requisite Knowledge.** Medical requirements for members as specified in NFPA 1582 and IAFC/IAFF Joint Labor Management Wellness-Fitness Initiative; health hazards associated with fire fighting; and current occupational health, wellness, and safety practices.

(B) Requisite Skills. Organizational skills, communication skills, and interpersonal skills.

4.11.5* Provide information and assistance regarding risks that may impact operations, given a scenario, the fire department's risk management plan, SOP/Gs, so that members can perform their job tasks in a safe and effective manner.

(A) Requisite Knowledge. Procedures for conducting job tasks based on department SOP/Gs, the department's risk management plan, health and safety policies used by the AHJ, and the technical knowledge necessary to perform various job tasks.

(B) Requisite Skills. Ability to evaluate and prioritize hazards, utilize critical thinking to analyze the hazard, select the most appropriate control measure, and evaluate its effectiveness in enhancing fire fighter safety.

4.12 Infection Control.

4.12.1 Assess the fire department's infection control program, given a copy of the department's program, incident reports, and access to infection control equipment and facilities, so that the requirements of the Ryan White HIV/AIDS Treatment Extension Act (S.1793) and Part G: The Ryan White Life Threatening Disease List and Reporting Guidelines, 29 CFR 1910.1030, "Occupational Exposure to Bloodborne Pathogens," and NFPA 1581.

Δ **(A) Requisite Knowledge.** SOP/Gs, Ryan White HIV/AIDS Treatment Extension Act (S.1793) and Part G: The Ryan White Life Threatening Disease List and Reporting Guidelines, 29 CFR 1910.1030, "Occupational Exposure to Bloodborne Pathogens," and NFPA 1581.

Δ **(B) Requisite Skills.** Acquire and document infection control procedures; coordination skills necessary to revise program; assess the requirements based on Ryan White HIV/AIDS Treatment Extension Act (S.1793) and Part G: The Ryan White Life Threatening Disease List and Reporting Guidelines, 29 CFR 1910.1030, "Occupational Exposure to Bloodborne Pathogens," and NFPA 1581.

Δ **4.12.2** Function as the fire department infection control officer, if an infection control officer position does not exist in the fire department, given an infection control scenario, so that the objectives of the infection control program as specified in

the requirements of Ryan White HIV/AIDS Treatment Extension Act (S.1793) and Part G: The Ryan White Life Threatening Disease List and Reporting Guidelines, 29 CFR 1910.1030, "Occupational Exposure to Bloodborne Pathogens"; and NFPA 1581 are met.

Δ **(A) Requisite Knowledge.** The Ryan White HIV/AIDS Treatment Extension Act (S.1793); Part G: The Ryan White Life Threatening Disease List and Reporting Guidelines; 29 CFR 1910.1030, "Occupational Exposure to Bloodborne Pathogens"; and NFPA 1581; and roles and responsibilities of an infection control officer.

Δ **(B) Requisite Skills.** Acquire and document infection control procedures; coordination skills necessary to revise program; assess the requirements based on the Ryan White HIV/AIDS Treatment Extension Act (S.1793), Part G: The Ryan White Life Threatening Disease List and Reporting Guidelines, 29 CFR 1910.1030, "Occupational Exposure to Bloodborne Pathogens," and NFPA 1581; integrate the occupational health and safety aspects of the risk management program into infection control training and education programs, and educate members.

N **4.12.3** Identify minimum criteria for fire station infection control, given basic construction plans, drawings, and design guides so that deficiencies are identified, documented, and reported in accordance with U.S. federal law, Code of Federal Regulations, Centers for Disease Control and Prevention (CDC), Occupational Safety and Health Administration (OSHA), National Institute of Occupational Safety and Health (NIOSH) and/or the American Conference of Government Industrial Hygienists (ACGIH) Occupational Exposure Limits, National Fire Protection Association (NFPA), the United States Fire Administration (USFA), and policies and procedures of the jurisdiction.

N **(A) Requisite Knowledge.** Public Law 91-596, The Occupational Safety and Health Act of 1970; The William-Steiger Occupational Safety and Health Act of 1970; 29 CFR 1910; CDC, *Basic Infection Prevention and Control Procedures*; OSHA, NIOSH, and/or the ACGIH *Occupational Exposure Limits*; NFPA 1500; NFPA 1581; NFPA 1851; FEMA/USFA FA-168, *Safety and Health Considerations for the Design of Fire and Emergency Medical Services Stations*; and policies and procedures of the jurisdiction for infection control.

N **(B) Requisite Skills.** Ability to identify hand-washing capacity where contaminated materials are cleaned, stored, disinfected, or laundered; nonporous surface, drainage, and appliance requirements for kitchens; spacing and ventilation, heating, and cooling requirements in sleeping areas; fixture requirements for bathrooms; dedicated equipment storage areas, other than those stored on vehicles; contaminated temporary storage areas for personal protective equipment (PPE) and portable equipment; designated facility or cleaning areas for disinfecting contaminated PPE and potable equipment; designated cleaning areas for PPE and potable equipment; designated disposal areas for medical or other regulated waste; apparatus bay air-cleaning filtration systems and/or vehicle filtration systems; facility heating, ventilation, and air conditioning (HVAC) systems; and transition zones to allow movement between spaces exposed to contaminates and living/working spaces designed for extended occupancy.

Chapter 5 Incident Safety Officer

5.1 General.

Δ **5.1.1** The fire department incident safety officer (ISO) shall meet the requirements of Fire Officer Level I specified in NFPA 1021, and the job performance requirements (JPRs) defined in Sections 5.2 through 5.7.

5.1.2* A fire department ISO shall recuse himself/herself from any investigatory process where a conflict of interest exists.

5.2 General Requirements

5.2.1 Perform the role of ISO within an incident command system (ICS) at an incident or planned event, given an incident or planned event, an ICS structure, a command post, a briefing from an incident commander (IC) or outgoing ISO, SOP related to health and safety, an incident action plan (IAP), applicable protective clothing and protective equipment, and communications and information recording equipment, so that the assignment is received and understood; situational information about the incident or planned event is received; incident priorities, goals, and objectives are transferred; action is taken to mitigate any immediate life safety threats; and applicable communication means are employed.

(A) Requisite Knowledge. Understand accepted safety and health principles, including issues such as the hierarchy of controls, specific technical or regulatory areas pertinent to the response, and the accepted management principles needed to promote safety in the response environment. [**1026:**5.2.1 (A)]

(B) Requisite Skills. Prioritizing tasks, making decisions in an environment with a large number of unknowns, evaluating resource needs, recognizing the need for supplemental technical knowledge, and taking action in a proactive manner to ensure responder safety and health. [**1026:**5.2.1(B)]

5.2.2* Monitor the IAP, conditions, activities, and operations, given an incident or planned event, an IAP, and risk management assessment criteria, so that activities and operations that involve an unacceptable level of risk can be altered, terminated, or suspended to protect members' health and safety.

(A) Requisite Knowledge. Comprehensive knowledge of incident hazards, applicable legislation, regulations, codes, and standards, the incident management system (IMS), recognized safety practices, risk management criteria, including what constitutes unacceptable level of risk; and fire department operations, training materials, and SOP/Gs.

(B) Requisite Skills. Ability to apply knowledge of fire behavior and fire dynamics, building construction, department SOP/Gs, training materials, and applicable safety practices in a risk management assessment to determine the most appropriate actions to minimize health and safety risks.

5.2.3 Manage the transfer of ISO duties, given an incident or planned event, an established command structure and ISO, an IAP, an incident safety plan, a current situation status, incident resources, a command post, incident documentation, and communications equipment, so that incident information is exchanged, reports and plans for the subsequent operational period are completed, continuity of authority and situational awareness are maintained, changes in incident or planned event complexity are accounted for, the new ISO is briefed on the incident or planned event, and the new ISO is identified.

(A) Requisite Knowledge. AHJ's procedures for transfer of duty; information sources; resource accountability and tracking process; use of IMS forms; the role and duties of an ISO within an IMS; organizational policies and procedures for safety; accountability protocols; resource types and deployment methods; documentation methods and requirements; availability, capabilities, and limitations of responders and other resources; communication problems and needs; communications requirements; operational periods for ISO functions; and types of tasks and assignment responsibilities.

(B) Requisite Skills. Conducting a transfer briefing meeting; acquiring and documenting information and orders from the IC; using reference materials; evaluating incident information; managing communications; completing required ICS and health and safety forms; recognizing the need to expand and/or transfer the safety function in the ICS structure; reviewing, understanding, and conducting a transfer of duty briefing, including the completion of the transfer documents; and communicating in a manner such that information is transferred and objectives are met. [**1026:**5.2.2(B)]

5.2.4 Stop, alter, or suspend operations based on imminent threats posed to fire fighter safety, given an incident or planned event that contains threats to fire fighter safety, an incident management structure, risk management criteria, and applicable SOP/Gs, so that the hazard is identified, notice to suspend operations is communicated, action is taken to protect fire fighter safety, and this information is communicated to the IC.

(A) Requisite Knowledge. Knowledge of what constitutes imminent hazards at an incident or planned event that could impact fire fighter safety, IMS, radio protocols and transmission procedures, fire behavior/dynamics, hazardous energy, reading smoke, building construction, and departmental SOP/Gs and training materials.

(B) Requisite Skills. Ability to evaluate hazards; determine the relative degree of risk to members and whether they pose an imminent threat to fire fighter safety; use of department radios and communication abilities.

5.2.5 Monitor and determine the incident scene conditions, given an incident or planned event, so that the ISO can report to the IC on the status of hazards and risks to members.

(A) Requisite Knowledge. Knowledge of what constitutes hazards at an emergency incident, the IMS, radio protocols and transmission procedures, incident hazards, and departmental SOP/Gs.

(B) Requisite Skills. Ability to evaluate hazards, determine the relative degree of risk to members, prioritize the risks, and communicate this information to the IC.

5.2.6 Monitor the accountability system, given an incident or planned event, an IMS, personal identification devices, radios, and applicable SOP/Gs, so that it can be determined that the accountability system is being utilized as designed, all relevant positions and functions are implemented, and any noted deficiencies are communicated to the IC.

