

NFPA® 475

Recommended Practice for Organizing, Managing, and Sustaining a Hazardous Materials/Weapons of Mass Destruction Response Program

2017



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ISBN: 978-145591580-4 (Print)
ISBN: 978-145591581-1 (PDF)

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Mass Destruction Response Program**

2017 Edition

This edition of NFPA 475, *Recommended Practice for Organizing, Managing, and Sustaining a Hazardous Materials/Weapons of Mass Destruction Response Program*, was prepared by the Technical Committee on Hazardous Materials Response Personnel. It was issued by the Standards Council on November 11, 2016, with an effective date of December 1, 2016.

This edition of NFPA 475 was approved as an American National Standard on December 1, 2016.

Origin and Development of NFPA 475

The 2017 edition is the first edition of NFPA 475. The initial request for a document focusing on hazardous materials/weapons of mass destruction (WMD) response programs was submitted by the Technical Committee for Hazardous Materials Response Personnel. This recommended practice addresses the organizing, managing, and sustaining of a hazardous materials/WMD response program, which includes laws, regulations, consensus standards, and guidance documents; risk analysis; planning; resource management; staffing; training; health and medical considerations; financial management; program influences; and developing relationships.



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Committee Scope: This Committee shall have primary responsibility for documents on the requirements for professional qualifications, professional competence, training, procedures, and equipment for emergency responders to hazardous materials/weapons of mass destruction incidents.

Contents

Chapter 1 Administration	475- 5	8.2 Purpose.	475- 26
1.1 Scope.	475- 5	8.3 Deployment of Personnel.	475- 26
1.2 Purpose.	475- 5	8.4 Resource Typing and Specialty Personnel or Allied Professionals.	475- 27
Chapter 2 Referenced Publications	475- 5	Chapter 9 Training	475- 27
2.1 General.	475- 5	9.1 Scope.	475- 27
2.2 NFPA Publications.	475- 5	9.2 Purpose.	475- 27
2.3 Other Publications.	475- 6	9.3 Levels of Hazardous Materials Training.	475- 27
2.4 References for Extracts in Recommended Sections. (Reserved)	475- 7	9.4 Establishing Training Level.	475- 31
Chapter 3 Definitions	475- 8	9.5 Annual Competencies and Refresher Training.	475- 31
3.1 General.	475- 8	9.6 Training Program Development.	475- 31
3.2 NFPA Official Definitions.	475- 8	9.7 Instructional Design.	475- 31
3.3 General Definitions.	475- 8	9.8 Training Delivery Models.	475- 32
3.4 Operations-Level Responders Definitions.	475- 12	9.9 Training Delivery Methodologies and Models. ..	475- 32
Chapter 4 Laws, Regulations, Consensus Standards, and Guidance Documents	475- 13	9.10 Training Facilities.	475- 33
4.1 Scope.	475- 13	9.11 Selection and Competence of Instructors.	475- 33
4.2 Purpose.	475- 13	9.12 Training and Exercise Safety.	475- 33
4.3 Laws.	475- 13	9.13 Training Records Management.	475- 34
4.4 Regulations by Agency.	475- 15	Chapter 10 Health and Medical	475- 34
4.5 Consensus Standards by Organization.	475- 17	10.1 Scope.	475- 34
4.6 Guidance Documents.	475- 18	10.2 Purpose.	475- 35
Chapter 5 Risk Assessment	475- 18	10.3 Preincident Considerations.	475- 35
5.1 Scope.	475- 18	10.4 Functional Capacity.	475- 35
5.2 Purpose.	475- 18	10.5 Response Considerations.	475- 35
5.3 Identifying Hazardous Materials/WMD Within an Organization/Jurisdiction.	475- 18	10.6 Postincident Surveillance.	475- 35
5.4 Analyzing the Consequences of a Release.	475- 19	10.7 Medical Surveillance Program.	475- 36
5.5 Analyzing the Risk.	475- 19	Chapter 11 Financial Management	475- 37
Chapter 6 Planning	475- 20	11.1 Scope.	475- 37
6.1 Scope.	475- 20	11.2 Purpose.	475- 37
6.2 Purpose.	475- 20	11.3 Revenue Sources.	475- 37
6.3 Plan Development.	475- 20	11.4 Program Costs.	475- 38
6.4 Emergency Operations Plan (EOP).	475- 20	11.5 Inventory Control.	475- 38
6.5 Standard Operating Procedure (SOP)/Standard Operating Guideline (SOG) Planning Components.	475- 21	11.6 Cost Recovery.	475- 38
6.6 SOPs.	475- 21	Chapter 12 Program Influences	475- 38
6.7 SOGs.	475- 21	12.1 Scope.	475- 38
6.8 Operational Security.	475- 22	12.2 Purpose.	475- 38
6.9 Information and Intelligence Sharing.	475- 23	12.3 Influences.	475- 39
Chapter 7 Resource Management	475- 23	Chapter 13 Developing Relationships	475- 39
7.1 Scope.	475- 23	13.1 Scope.	475- 39
7.2 Purpose.	475- 23	13.2 Purpose.	475- 40
7.3 Personnel.	475- 23	13.3 Promoting HMRP Capabilities.	475- 40
7.4 HMRP Types.	475- 23	13.4 Coordination with Other Response Entities.	475- 40
7.5 Supply Management.	475- 26	13.5 Local and State Planning Group Relationships.	475- 40
7.6 National Incident Management System (NIMS) and Resource Management.	475- 26	13.6 Private Sector Relationships.	475- 40
Chapter 8 Staffing	475- 26	13.7 Public Relationships.	475- 40
8.1 Scope.	475- 26	Annex A Explanatory Material	475- 41
		Annex B Informational References	475- 53
		Index	475- 54