(A) Requisite Knowledge. Knowledge of incident management system, department accountability system positions and protocols, radio protocols and transmission procedures, and departmental SOP/Gs.

(B) Requisite Skills. Ability to recognize inadequacies in the use of the accountability system.

5.2.7* Determine hazardous incident conditions and advise the IC to establish or modify control zones, given an incident, so that the incident control zones are communicated to members and entry into the hazardous area is controlled.

(A) Requisite Knowledge. Comprehensive knowledge of hazardous conditions, operations, departmental SOP/Gs and training materials, control zones protocols, and the IMS.

(B) Requisite Skills. Ability to evaluate the effect of proximity for incident hazards so that risk to members will be limited to emergency responders assigned tasks to mitigate the incident.

Δ **5.2.8** Identify motor vehicle incident scene hazards, given an apparatus and temporary traffic control devices, an incident or planned event, so that actions to mitigate the hazards as described in Section 8.7 of NFPA 1500 are taken to protect member safety.

(A) Requisite Knowledge. Knowledge of hazards associated with vehicle incidents and apparatus placement, the IMS, departmental SOP/Gs and training materials, state/provincial and local traffic regulations, risk management principles and criteria, and applicable safety principles and practices.

(B) Requisite Skills. Ability to apply knowledge of hazards and regulations to an incident within a risk management framework to protect member safety.

5.2.9 Monitor radio transmissions; given an incident or planned event with radio transmissions, so that communication barriers are identified and the possibility for missed, unclear, or incomplete communications is corrected.

(A) Requisite Knowledge. Knowledge of radio protocols and transmission procedures, the IMS, emergency incident hazards, and departmental SOP/Gs.

(B) Requisite Skills. Ability to recognize missed, unclear, or incomplete communications.

5.2.10* Identify the incident strategic requirements (e.g., fire, technical search and rescue, hazmat), the corresponding hazards, the size, complexity, and anticipated duration of the incident, including the associated risks, given an incident or planned event, an IMS, and applicable SOP/Gs, so that the ISO can determine the need for assistant ISOs and/or technical specialists and make the recommendations to the IC.

(A) Requisite Knowledge. Comprehensive knowledge of incident hazards; applicable legislation, regulations, codes, and standards; the IMS; recognized safety practices; risk management criteria, including what constitutes unacceptable level of risk; and fire department operations, training materials, and SOP/Gs.

(B) Requisite Skills. Ability to recognize the types of hazards that might require additional ISOs or technical specialists, and applicable safety practices.

5.2.11 Determine the hazards associated with the designation of a landing zone and interface with helicopters, given an incident or planned event that requires the use of a helicopter and landing zone, so that the IC can be informed of special requirements and the landing can be executed in a safe manner.

(A) Requisite Knowledge. Helicopter and landing zone requirements; hazards associated with helicopters and landing zones; safety issues associated with landing zones; and the IMS.

(B) Requisite Skills. Ability to recognize landing zone locations and hazards.

5.2.12* Notify the IC of the need for intervention resulting from an occupational exposure to atypical stressful events, given an incident or planned event and an awareness of incidents that can cause incident stress, so that members' psychological health and safety can be protected.

(A) Requisite Knowledge. Knowledge of incidents that can lead to occupational exposure to atypical stress, the signs and symptoms of occupational exposure to atypical stress, the difference between *debriefing* and *defusing*, and support teams and other resources to provide assistance.

(B) Requisite Skills. Ability to recognize signs and symptoms of occupational exposure to atypical stress; an accepting and empathetic demeanor; and good communication skills.

5.2.13* Determine hazardous energy sources that can affect responder health and safety, given an incident or planned event, an active IAP with assigned responders, and an opportunity to perform environmental and operational reconnaissance, so that risks to personnel are identified, reduced, or eliminated; hazard information is relayed to IC staff and ancillary agencies responsible for the hazardous energy source; appropriate zones are established and marked; and personnel operating at the scene are briefed on the hazardous energy control zone.

Δ **(A) Requisite Knowledge.** Common component assemblies for hazardous energy sources, including but not limited to gas, electrical, water, and pressure vessels; hazardous properties of common utility gases; common electrical distribution grid components and arrangements; and control zone marking schemes as defined by 8.6.2 of NFPA 1500.

(B) Requisite Skills. Critical identification, analysis, and judgment abilities; prioritizing to address hazards on a most critical–first basis; communicating hazard information to personnel via the incident safety plan, IAP, face-to-face, radio, and safety briefings; determining boundaries and markings for control zones; formulating recommendations for IC action; exercising authority to suspend imminent danger operations; and anticipating evolving site conditions that require IAP changes.

5.2.14 Monitor conditions, including weather, fire fighter activities, and work cycle durations, given an incident or planned event, so that the need for rehabilitation can be determined, communicated to the IC, and implemented to ensure fire fighter health and safety.

Δ **(A) Requisite Knowledge.** Comprehensive knowledge of heat and cold assessment criteria, rehabilitation strategies, including NFPA 1584, SOP/Gs and training materials; available resources that can be used for rehabilitation, signs and symptoms of cardiac stress, and heat and cold stress.

(B) Requisite Skills. Ability to recognize signs of cardiac, heat, and cold stress; set up a rehab area and ensure that members use it as designed.

N **5.2.15** Identify incident environmental conditions and contaminates, given an incident or planned event, so that identified hazards can be communicated to the IC and division and/or group supervisors, and the need for contamination control procedures for PPE, personnel hygiene, and utilized equipment can be determined and implemented, prior to incident departure, to help prevent continued exposure and cross contamination from known and potential contaminants.

N **(A) Requisite Knowledge.** Common byproducts of combustion and pyrolysis including toxic chemicals, biological pathogens, particulate matter, and aromatics; NFPA 1851; AHJ SOP/Gs for on-scene PPE contamination control and cancer prevention; methods and levels of equipment cleaning as prescribed by equipment manufacturers.

N **(B) Requisite Skills.** Ability to evaluate fire, smoke, and environmental conditions, determine member exposures to those conditions, and communicate contamination judgements to the IC and tactical work members; recognize issues of equipment contamination with regards to use, transportation, separation, and storage during incident operations and demobilization; judge contamination reduction efforts and develop further exposure-prevention measures, where necessary, and communicate those measures to members.

5.3 Fire Suppression Operations.

5.3.1* Determine incident environmental and operational factors and confirm the establishment of rapid intervention crew (RIC) and evaluate the need to increase RIC capability, given an incident or planned event that includes one or more immediately dangerous to life and health (IDLH) elements, responders engaged in tactical operations, a pre-assigned RIC, and an IAP, so that a recommendation is offered to the IC.

Δ **(A) Requisite Knowledge.** RIC criteria for NFPA 1500, NFPA 1561, NFPA 1710, NFPA 1720, AHJ SOP/Gs, and directives for RIC establishment and use.

(B) Requisite Skills. Interpret applicable regulations, guidelines, procedures, and consensus standards for implementation at incidents; audit conditions to ensure policies are being followed; and formulate recommendations for incident command action.

5.3.2* Communicate fire behavior, building access/egress issues, collapse, and hazardous energy issues to established RICs, given an incident or planned event, so that RIC team leaders are aware of the observations and concerns of the ISO.

(A) Requisite Knowledge. Structural/compartmentalized fire behavior, building construction features and associated hazards, and hazardous energy properties and components.

(B) Requisite Skills. Ability to interpret fire suppression hazards and operations and communicate through face-to-face and radio methods.

5.3.3* Identify and estimate building/structural collapse hazards, given a building fire incident, a building collapse incident, reconnaissance opportunity, and established AHJ pre-incident building plan information, so that the identified collapse hazard can be communicated to the IC and tactical-level management units; judgment is offered to the IC for the establishment of control zone(s); personnel are removed from collapse zone dangers; and appropriate adjustments are made to the IAP by the IC to improve member safety.

(A) Requisite Knowledge. Building construction classifications and associated hazards; structural fire collapse indicators; building fire spread; fire effects on building materials, loads, and forces; structural conditions that warrant stopping, altering, or suspending incident or planned event operations; procedures for managing unsafe acts or operations and proce-

dures for notifying command of stopped, altered, or suspended operations; methods for determining collapse zone distances; and AHJ pre-incident target building hazards.

(B) Requisite Skills. Critical identification, analysis, and judgment abilities; applying AHJ building fire preplan systems at actual incidents; interpreting collapse hazards; communicating hazard information to personnel via the incident safety plan, IAP, face-to-face, radio, and safety briefings; determining boundaries and markings for control zones; formulating recommendations for incident command action; exercising authority to suspend imminent danger operations; and anticipating evolving site conditions that require IAP changes.

5.3.4* Determine flashover and hostile fire event potential at building fires, given an incident, so that risks are identified and communicated to the incident commander and tactical-level management units, and adjustments are made to strategy and tactics to improve safety.

(A) Requisite Knowledge. Compartmentalized fire behavior theory, flashover and other hostile fire incident indicators, ventilation flow path, fire-load (fuel) characteristics, effects of fire-fighting efforts on fire behavior.

(B) Requisite Skills. Critical identification, analysis, and judgment abilities; reading smoke (volume, velocity, density, and color); and communicating fire behavior concerns through face-to-face and radio methods.

5.3.5* Determine fire growth and blow up, given wildland and cultivated vegetation fires, so that information can be communicated to the IC and tactical-level management components, and adjustments made to the IAP to improve member safety.

(A) Requisite Knowledge. Wildland and vegetation fire behavior and wildland fire phenomena such as blow ups and flaring.

(B) Requisite Skills. Critical identification, analysis, and judgment abilities; interpreting fuel, topography, flame length, and weather effects on wildland and vegetation fires; and communicating fire behavior concerns through face-to-face and radio methods.

5.3.6 Determine the suitability of building entry and egress options at building fires, given various building fire incidents, so that entry and egress options are optimized through communication with the IC and tactical-level management components.

(A) Requisite Knowledge. Building construction access and egress challenges; AHJ building pre-fire systems; fire-fighting equipment capabilities, and AHJ fire-fighting resource capabilities.

(B) Requisite Skills. Critical identification, analysis and judgment abilities; and communicating access and egress concerns through face-to-face and radio methods.

5.4 Technical Search and Rescue Operations.

5.4.1* Determine the need for a search and rescue technician–trained ISO or assistant ISO, given a technical search and rescue incident; CFR 1910.146; NFPA 1006; and AHJ SOP/Gs for technical search and rescue operations, so that the IC can appoint an assistant ISO or a search and rescue technician.

Δ **(A) Requisite Knowledge.** Technical search and rescue incident types as defined in NFPA 1006 and AHJ SOP/Gs for technical search and rescue operations.

(B) Requisite Skills. Identifying technical search and rescue incident resource needs and forecasting stabilization strategies.

5.4.2 Prepare a safety plan that identifies corrective or preventive actions, given a technical search and rescue incident, an IAP that includes situation and resource status information, an incident safety analysis form (ICS form 215A or its equivalent), weather condition information, special technical data (such as safety data sheets and topographical information, blueprints, and building drawings), and predetermined incident information, so that safety data are obtained, an incident safety plan is developed with coordinating documentation, elements of the plan are incorporated in the IAP, changes in incident safety conditions are noted and reported, judgment is offered to the IC for the establishment of control zone(s) and exclusion zone(s), safety and appropriate PPE elements are met, and assistant ISOs are appointed as necessary.

Δ **(A) Requisite Knowledge.** Risk management principles; technical search and rescue operations strategies and tactics; hazard mitigation and countermeasure strategies; NIMS IAP and planning processes; NIMS documentation system; NFPA 1951; 29 CFR 1910.146; and AHJ SOP/Gs for hazardous materials operations.

(B) Requisite Skills. Critical identification, analysis, and judgment abilities; communicating safety issues within the command structure; and reading/editing technical documentation.

5.4.3* Deliver a safety briefing for technical search and rescue incident response members, given a technical search and rescue incident, so that critical information such as expected hazards, PPE requirements, established zones, emergency procedures, air monitoring, medical surveillance, and chain-of-command elements are communicated.

(A) Requisite Knowledge. OSHA 29 CFR 1910.146 requirements for a site safety and health plan; NIMS forms and ICS processing criteria; general technical search and rescue operations safety strategies; and AHJ technical search and rescue SOP/Gs.

(B) Requisite Skills. Ability to communicate critical messages in written and oral formats.

5.5 Hazardous Materials Operations.

5.5.1* Determine the need for a hazardous materials technician-trained ISO or assistant ISO, given a hazardous materials incident, 29 CFR 1910.120; NFPA 472 and NFPA 1072; and AHJ SOP/Gs for hazardous materials operations, so that the IC can appoint an assistant ISO or a hazardous materials technician.

Δ **(A) Requisite Knowledge.** Hazardous materials incident types as defined in NFPA 472 and NFPA 1072, and AHJ SOP/Gs for hazardous materials operations.

(B) Requisite Skills. Identifying hazardous materials incident resource needed; forecasting stabilization strategies.

5.5.2 Prepare a safety plan that identifies corrective or preventive actions, given a hazmat incident, IAP that includes situation and resource status information, an incident safety analysis form (ICS form 215A or its equivalent), weather condition information, special technical data (such as safety data sheets and topographical information, blueprints, and building drawings), and predetermined incident information, so that safety data are obtained, an incident safety plan is developed with coordinating documentation, elements of the plan are incorporated in the IAP, changes in incident safety conditions are noted and reported, judgment is offered to the IC for the establishment of control zone(s) and exclusion zone(s), safety and PPE elements of 29 CFR 1910.120 are met, and assistant ISOs are appointed as necessary.

(A) Requisite Knowledge. Risk management principles; hazardous materials operations strategies and tactics; hazard mitigation and countermeasure strategies; NIMS IAP and planning processes; NIMS documentation system; and AHJ SOPs/Gs for hazardous materials operations.

(B) Requisite Skills. Critical identification, analysis, and judgment abilities; communicating safety issues within the command structure; and reading/editing technical documentation.

5.5.3* Deliver a safety briefing for hazardous materials incident response members, given a hazmat incident or scenario, so that critical information such as expected hazards, PPE requirements, established zones, decontamination procedures, emergency procedures, air monitoring, medical surveillance, and chain-of-command elements are communicated.

(A) Requisite Knowledge. OSHA 29 CFR 1910.120 requirements for a site safety and health plan; NIMS forms and ICS processing criteria; general hazmat operations safety strategies; and AHJ hazmat SOPs/Gs.

(B) Requisite Skills. Ability to communicate critical messages in written and oral formats.

5.5.4* Identify that hazardous materials incident control zones have been established and communicated to personnel on the scene, given a hazardous materials incident and SOP/Gs, so that responders can identify marked control zones, which must be inclusive of no-entry zones, hot zones, hazard reduction zones, support zones, and corridors.

(A) Requisite Knowledge. Common zoning strategies for hazardous materials operations, methods of marking zones, and AHJ SOP/Gs for zone communication; NFPA 472 and NFPA 1072; and other applicable NFPA documents.

(B) Requisite Skills. Ability to adapt zoning strategies to individual incident challenges such as topography, weather, and resource variants.

5.6 Accident Investigations and Review.

5.6.1* Conduct a safety and health investigative process, given an incident or planned event, using applicable documents and techniques, so that the chain of evidence is started and maintained, critical incident data elements are collected, potential witnesses are identified, applicable SOP/Gs are identified for review, and gathered information is documented and prepared for the HSO or investigative continuance as established by the AHJ policies and SOP/Gs.

(A) Requisite Knowledge. Procedures for conducting, documenting, recording, and reporting a safety investigation, SOP/Gs and health and safety investigative policies used by the AHJ; procedures for preserving evidence and documentation; and the technical knowledge pertinent to the incident under investigation.

(B) Requisite Skills. Analyzing information from different data sources; identifying equipment and materials that might be considered evidence; interacting with or interviewing personnel associated with the incident, often under conditions of personal stress; completing safety investigation documentation; identifying cause(s) of injury, death, or property damage; and determining corrections to prevent similar losses in the future.

5.7 Post-Incident Analysis (PIA).

5.7.1* Prepare a written post-incident analysis (PIA) from the ISO perspective, given a witnessed incident, exercise, or planned event, so that safety and health issues, best safety practices, deviations from SOP/Gs established by the AHJ, and recommendations for future events are documented.

Δ **(A) Requisite Knowledge.** NFPA 1500, PIA reporting criteria, and AHJ SOP/Gs for PIAs.

(B) Requisite Skills. Transferring incident observations into field notes and documenting field notes into a formal PIA structure.

5.7.2* Report observations, concerns, and recommendations, given a witnessed incident or planned event and PIA group setting, so that that safety and health issues, best safety practices, deviations from SOP/Gs established by the AHJ, and recommendations for future events are communicated to the AHJ.

(A) Requisite Knowledge. Group dynamics in problem solving.

(B) Requisite Skills. Active listening skills; and composing and relaying constructive information in a group setting.

Annex A Explanatory Material

Annex A is not a part of the requirements of this NFPA document but is included for informational purposes only. This annex contains explanatory material, numbered to correspond with the applicable text paragraphs.

A.1.2 The committee believes that this document specifies the minimum JPRs for HSO and ISO for a fire department. The committee recognizes that emergency services organizations might have to invest considerable resources to provide the equipment and training needed to perform safely and efficiently. The committee does not mean to imply that organizations with limited resources cannot provide response services, only that the individuals charged with responsibilities are qualified to specific levels according to this standard.

A.1.2.3 Organization/management responsibilities should be addressed by the agency that personnel represent. The AHJ should define the agency requirements for progression to positions of management responsibility.

A.1.2.6 The committee recognizes the importance of formal continuing education and training programs to ensure HSOs and ISOs have maintained and updated the necessary skills and knowledge for the level of qualification. Continuing education and training programs can be developed or administered by local, state, or federal agencies as well as professional associations and accredited institutions of higher education. The methods of learning would include areas of technology, refresher training, skills practices, and knowledge application to standards. The subject matter should directly relate to the requirements of this standard.

A.1.3.5 It is recommended, where practicable, that evaluators be individuals who were not directly involved as instructors for the requirement being evaluated.

A.1.3.10(3) While it is possible that the HSO might not have to meet the medical requirements of NFPA 1582, it is understood that the ISO, who should have met the Level I requirements of NFPA 1021, would have also had to meet NFPA 1001 requirements to meet those of NFPA 1021. Thus, the ISO would have had to meet the medical requirements of NFPA 1001.

A.3.2.1 Approved. The National Fire Protection Association does not approve, inspect, or certify any installations, procedures, equipment, or materials; nor does it approve or evaluate testing laboratories. In determining the acceptability of installations, procedures, equipment, or materials, the authority having jurisdiction may base acceptance on compliance with NFPA or other appropriate standards. In the absence of such standards, said authority may require evidence of proper installation, procedure, or use. The authority having jurisdiction may also refer to the listings or labeling practices of an organization that is concerned with product evaluations and is thus in a position to determine compliance with appropriate standards for the current production of listed items.

A.3.2.2 Authority Having Jurisdiction (AHJ). The phrase "authority having jurisdiction," or its acronym AHJ, is used in NFPA documents in a broad manner, since jurisdictions and approval agencies vary, as do their responsibilities. Where public safety is primary, the authority having jurisdiction may be a federal, state, local, or other regional department or individual such as a fire chief; fire marshal; chief of a fire prevention bureau, labor department, or health department; building official; electrical inspector; or others having statutory authority. For insurance purposes, an insurance inspection department, rating bureau, or other insurance company representative may be the authority having jurisdiction. In many circumstances, the property owner or his or her designated agent assumes the role of the authority having jurisdiction; at government installations, the commanding officer or departmental official may be the authority having jurisdiction.

A.3.3.13 Fire Department. The term *fire department* includes any public, governmental, private, industrial, or military organization providing these services.

A.3.3.14 Fire Department Facility. This does not include locations where a fire department can be summoned to perform emergency operations or other duties, unless such premises are normally under the control of the fire department. [**1500,** 2020]

A.3.3.18 Fire Suppression. Fire suppression includes all activities performed at the scene of a fire incident or training exercise that expose fire department members to the dangers of heat, flame, smoke, and other products of combustion, explosion, or structural collapse. [**1500,** 2020]

A.3.3.19 Hazard. Hazards include the characteristics of facilities, equipment, systems, property, hardware, or other objects and the actions and inactions of people that create such hazards.