NFPA 475

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NOTICE: An asterisk (*) following the number or letter designating a paragraph indicates that explanatory material on the paragraph can be found in Annex A.

A reference in brackets [] following a section or paragraph indicates material that has been extracted from another NFPA document. As an aid to the user, the complete title and edition of the source documents for extracts in mandatory sections of the document are given in Chapter 2 and those for extracts in informational sections are given in Annex B. Extracted text may be edited for consistency and style and may include the revision of internal paragraph references and other references as appropriate. Requests for interpretations or revisions of extracted text shall be sent to the technical committee responsible for the source document.

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

Chapter 1 Administration

1.1 Scope. This recommended practice provides the minimum criteria for organizing, managing, and sustaining a hazardous material response program (HMRP) based on the authority having jurisdiction’s (AHJ) function and assessed level of risk.

1.1.1 A review of the laws, regulations, consensus standards, and guidance documents in addition to guidance for risk assessment, HMRP planning, resource management, staffing, training, health and medical issues, financial management, programs influences, and developing relationships are covered in this recommended practice.

1.2* Purpose. The purpose of this document is to recommend the minimum program elements necessary for organizing, managing, and sustaining an HMRP to reduce or eliminate the hazardous materials/WMD risks within an organization/jurisdiction.

1.2.1 It is not the intent of this recommended practice to restrict any jurisdiction from using more stringent guidelines.

Chapter 2 Referenced Publications

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

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

NFPA 472, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, 2013 edition.

NFPA 473, *Standard for Competencies for EMS Personnel Responding to Hazardous Materials/Weapons of Mass Destruction Incidents*, 2013 edition.

NFPA 704, *Standard System for the Identification of the Hazards of Materials for Emergency Response*, 2017 edition.

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

NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*, 2013 edition.

NFPA 1521, *Standard for Fire Department Safety Officer Professional Qualifications*, 2015 edition.

NFPA 1561, *Standard on Emergency Services Incident Management System*, 2014 edition.

NFPA 1582, *Standard on Comprehensive Occupational Medical Program for Fire Departments*, 2013 edition.

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

NFPA 1851, *Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting*, 2014 edition.

NFPA 1852, *Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus (SCBA)*, 2013 edition.