Δ **A.3.3.28 Incident Management System (IMS).** The system is also referred to as an incident command system (ICS).

The implementation of HSPD-5 led to the development of the National Incident Management System (NIMS). The NIMS is a system mandated by HSPD-5 that provides a consistent nationwide approach for federal, state, local, and tribal governments; the private sector; and nongovernmental organizations to work effectively and efficiently together to prepare for, respond to, and recover from domestic incidents, regardless of cause, size, or complexity. To provide for interoperability and compatibility among federal, state, local, and tribal capabilities, the NIMS includes a core set of concepts, principles, and terminology. HSPD-5 identifies these as the ICS; multi-agency coordination systems; training; identification and management of resources (including systems for classifying types of resources); qualification and certification; and the collection, tracking, and reporting of incident information and incident resources. In addition to the NIMS, the process also incorporates the National Response Plan. The National Response Plan is defined as a plan mandated by HSPD-5 that integrates federal domestic prevention, preparedness, response, and recovery plans into one all-discipline, all-hazards plan. [**1561,** 2020]

A.3.3.31 Incident Scene. This location should include the entire area subject to incident-related hazards and all areas used by emergency services organization responders and equipment in proximity to the incident scene. [**1561,** 2020]

A.3.3.32 Member. A fire department member can be a full-time or part-time employee, can be a paid or unpaid volunteer, can occupy any position or rank within the fire department, and might or might not engage in emergency operations.

A.3.3.36 Occupational Safety and Health Program. This program is also referred to as the Occupational Safety and Health Management System.

Δ **A.3.3.40 Rapid Intervention Crew/Company (RIC).** Emergency services personnel respond to many incidents that present a high risk to personnel safety. Departments in compliance with OSHA 29 CFR 1910.134, "Respiratory protection," must have a minimum of two persons on scene fully equipped when members are operating in an atmosphere immediately dangerous to life or health (IDLH) or a potentially IDLH atmosphere. The primary purpose is the rescue of injured, lost, or trapped fire fighters. Departments utilizing an incident management system in accordance with NFPA 1561 or 29 CFR 1910.120, "Hazardous waste operations and emergency response," along with a personnel accountability system, have incorporated the RIC into their management system. Many departments have redefined their response plans to include the dispatch of an additional company (engine, rescue, or truck) to respond to incidents and stand by as the RIC. Incident commanders can assign additional RICs based on the size and complexity of the incident scene. In some departments, an RIC can also be known as a rapid intervention team. At wild-

land incidents this would be addressed through the planning process and contingency planning.

A.3.3.42 Rehabilitation. Rehabilitation efforts should include providing relief from extreme climate and/or incident conditions, rest and recovery, rehydration, replacement of calories and electrolytes, active cooling (or warming if necessary), medical monitoring, and member accountability.

A.3.3.45 Risk Management. The risk management process includes the identification and analysis of exposure to hazards, evaluation and prioritization of those hazards, selection of appropriate risk management techniques to mitigate exposure to those hazards, implementation of selected control measures, and monitoring of results.

Risk management is a vital component to any organization's operation, especially a fire department. Health and safety programs are elements of a health and safety management system that directs the risk management process. The risk management process enables an organization to control or reduce the frequency and severity of the risks associated with fire department emergency and nonemergency operations.

A.3.3.47.1 Health and Safety Officer (HSO). The health and safety officer (HSO) position can be staffed by an individual who is appointed by the fire chief and meets the qualifications of this position as determined by this standard. For this standard, the term *officer* does not reference rank. Examples of an officer include a fire department member, certified safety professional (CSP), an industrial hygienist, or an occupational safety and health specialist. It is important that the individual has the requisite knowledge and requisite skills to function effectively in this position. If qualified, this individual can also be the incident safety officer (ISO), or that role can be assigned to another individual as a separate function. *(See Chapter 5.)*

A.3.3.47.2 Incident Safety Officer (ISO). The incident safety officer can have "assistants."

A.3.3.49 Special Operations. Special operations include responses to water rescue, hazardous materials releases, situations involving confined space entry, high-angle rescue, terrorism [chemical, biological, radiological, nuclear, and explosive (CBRNE)] and other operations requiring specialized training.

A.3.3.51 Standard Operating Procedure. The intent of standard operating procedures is to establish directives that must be followed. Standard operating guidelines allow flexibility in application.

A.3.3.54 Technical Specialist. Technical specialists could be needed in areas of fire behavior, special operations (i.e., hazardous materials, technical search and rescue), water resources, environmental concerns, building construction, Urban Search and Rescue (USAR), resource use, training, geographic information systems, and damage inspections.

A.4.1.2 In cases where a member sustains a serious or fatal injury, the HSO could be viewed as a witness as opposed to an investigator. In such cases, the designated HSO should notify the AHJ to fulfill the investigative requirements of the department.

A.4.2 The HSO should be able to develop strategies for controlling risks by risk identification through local experience, trends, safety audits, and injury data. The HSO should then be able to evaluate the frequency and severities of the risks identified and implement control measures in three broad categories: risk avoidance, risk reduction, or risk transfer. Finally, the HSO should have the ability to monitor risk management programs.

Integrating risk management into training programs through the development of a comprehensive set of SOP/Gs, training notes, or other administrative elements that provide direction (or administrative controls) to manage those risks is an essential responsibility of the HSO.

Developing safety procedures and policies that are necessary to meet some of the goals and objectives defined in the safety program is another responsibility of the HSO. After development, approval, and implementation, the safety and health procedures and policies should be reviewed for effectiveness and updated as necessary as outlined in Angle, *Occupational Safety and Health in the Emergency Services.*

United States Fire Administration publication *Developing Effective Standard Operating Procedures for Fire and EMS Departments* is an excellent resource for the development of SOP/Gs.

A.4.2.1 The HSO should be able to develop, implement, and manage a risk management plan in an organization's operation, especially a fire department, and should be able to direct the risk management process to enable an organization to control or reduce the frequency and severity of the risks associated with fire department emergency and nonemergency operations.

A.4.2.2 According to Angle, *Occupational Safety and Health in the Emergency Services,* the HSO should meet the following criteria:

(1) Have the knowledge and ability to determine the effectiveness of the risk management plan by reviewing injury and exposure statistics, participating in post-incident analyses (PIAs), and developing SOP/Gs with training
(2) Have the ability to examine current injury rates and severities and compare them to the rates prior to program implementation using the goals and objectives developed as benchmarks
(3) Have the ability to measure the change in knowledge, behavior, and performance of personnel
(4) Have the ability to analyze changes in the physical environment and measure the response of personnel to policy changes

This information is necessary for HSOs to monitor and revise the risk management plan. Two methods of evaluation should be used: process evaluation and outcome evaluation.

A.4.2.3 The HSO should have the ability to integrate the department's SOP/Gs, training notes, program directives, and polices into the activities of the command and general staff, including accountability, entry control, use of rapid intervention teams (RICs), department procedures, apparatus placement, ventilation criteria, and rehabilitation.

The HSO should understand different kinds of operations, including single-jurisdiction/single-agency response, single-jurisdiction/multiagency response, and multijurisdictional/multiagency response; be able to implement an IMS at any emergency, and be able to use common terminology and integrated communications. The HSO should be able to include all aspects of an IMS, especially the concept of a manageable span of control in the risk management plan.

A.4.2.4 An operational risk management plan should assist the IC and fire department members in making sound, knowledgeable decisions when declaring the risk mode (going offensive or defensive) and developing specific strategies and accompanying tactics to reach operational objectives, assign human and equipment resources, and note specific safety considerations to mitigate the incident.

A.4.3.2 A significant part of demonstrating compliance rests with the department's ability to produce applicable policies, procedures, training notes, and any other records that might be required (e.g., hazardous exposures and critical injuries). To demonstrate due diligence (that everything is being done under the circumstances to protect the worker), the employer should maintain and monitor its systems [PPE, training, self-contained breathing apparatus (SCBA), risk management, IMS, etc.] regularly. The types of records that should be maintained include but are not limited to the following:

(1) Training
(2) Vehicle inspections and repairs
(3) PPE/SCBA equipment log
(4) Critical injuries
(5) Exposures

A checklist of applicable topics covered by legislation that requires SOP/Gs (hazmat, confined space, respirator use, etc.) can be created both to serve as a useful tool and to help demonstrate diligence. The same checklist can be used to assess any gaps and prioritize topics, SOP/Gs, and so forth, for development.

A.4.5.1 The following examples include but are not limited to areas that should be utilized to reduce the frequency and severity of accidents, occupational injuries, and occupational illnesses:

(1) Hazard recognition, assessment, control, monitoring, and evaluation
(2) Risk management principles and practices
(3) Review/evaluation of SOP/Gs
(4) Review of accident, occupational injury, and occupational illness data
(5) Facility inspections program (i.e., slips, trips, falls, cuts)
(6) Health maintenance and monitoring program (i.e., wellness, fitness, nutrition, stress reduction, musculoskeletal disorder prevention, exposure protection)
(7) Review of department training and education programs

A.4.5.2 Instruction methods, media/means, and materials will vary according to the potential hazards and risks associated with the operation as identified in the risk management plan. SOP/Gs, training notes, videos, and so forth, might suffice in some areas. The goal is to ensure that all members possess the requisite knowledge and skills to perform the required tasks in a safe and effective manner.

Δ **A.4.5.4** A periodic safety audit or survey of fire department operations, apparatus, equipment, facilities, training and education programs, and SOP/Gs requires a standard against which to determine compliance with applicable federal, state/provincial, and local laws, codes, and standards. At a minimum, NFPA 1500 should be used to determine an acceptable level of compliance. The NFPA 1500 Worksheet can be used as an audit template to evaluate the effectiveness of the department's accident prevention program. This worksheet was developed to provide a template for fire departments that are implementing an occupational safety and health program or that are evaluating the current status of their occupational safety and health program.

An internal audit should be conducted at least annually and an external audit should be conducted every three years, as required by Chapter 4 of NFPA 1500.

A.4.6.4 Hazard identification and control are methods to reduce accidents, injuries, and loss. Ultimately, accidents are investigated to determine both immediate and basic causes. Once those causes have been identified, controls can be put in place to help prevent future occurrences.

A.4.9.1 This should include food handling and food storage, with particular attention paid to food preparation and serving surfaces; cookware; service vessels and utensils; and safe hot water temperatures in kitchens, showers, and other sources to prevent scalds. The inspection procedure should also consider blocked hallways, staircases, unlit areas, and so forth, for clothing and other debris that would expose fire fighters and other people present to hazards; and security for the protection of a company leaving an empty firehouse, with special attention given upon return to objects that do not belong there.

Δ **A.4.9.2** A checklist or audit template as identified in Annex F of NFPA 1500, or equivalent, is strongly recommended when conducting these inspections.

A.4.11.5 This includes the mitigation of health and safety hazards brought about by disruptions due to parades, ball games, visitors to the fire station, street construction, or other events or activities associated with the district or the fire station.

A.5.1.2 In cases where a member sustains a serious or fatal injury, the ISO could be viewed as a witness as opposed to an investigator. In these cases, the designated ISO should notify the department's HSO to fulfill the investigative requirements of the department. In cases where the designated ISO is the department's HSO, the ISO should notify the IC and AHJ before starting the investigative process, that potential conflict exists.

A.5.2.2 A simulated emergency incident can be accomplished through the use of a live training fire or a written scenario that is illustrated with photographs, video, or computer simulations.

Ideally the Incident Action Plan (IAP) should be written, but this might not always be practicable. The components of a good IAP should include, but not be limited to, strategy, clear objectives and assignments, declared risk level, PPE appropriate for the task, clear chain of command, supporting tactical assignments within risk management criteria, safety considerations, and contingencies.

Generic risk management criteria associated with emergency incidents are covered in Section 8.3 of NFPA 1500.

When considering risk management, fire departments should consider the following rules of engagement after evaluating the survival profile of any victims in the involved compartment:

(1) We will risk our lives a lot, in a calculated manner, to save SAVABLE LIVES.
(2) We will risk our lives a LITTLE, in a calculated manner, to save SAVABLE property.
(3) We WILL NOT risk our lives at all for buildings or lives that are already lost.

ISOs must apply their knowledge to determine if the most appropriate action is to alter, suspend, or terminate the activity. For example, a ladder as a means of egress can be moved (altered). The order to initiate fire attack might be delayed (suspended) until ventilation is completed, or fire fighters might be ordered off a roof (terminated) where the structural integrity has been compromised.

A.5.2.7 Figure A.5.2.7 shows the concept of control zones. The hot zone is the area presenting the greatest risks to members and will often be classified as an immediately dangerous to life or health (IDLH) atmosphere.

The warm zone is a limited-access area for members either directly aiding or indirectly supporting operations in the hot zone. Significant risk of human injury (respiratory, exposures, etc.) can still exist in the warm zone.

The cold zone establishes the public exclusion, or clean, zone. There are minimal risks for human injury and exposure in a cold zone.

Any control zone can include a no-entry zone. Examples of no-entry zones are holes in floors, explosive devices, and crime scenes.

Wherever possible, control zones should be identified with colored hazard tape, signage, cones, flashing beacons, fences, or other appropriate means. However, because of the nature or location of the incident, available resources, or other considerations, it might not always be possible or practical to mark the control zones.

Where colored tape is used to mark control zones, it is recommended that the following tape colors be used:

(1) No-entry zone: red/white chevron
(2) Hot zone: red
(3) Warm zone: yellow
(4) Cold zone: green

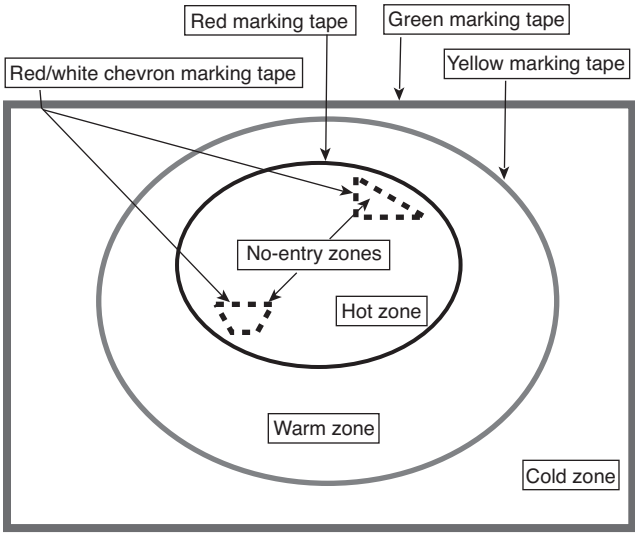

FIGURE A.5.2.7 Example of Control Zones.

A.5.2.10 Types of incidents that might require assistant ISOs and/or technical specialists include but are not limited to high-rise fires, hazardous materials incidents, and special operations.

Assistant ISOs should be considered where the size of the incident might require more than one ISO (e.g., A side and C side), there are multiple functions (e.g., high rise fire requiring an ISO to oversee evacuation or ventilation), or there are complex incidents (e.g., watch for partial collapse in specific areas).

A.5.2.12 The ISO should demonstrate the ability to identify the components and associated hazards of common hazardous energy sources such as the following:

(1) Electrical generation and distribution systems
(2) Utility gas systems, such as natural gas and propane
(3) Water distribution systems
(4) Pressurized commodity storage and piping vessels
(5) Fuel storage and delivery systems for vehicles and service stations

In addition to the identification of components and hazards of hazardous energy systems, the ISO should demonstrate the ability to create and communicate appropriate mitigation or zoning strategies to minimize hazard exposure to responders.

This educational pursuit should be accompanied with practice through scenario-based testing and/or actual supervised on-scene application at incidents.

A.5.2.13 Many departments have a number of means to access behavioral health services. In some cases, the IC might need to be relieved of dealing with member stress and another means of activating this service considered.

A.5.3.1 The intention of this requirement is that the ISO check to see that the IC has established a rapid intervention team. In cases where this has not happened, the ISO should inform the IC of the need.

Δ **A.5.3.2** Where the RIC requirement has been met, the ISO should meet with the RIC leader and share information and observations, such as fire conditions, building construction, access and egress, hazardous energy, and other pertinent hazards.

The intention of this requirement is that the ISO check to see that the IC has established an RIC. In cases where this has not happened, the ISO should inform the IC of the need.

The need for RIC should be determined by evaluating the relationship of environmental factors (hazards and characteristics of the location) with operational factors (tasks being performed). An RIC should be established in accordance with NFPA 1500 when members are deemed to be working in IDLH environments.

A.5.3.3 The ability of the ISO to evaluate structural fires and/or building collapse situations and offer judgment on integrity and initial and further collapse concerns cannot be overemphasized. To accomplish this, the ISO should pursue initial and ongoing education in the following areas:

(1) Building loads and forces, structural elements, and structural assemblies
(2) Building construction types (classic and emerging)
(3) Building material strengths, and weaknesses and the effects of fire and heat
(4) Fire spread potential through different building types

(5) Historical building collapse factors from investigative reports
(6) Analytical approaches to predicting building collapse at structural fires
(7) Building collapse classifications and the associated hazards with each type

Additionally, the ISO should have a working knowledge of local building pre-fire plans and target hazard buildings. On-site building familiarization tours and discussions with building engineering officials are invaluable educational experiences that can help the SO better understand collapse potentials before an actual incident.

These educational pursuits should be accompanied with practice through scenario-based testing and/or actual supervised on-scene application at building fires.

A.5.3.4 The ISO should monitor fire and smoke conditions and make a judgment about fire growth potential, the likelihood of flashover and a hostile fire event, and the progress of fire-fighting efforts. To achieve this ability, the ISO should pursue education in the following areas:

(1) Modern compartmentalized fire behavior theory
(2) Hostile fire event warnings, including flashover
(3) Fire load (fuel) characteristics
(4) Temperature and heat release rate influences on fire growth
(5) Impact of ventilation (intake and exhaust) on fire spread, including wind-fed effects on buildings fires
(6) Reading smoke skills: the ability to interpret smoke volume, flow (pressure), density, and color
(7) Evaluation of fire-fighting efforts (fire flow application and ventilation)
(8) Technical reports and investigations that detail fire behavior concerns

These educational pursuits should be accompanied with practice through scenario-based testing using actual fire ground video footage of previous incidents.

A.5.3.5 The intent of this JPR is for ISOs who are assigned to National Incident Management System (NIMS) Types 4 and 5 incidents. ISOs at NIMS Types 1, 2, and 3 incidents require qualification and specialized study.

A.5.4.1 Some functions are performed best by individuals with specific expertise, particularly in highly technical areas. The designated ISO can utilize members with specific expertise in the technical specialist or assistant ISO role. In such cases, the ISO can address overhead safety functions, while the technical specialist or assistant ISO can address safety functions for those with specific special operations expertise.

Technical search and rescue incidents require an incident safety officer for the following:

(1) Potential risks to members needed
(2) Substantial number of members to control an incident
(3) Duration of the incident

A.5.4.3 Confined-space incidents require an incident safety plan and a pre-entry safety briefing for all members operating at the incident [29 CFR 1910.146(b)(4)]. It is advisable that all special operations incidents utilize a similar approach. Where a technical specialist or assistant ISO is utilized, the incident safety officer should utilize his or her input to help develop the plan and briefing. The incident safety plan should include the following:

(1) Safety and health risks that might be encountered for each member
(2) Member training requirements for each assignment
(3) PPE required for each member assignment
(4) Medical surveillance requirements
(5) Frequency and type of monitoring of air, personnel, and environmental factors
(6) Decontamination procedures
(7) Member emergency and rapid intervention procedures
(8) Chain of command and communication plans
(9) Overview of the incident action plan

A.5.5.1 Fire Department responses to hazardous materials incidents are classified by the level of intervention required and the resource capability of the responders. Classifications include the following:

(1) First-Responder level
(2) Operations level
(3) Technician level

Because of the knowledge and expertise required at a technician-level hazardous materials incident, the ISO should have an understanding of these operations. This can be achieved by training to the hazardous materials technician level of NFPA 472 and NFPA 1072. In cases where the designated SO does not possess the technician-level training, appointing a technician-level trained assistant safety officer (ASO-HM) or technical specialist with the necessary training will help satisfy the safety needs of the technician-level members.

Title 29 CFR 1910.120 requires the incident commander to designate a "safety officer, who is knowledgeable in the operations being implemented at the emergency response site." This has been interpreted to apply to hazardous materials emergency incidents and confined-space rescue incidents. The appointment of a technical specialist or an ASO-HM can meet this requirement where the incident safety officer does not possess the knowledge, training, or experience to handle such incidents.

Hazardous materials incidents require an ISO for the following:

(1) Potential risks to members
(2) Substantial number of members needed to control an incident
(3) Duration of the incident

A.5.5.3 Title 29 CFR 1910.120 requires that a site safety and health plan (incident safety plan) is developed at hazardous materials incidents (technician-entry type incidents). All incident responders are required to receive a safety briefing pre-entry. Where technical specialists are utilized, the ISO should utilize their expertise to help develop the plan. The incident safety plan should include the following:

(1) Safety and health risks that might be encountered for each member
(2) Member training requirements for each assignment
(3) PPE required for each member assignment
(4) Medical surveillance requirements
(5) Frequency and type of monitoring of air, personnel, and environmental factors
(6) Decontamination procedures
(7) Member Emergency and rapid intervention procedures

(8) Chain-of-command and communication plans
(9) Overview of the incident action plan

To prepare an incident safety plan and briefing, the SO should collect information from several sources, including the following:

(1) Planning meetings
(2) The incident action plan
(3) Surveillance and reconnaissance efforts
(4) Product information and documentation by technical specialists

Following information gathering, the SO should prepare an incident safety plan (using established forms) and safety briefing checklists for members. Once created, the SO should ensure that members receive a formal briefing and document who has received the briefing.

Demonstrating competency for this JPR can be achieved through supervised performance during hands-on drills as well as table-top exercises.

A.5.5.4 Often, it is the SO who provides input for the creation of common hazmat control zones, which can include the following:

(1) No-entry zone
(2) Hot zone (IDLH reduction zone)
(3) Hazard reduction zone (decontamination)
(4) Support zone
(5) Cold zone

The method of zone communication also should be addressed. The AHJ typically outlines the zone communication method using traffic cones and barrier tape. NFPA 1500 outlines a general zone communication method that uses color-coded barrier tapes:

(1) No-entry zone: red and white chevron or diagonal striped tape
(2) Hot zone: red tape
(3) Warm zone: yellow tape
(4) Cold (support) zone: green tape

Demonstrating competency for this JPR can be achieved through supervised performance during hands-on drills and should include diagramming the zones (written) as well as directing members who set up the zones.

A.5.6.1 The ISO assigned to an incident where an injury, accident, or near-miss occurs should start, but not necessarily finish, the investigative process. An ISO who is a witness to the events might not offer a nonjudgmental approach to the investigation.

A.5.7.1 The ISO should document pertinent information about the incident, including assignments given by the IC, the incident safety plan, procedures that worked well, obstacles encountered and how to correct them, and accidents and/or injuries.

It is important to include successful or positive actions as well as those actions that require training or procedural changes to improve incident safety and health for all members.

A.5.7.2 The ISO should be prepared to address issues relating to PPE, personnel accountability, rapid intervention posture, rehabilitation operations, the incident action plan, risk versus gain, and other issues affecting the safety and welfare of members at an incident scene.

The ability to listen to others and frame input in a constructive manner is essential for the ISO. The ISO should focus on factual observations and avoid placing blame. Judgmental statements should be reserved for interpretation of environmental conditions (fire, smoke, building integrity, etc.) as opposed to member actions.

Annex B Safety Officer's Post-Incident Analysis Report

This annex is not a part of the requirements of this NFPA document but is included for informational purposes only.

B.1 The following material is provided by the Ottawa Fire Services Safety Division. Section B.2 provides a template for a safety officer's post-incident analysis (PIA) report. Section B.3 provides guidance on writing the report.

B.2 Safety Officer's Post-Incident Analysis Report Template. As a result of all major incidents, or at the request of a senior officer, a Safety Division Incident Report will be prepared. The report will be a comprehensive document outlining the actions of the Ottawa Fire Services at the incident and will include the topics addressed in B.2.1 through B.2.5.

B.2.1 Introduction. The introduction states the subject matter to be discussed, the purpose, and the organization and scope of the report.

The importance of the introduction is to prepare the reader to receive what the writer intends to present. The introduction relates the subject matter of the report in a convincing and clear manner. Specifically, the introduction presents the precise subject to be presented, indicates the reasons for presenting it, and describes the scope and organization of how the report will be laid out.

The introduction should not be longer than one page in length. If the subject, objectives, and method of presentation are not complicated, one or two paragraphs will suffice. If a considerable amount of background information is necessary, try moving it to a separate section of the report (e.g., background information).

B.2.2 Sequence of Events. The intent of the sequence of events is to provide a clear, concise chronology of the major actions that took place over time at the incident.

While objectivity is an essential component of the report, seeing all actions that occurred at the incident would be difficult for the writer. Accuracy can be improved by corroborating events with others who were present at the incident. This corroboration can be accomplished readily during the post-incident analysis.

Try to be direct and concise, eliminating anecdotal (hearsay) information and irrelevant details. If specific information is required for explanation or interest, include a more detailed chronology of events as an appendix.

Separate groups or sequences of events into logical sections or periods of time. If specific, important actions took place, pinpoint key times to the nearest minute if possible.

If referring to actions that the writer has performed, use the first person in describing them. When referring to the actions of others, use the third person perspective.

B.2.3 Safety Issues. The safety issues section of the report should provide a detailed description of the hazards present at the incident, the potential for accidents/injuries, accidents/injuries that did occur, safety violations, remedial steps taken, and further action needed.

B.2.3.1 Hazards. Use the hazards section to describe the hazards that were present at the incident scene. Show the potential for danger that these hazards posed and any safety concerns associated with them.

Some subjects for consideration are weather/incident conditions, use of PPE, hazard zones, potential for collapse, confined space, hazardous materials, communications, incident command, use of equipment and apparatus, crew accountability, rehabilitation, near misses, public utilities (gas, hydro), and infection control.

B.2.3.2 Injuries. If there were injuries, document them in the injuries section and be sure to include all possible contributing factors. Describe the events leading up to the accidents and include administrative forms and photographs as an appendix if required.

B.2.3.3 Safety Violations. Document violations of safety policies and procedures and any other actions that had the potential to cause a safety hazard to personnel on the scene.

Explain remedial actions taken to point out violations and reduce safety concerns.

Try to find out why violations occurred. Were there extenuating circumstances? Did the actions of personnel at the scene start a chain of events that resulted in safety violations?

Describe further actions needed to resolve a situation and prevent further occurrences.

B.2.4 Discussion. The discussion should be an objective analysis of the incident with respect to the actions taken by the Ottawa Fire Services and the safety issues associated with those actions.

This is perhaps the most difficult section of the report to write. The opportunity is presented to synthesize objectively what has been detailed in the report so far.

Discuss the implications and results of the actions that took place during the incident with the objective of presenting a "complete" picture of what occurred. Including what went right is as important as well as what went wrong. Make absolutely clear the distinction between fact and opinion.

When discussing your conclusions make sure to state their limitations.

B.2.5 Recommendations. A prioritized list of recommendations has the potential to increase safety at incidents, reduce accidents and injuries, and improve the overall performance of the department at incidents.

The objective of making recommendations in a report of this nature is to offer solutions for improving safety at the scene, reduce injuries to personnel, and increase awareness of incident safety by the members of the Ottawa Fire Services.

List your clearly stated recommendations in order of decreasing priority. If possible, offer solutions on how to carry out the recommendations through the modification or addition of policies or procedures.

B.3 Writing the Report.

B.3.1 Report Style. While difficult to define, style establishes the readability of reports. An acceptable style will encourage the intended audience to read the report. Styles differ from writer to writer, but general report requirements must be met by any writing style to produce a good report.

B.3.2 Requirements of Reports. Whatever the specific style used to prepare a technical report, four general requirements must be met to produce good reports: *clarity*, *conciseness*, *continuity*, and *objectivity*.

B.3.3 Clarity. A report of this nature must express the exact meaning of the writer to the reader. To do this, text must be clear and unambiguous. Uncommon terms must be fully defined.

Clarity must be understood from the readers' point of view. Rough drafts must be reexamined to ensure that there is no confusion of thought. There is usually just one chance to sell the reader on the report's objectives. Present information in a logical, simple, and systematic manner.

B.3.4 Conciseness. Report quality is often inversely related to report length. Do not be disappointed if a report describing a major incident is only a few pages long. The readers will mainly be interested in the recommendations of the report and how they are supported.

Do not hide the important aspects of the report by including irrelevant details. However, do include enough information to enable the reader clearly to understand what is being described and why.

B.3.5 Continuity. Reports should tell a complete story in an interesting and logical manner. This requires that the train of thought must be consistent between succeeding sentences, paragraphs, and sections of the report. It is preferable that references to figures, tables, or supporting documents should be placed near the beginning or end of a discussion.

B.3.6 Objectivity. Technical reports should be honest and straightforward. Suspicions will be raised if attempts are made to hide meanings or cover mistakes. Be tactful and show restraint when presenting recommendations that may conflict with current policy and procedures. Try to reduce the use of opinionated and narrow-minded statements. Remember you are writing to *express*, not *impress*.

B.3.7 Writing Style. Technical reports require a formal writing style that places personal style secondary to the clear and objective transmission of information. This does not mean that a report cannot be interesting, just that a person's style must not obscure exact meaning or lead the reader away from the report's objectives.

State your purpose or objective clearly and describe concisely how you are going to do that. Continue with the presentation while ensuring you are consistent with the stated objectives. Finally, summarize your conclusions and recommendations.

Get to the point as soon as possible. Omit information that is not directly related to the conclusions. If you need to include information that may be of interest but is not directly pertinent to your conclusions, put it in an appendix.

B.3.8 Report Checklist. As an aid in revising and drafting your report, try to answer the following questions:

(1) Have you clearly stated the purpose and scope of the report?
(2) Have you accomplished your objectives that were set out in the introduction?
(3) Did you say what you wanted to say? Do you mean what you said? Can your readers misinterpret what you said?
(4) Will the important results be clear to your readers? Is the order of importance clear?
(5) Are the limitations of the conclusions clearly stated?
(6) Have you clearly separated facts from opinions? Have you made a career altering decision (CAD)?
(7) Are your recommendations realistic? Can they be carried out?

Annex C Sample ISO Incident Checklists

This annex is not a part of the requirements of this NFPA document but is included for informational purposes only.

C.1 As an aid to the users of this document, examples of ISO checklists are provided. It is suggested that the ISOs develop their own form or checklist to reflect their work organization and environment.

Figure C.1(a) is an ISO incident checklist. Figure C.1(b) is a structure fire safety report form.

Figure C.1(c) is an EMS incident safety report form. Figure C.1(d) is a marine incident safety report form. Figure C.1(e) is a technical search and rescue incident safety report form. In addition to the base report, there are attachments for specific types of technical search and rescue incidents. These incidents include confined space *[see Figure C.1(f)],* machinery or vehicle *[see Figure C.1(g)],* rope *[see Figure C.1(h)],* structural collapse *[see Figure C.1(i)],* water *[see Figure C.1(j)],* and trench *[see Figure C.1(k)].*

ISO INCIDENT CHECKLIST

Safety officer: _____ Incident number: _____ Date: _____

Response type: _____ Location: _____

Incident commander: _____ Sector chief(s): _____

Time of incident (1): _____ Safety on location (2): _____ Elapsed time (2-1): _____

ISO Duties

(1) Report to incident commander. Discuss incident (incident strategy, plan of action, safety plan).

(2) Walk the incident and establish a perimeter, checking the following items as they relate to safety. Advise command staff of risk assessment of incident. **Relate any immediate safety concerns to incident commander.**

✓ = OK ✕ = Issue ( ) Circle applicable category

Strategy and Tactics

- ❑ Offensive/defensive/marginal attack
- ❑ Crews following incident commander strategy?
- ❑ Ventilation (vertical/horizontal, fans, crew location, means of egress — windows/doors, smoke conditions — volume/color/force — as related to safety of personnel)
- ❑ Incident layout (site drawing, crew locations, rapid intervention team)
- ❑ Risk management (Is the action necessary?)

Hazards

- ❑ Utilities (hydro, natural gas, LP-Gas tanks)
- ❑ Environmental (heat, cold, ice, snow, rain, wind)
- ❑ Structural conditions (roof, walls, floors, facades, signs, other construction features)

(3) After the initial incident assessment, continue to observe all listed items as well as others that might affect the safety of personnel, including the following *(periodically check back to incident commander for update briefing)*:

- ❑ Accountability (set-up, Phase I, Phase II, Phase III, PAR, rapid intervention team)
- ❑ PPE (turnouts, hoods, helmet, shields, gloves, boots, SCBA)
- ❑ Communications (radios, face-to-face, crews, sectors, command)
- ❑ Hazard control zones (No-entry zone(s): red/white, hot zone: red, warm zone: yellow, cold zone: green)
- ❑ Rehabilitation (location, fluids, food, crew rotation, manpower, shelter, heat/cooling, EMS)
- ❑ Ladders (selection, placement, secured, hazards — wires/footing, two means of egress)
- ❑ Equipment use (selection/placement of hose lines, water supply, tools, safety equipment, lighting)
- ❑ Apparatus (placement, collapse/heat zone, staging, effectiveness, enough resources)

(4) Exercise emergency authority to stop or prevent imminent unsafe acts — notify incident commander immediately —ensure all personnel are aware of any special circumstances or danger.

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FIGURE C.1(a) Example of an ISO Incident Checklist. ***(Source: Ottawa Fire Services — Safety Division, Ottawa, Canada.)***

ISO INCIDENT CHECKLIST *(continued)*

(5) Other considerations:

(a) In other than imminent unsafe acts, individuals or crews violating OFS policies and procedures will be addressed through the incident commander or through the post-incident analysis process.

(b) Be aware of the need for addressing critical incident stress if necessary as per SOP.

(c) In the event of accident/injury investigation, ensure the following is considered: scene preservation, critical injury protocol, seize PPE/equipment, document the scene with digital pictures, scene sketch (locations, measurements, etc.), witnesses, and statements.

(6) Resources

❑ Inspector ❑ Police ❑ EMS ❑ Hydro ❑ Gas Co. ❑ Water branch
❑ OC Transpo ❑ Engineer ❑ Heavy equipment ❑ Hazardous materials team

Scene Sketch

(Consider including direction, street names, apparatus, hose lines, hydrants, etc.)

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FIGURE C.1(a) ***Continued***

Fulton County Fire Department

STRUCTURE FIRE SAFETY REPORT

This form is intended to communicate safety-related issues regarding a Fulton County Fire Department incident involving a fire inside or adjacent to a structure of a magnitude requiring a full residential or commercial response. The shaded areas are major categories with subcategories for various safety-related issues. This form is not intended to be used as a strategy or tactics document, although many of the issues covered will impact strategic or tactical decisions.

Incident

- **Number.** The FCFD incident number assigned by emergency communications.
- **Operational Period (Date/Time).** The date and dispatch time of the incident as logged by emergency communications.

Communications

- **On-scene Time/Tactical Mode.** An indication upon arrival and at 20-, 40- and 60-minute intervals whether suppression operations are offensive (off.) or defensive (def.)
- **Radio transmissions clearly transmitted and repeated?** This includes all radio communications. If the answer is NO, explain in the Narrative. If radio or equipment problems hinder communications, this issue should be addressed in the Narrative.

Incident Management Facility Locations

- **Command Post.** Required for **all** incidents where command is established. Identification means it is identified by radio and has the green command post light activated.
- **Base.** The location for all out-of-service resources, rehab, and the air unit. Should be utilized any time rehab is established or when members will need more than two SCBA bottles to control the fire. Identification means that base is identified by radio.
- **Staging.** The location for resources available to be deployed within 3 minutes. Should be utilized at the discretion of the incident commander. Identification means that staging is identified by radio.

All Other Sections

Did any of the items listed present a safety hazard to fire fighters? Answer the question stated. If not applicable, mark **N/A**. If the answer to any question is **NO**, explain in the Narrative of the form.

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FIGURE C.1(b) Example of a Structure Fire Safety Report. ***(Source: Fulton County Fire Department, Fulton County, GA.)***

Fulton County Fire Department

STRUCTURE FIRE SAFETY REPORT

INCIDENT		
Number:	Address:	Date/Time:

COMMUNICATIONS							
On-scene time/ Tactical mode	Off. _____ Def. _____	20 min:	Off. _____ Def. _____	40 min:	Off. _____ Def. _____	60 min:	Off. _____ Def. _____

Radio transmissions clearly transmitted and repeated? ❑ YES ❑ NO (If NO, explain in Narrative.)

INCIDENT MANAGEMENT FACILITY LOCATIONS		
Command post:	Base:	Staging:

HEALTH HAZARDS (If NO, explain in Narrative.)

Hazard	Mitigation	YES	NO	N/A	Time
Contaminant exposure	Proper PPE utilized by all members?				
	Gross decon conducted?				
Respiratory hazards	SCBA used by **all** in an IDLH area?				
	All members rehabbed after 2 bottles?				
	SCBA utilized properly on the roof?				
	SCBA used until CO below 35 ppm?				

STRUCTURE-SPECIFIC HAZARDS (If NO, explain in Narrative.)

Hazard	Mitigation	YES	NO	N/A	Time
Arrangement	Pre-incident survey consulted?				
Ventilation	Effective ventilation conducted?				
Roof construction	Identified?				
Floor structure	Identified?				
Levels below grade	Identified?				
Levels above grade	Identified?				
Utilities	Identified? Locked out?				
Asbestos concerns	Identified?				

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FIGURE C.1(b) ***Continued***

Fulton County Fire Department

STRUCTURE FIRE SAFETY REPORT

HUMAN RESOURCE MANAGEMENT CONCERNS (If NO, explain in Narrative.)					
Hazard	**Mitigation**	**YES**	**NO**	**N/A**	**Time**
Accountability	Accountability system in place?				
	Utilized according to policy?				
	PAR after fire extinguished?				
Incident management	ICS utilized?				
Span of control	Span of control maintained (scale of 1–5)?				
Rapid intervention	Crew identified?				
Hazard area(s)/zone(s)	Identified by flagging tape?				
Team integrity	Maintained in the hazard area?				
Responder fatigue	Rehab initiated?				
Responder EMS needs	ALS unit available?				
Unit rotation	Plan developed?				

PHYSICAL HAZARDS (If NO, explain in Narrative.)					
Hazard	**Mitigation**	**YES**	**NO**	**N/A**	**Time**
Access/egress	Secondary access identified?				
Atmospheric	Air monitored by truck company?				
Thermal	Hot spots checked with imager?				
Traffic	Controls in place?				
Hazardous materials	Mitigated by Ops level members?				
Structural stability	Collapse zone identified?				
	Floor collapse potential identified?				
	Roof collapse potential identified?				
	Wall collapse potential identified?				
Other					

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FIGURE C.1(b) ***Continued***

Fulton County Fire Department

STRUCTURE FIRE SAFETY REPORT

EMERGENCY ACTIONS REQUIRED

(Any of the following marked "YES" must be explained in the Narrative.)

Hazard	Brief Explanation	YES	NO	N/A	Time
Task terminated?					
Emergency traffic?					
Withdrawal required?					
Abandonment required?					

NARRATIVE

REPORT REVIEW

Name of incident commander notified at the scene:	Date:	Time:
Attachments to safety report:		
Developed by incident safety officer:	Date:	Time:

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FIGURE C.1(b) ***Continued***

Fulton County Fire Department

EMS INCIDENT SAFETY REPORT

INCIDENT	
Number:	Date/Time:
Description:	Location:

INCIDENT MANAGEMENT FACILITY LOCATIONS		
Command Post:	Base:	Staging:

HEALTH HAZARDS

Hazard	Mitigation	YES	NO	N/A	Time
Contaminant exposure	Gloves used?				
	Full EMS PPE utilized?				
Fire suppression/extrication	Proper PPE utilized?				
Sharps	Proper disposal techniques utilized?				
Biomed waste	Proper disposal techniques utilized?				

HUMAN RESOURCE MANAGEMENT CONCERNS

Hazard	Mitigation	YES	NO	N/A	Time
Accountability	Accountability system in place?				
Incident management	ICS utilized?				
	Incident commander identified?				
	EMS group supervisor identified?				
Hazard area(s)/zone(s)	Identified?				
Span of control	Span of control (scale of 1–5)?				
Responder EMS needs	ALS unit available?				
Unit rotation	Plan developed?				
Lifting patients	Proper lifting techniques observed?				

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FIGURE C.1(c) Example of an EMS Incident Safety Report. ***(Source: Fulton County Fire Department, Fulton County, GA.)***

Fulton County Fire Department

EMS INCIDENT SAFETY REPORT

PHYSICAL HAZARDS

Hazard	Mitigation	YES	NO	N/A	Time
Scene management	Scene secured to unauthorized persons?				
Coordinated tactical plan	Plan communicated?				
Electrical	Power sources secured?				
Hazardous materials	Mitigated by operations level members?				
Traffic	Controls in place?				
	Law enforcement requested to assist?				
Fire suppression	Hose line(s) in place?				
	Extinguisher(s) in place?				

NARRATIVE

REPORT REVIEW

Incident commander notification of concerns at the scene:	Date:	Time:
Attachments to report:		
Incident safety officer:	Date:	Time:

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FIGURE C.1(c) ***Continued***

Fulton County Fire Department

MARINE INCIDENT SAFETY REPORT

INCIDENT		
Incident:	Incident commander:	Date Prepared:
Pier # (Address):		Time Prepared:

COMMUNICATIONS	
Command (radio) channel:	Tactical (radio) channel:
Command phone:	FAX:

SITE INFORMATION	
Incident type:	Secondary access/egress:
Primary access:	Contact name/phone:
Yard office:	Alternate phone:

INCIDENT MANAGEMENT FACILITY LOCATIONS	
Command post:	Base:
Staging:	Marine team staging:

INCIDENT ORGANIZATION	
Incident commander:	Safety officer:
Marine Div/Gr Supv:	Marine safety officer:
Vessel rep:	USCG rep:

HUMAN RESOURCE MANAGEMENT CONCERNS (If NO, explain in Narrative.)

Hazard	Mitigation	YES	NO	N/A	Time
Accountability	Accountability system in place?				
Span of control	Span of control (scale of 1–5)?				
Responder fatigue	Rehab initiated?				
Unit rotation	Plan developed?				
Hazard area(s)/zone(s)	Identified?				

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FIGURE C.1(d) Example of a Marine Incident Safety Report. ***(Source: Fulton County Fire Department, Fulton County, GA.)***

Fulton County Fire Department

MARINE INCIDENT SAFETY REPORT

VESSEL-SPECIFIC HAZARDS (If NO, attach explanation.)

Hazard	Mitigation	YES	NO	N/A	Time
Vessel stability	Stability monitoring?				
Vessel access	Primary identified?				
	Secondary identified?				
Arrangement	Vessel plans acquired?				
Hazardous cargo	Cargo manifest acquired?				
Electrical	Power plant secured?				
Confined spaces	Confined space tech. on scene?				

PHYSICAL HAZARDS (If NO, attach explanation.)

Hazard	Mitigation	YES	NO	N/A	Time
Depth of water	Life jackets available?				
Tide/current	Tide tables checked?				
Hazmat mitigation	Hazmat tech. available?				
Chemical/contaminant exposure	Proper PPE identified?				
Weather	Forecast obtained?				
Wind direction/speed	Upwind escape route identified?				
Atmospheric	Air monitoring commenced?				

PLAN REVIEW

Attachments to safety plan:		
Developed by safety officer:	Date:	Time:
Approved by incident commander:	Date:	Time:

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FIGURE C.1(d) *Continued*

Fulton County Fire Department

TECHNICAL RESCUE INCIDENT SAFETY REPORT

Incident name:	Operational period (date/ time):

INCIDENT TYPE (Check all that apply.)

❑ Confined space	❑ Rope	❑ Water
❑ Machinery/vehicle	❑ Structural collapse	❑ Trench

HEALTH HAZARDS (If NO, explain in Narrative.)

Hazard	Mitigation	YES	NO	N/A	Time
Atmospheric	Atmosphere monitored?				
	Space ventilated?				
	Respiratory protection utilized?				
	Respiratory protection downgraded?				
Communications	Secondary form identified?				
	Written plan developed?				
Contaminant exposure	Contaminant identified?				
	PPE utilized?				
	Decon conducted?				
	Written records maintained?				
Stress	Debriefing/defusing scheduled?				

PHYSICAL HAZARDS (If NO, explain in Narrative.)

Hazard	Mitigation	YES	NO	N/A	Time
Access/egress	Secondary access identified?				
Arrangement	Floor/plot/area plan available?				
Electrical	Utilities locked/tagged out?				
Hazmat	Awareness of Ops level materials?				
Thermal	Fire suppression measures taken?				
Weather	Forecast obtained?				

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FIGURE C.1(e) Example of a Technical Search and Rescue Incident Safety Report. ***(Source: Fulton County Fire Department, Fulton County, GA.)***

Fulton County Fire Department

TECHNICAL RESCUE INCIDENT SAFETY REPORT

HUMAN RESOURCE MANAGEMENT (If NO, explain in Narrative.)

Hazard	Mitigation	YES	NO	N/A	Time
Accountability	Accountability system in place?				
Coordinated tactical plan	Plan communicated?				
Hazard area(s)/zone(s)	Identified?				
Management	Incident command system implemented?				
Rapid intervention	Crew identified?				
Responder fatigue	Rehab initiated?				
Responder EMS needs	ALS unit available?				
Responder rotation	Plan developed?				
Span of control	Span of control (scale of 1–5)?				
Team integrity	Maintained in the hazard area?				

EMERGENCY ACTIONS REQUIRED (If required, explain in Narrative.)

Hazard	Brief Explanation	YES	NO	N/A	Time
Task terminated					
Mayday transmitted					
Withdrawal required					
Abandonment required					

PLAN REVIEW

Incident commander notification of concerns at the scene:	Date:	Time:

Attachments to safety plan: ❑ Narrative ❑ Structural collapse ❑ Rope ❑ Confined space ❑ Trench ❑ Transp/machinery ❑ Water

Developed by incident safety officer:	Date:	Time:

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FIGURE C.1(e) ***Continued***

Fulton County Fire Department

TECHNICAL RESCUE INCIDENT SAFETY REPORT

NARRATIVE

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FIGURE C.1(e) *Continued*

Fulton County Fire Department

TECHNICAL RESCUE — CONFINED SPACE

TYPE OF EVENT

Location	❑ Vault	❑ Tank	❑ Service area	❑ Marine vessel
	❑ Cave/pit	❑ Structure	❑ Tunnel	❑ Other: _____

Description of space:

SPECIFIC HAZARDS

Hazard	Brief Explanation	YES	NO	N/A	Time
Cause of incident identified.					
Equipment/utilities secured.					
Rescue area identified.					
Rescue scene secured.					
Permit posted.					
Access maintained.					
Rescue entrant(s) identified.					
Back-up entrant(s) identified.					
O_2 level monitored.					
LEL level monitored.					
Toxicity level monitored.					
Space confirmed free of hazmat.					
Space ventilated.					
Adequate air supplies available.					

Consulted with assistant safety officer:	Date:	Time:
Developed by incident safety officer:	Date:	Time:

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FIGURE C.1(f) Example of a Confined Space Rescue Supplemental Report. ***(Source: Fulton County Fire Department, Fulton County, GA.)***

Fulton County Fire Department

TECHNICAL RESCUE — MACHINERY/VEHICLE

TYPE OF EVENT

Location	❑ Commercial site		❑ Residential site	
	❑ Transportation corridor		❑ Other: _____	
Type of transport/machinery	❑ Auto	❑ Truck	❑ Bus	❑ Construction
	❑ Bike	❑ Motorcycle	❑ Aircraft	❑ Other: _____

SPECIFIC HAZARDS

Hazard	Brief Explanation	YES	NO	N/A	Time
Incident command system established.					
Cause of incident identified.					
Rescue area identified.					
Rescue scene secured.					
Power source identified and controlled.					
Vehicle/machine de-energized.					
Equipment locked out/tagged out.					
Utilities tagged/locked out.					
Vehicle stabilized.					
Contents/cargo identified.					
Extrication plan communicated.					
Rescue entrant(s) identified.					
Back-up entrant(s) identified.					
Alternate extrication plan in place.					
Minimum number of rescuers utilized.					

Consulted with assistant safety officer:	Date:	Time:
Developed by incident safety officer:	Date:	Time:

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FIGURE C.1(g) Example of a Machinery or Vehicle Rescue Supplemental Report. ***(Source: Fulton County Fire Department, Fulton County, GA.)***

Fulton County Fire Department

TECHNICAL RESCUE — ROPE

TYPE OF EVENT

Type of rescue	❑ Low angle	❑ High angle	Feet above/below grade:	
Location	❑ Structure	❑ Equipment	❑ Road/bridge	❑ Cliff/bluff
	❑ Below grade	Other: _____		

SPECIFIC HAZARDS

Hazard	Brief Explanation	YES	NO	N/A	Time
Cause of incident identified.					
Equipment/utilities secured.					
Rescue area identified.					
Rescue scene secured.					
Fall protection utilized.					
Secure anchor points selected.					
Main line staffed continuously.					
Belay line staffed continuously.					
Knots and bends safety checked.					
Hardware secured.					
Fall area secured.					
Litter attachments safety checked.					
Haul team(s) briefed on tactical plan.					

Consulted with assistant safety officer:	Date:	Time:
Developed by incident safety officer:	Date:	Time:

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FIGURE C.1(h) Example of a Rope Rescue Supplemental Report. ***(Source: Fulton County Fire Department, Fulton County, GA.)***