NFPA 1951, *Standard on Protective Ensembles for Technical Rescue Incidents*, 2013 edition.

NFPA 1981, *Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services*, 2013 edition.

NFPA 1982, *Standard on Personal Alert Safety Systems (PASS)*, 2013 edition.

NFPA 1991, *Standard on Vapor-Protective Ensembles for Hazardous Materials Emergencies*, 2016 edition.

NFPA 1992, *Standard on Liquid Splash-Protective Ensembles and Clothing for Hazardous Materials Emergencies*, 2017 edition.

NFPA 1994, *Standard on Protective Ensembles for First Responders to CBRN Terrorism Incidents*, 2017 edition.

2.3 Other Publications.

2.3.1 ANSI Publications. American National Standards Institute, Inc., 25 West 43rd Street, 4th floor, New York, NY 10036.

ANSI Z88.2, *American National Standard Practices for Respiratory Protection*, 2015.

ANSI Z88.10, *Fit Test Method*, 2010.

2.3.2 API Publications. American Petroleum Institute, 1220 L Street, NW, Washington, DC 20005-4070.

API 2021, *Management of Atmospheric Storage Tank Fires*, 2006.

2.3.3 ASTM Publications. American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM E2458, *Standard Practices for Bulk Sample Collection and Swab Sample Collection of Visible Powders Suspected of Being Biothreat Agents from Nonporous Surfaces*, 2010.

ASTM E2601, *Standard Practice for Radiological Emergency Response*, 2008.

ASTM E2770, *Standard Guide for Operational Guidelines for Initial Response to a Suspected Biothreat Agent*, 2010.

ASTM E2842, *Standard Guide for Credentialing for Access to a Disaster Scene*, 2014.

ASTM F1127, *Standard Guide for Containment of Hazardous Material Spill by Emergency Response Personnel*, 2013.

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

FEMA 508-1, *Typed Resource Definitions — Animal Health Resources*, 2005.

FEMA 508-4, *Typed Resource Definitions — Fire and Hazardous Materials Resources*, 2005.

FEMA NIMS Guide 0001, *National NIMS Resource Typing Criteria*, 2006.

FEMA NIMS Guide 0002, *National Credentialing Definition and Criteria*, 2007.

National Mutual Aid and Resource Management Initiative.

2.3.5 U.S. Government Publications. U.S. Government Publishing Office, Superintendent of Documents, Washington, DC 20402.

Emergency Planning and Community Right-to-Know Act, Public Law 99-499, 1986.

Emergency Response Guidebook, U.S. Department of Transportation, 2012 edition.

FBI Bomb Data Center, Special Technicians Bulletin 2010-1, A Model for Bomb Squad Standard Operating Procedures, July 22, 2011.

Title 6, Code of Federal Regulations, Part 27, “Chemical Facility Anti-Terrorism Standards.”

Title 10, Code of Federal Regulations, Parts 1–199, “Nuclear Regulatory Commission.”

Title 10, Code of Federal Regulations, Parts 1500–1508, “Council on Environmental Quality.”

Title 10, Code of Federal Regulations, Part 20, “Standards for Protection Against Radiation.”

Title 10, Code of Federal Regulations, Part 20.1201–1208, “Occupational Dose Limits.”

Title 10, Code of Federal Regulations, Part 20.1301–1302, “Radiation Dose Limits for Individual Members of the Public.”

Title 10, Code of Federal Regulations, Part 20.1601–1602, “Control of Exposure from External Sources in Restricted Areas.”

Title 10, Code of Federal Regulations, Part 20.1901–1906, “Precautionary Procedures.”

Title 10, Code of Federal Regulations, Part 20 Appendix B, “Annual Limits on Intake (ALIs) and Derived Air Concentrations (DACs) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sewerage.”

Title 10, Code of Federal Regulations, Part 20 Appendix G, “Requirements for Transfers of Low-Level Radioactive Waste Intended for Disposal at Licensed Land Disposal Facilities and Manifests.”

Title 10, Code of Federal Regulations, Part 50, “Domestic Licensing of Production and Utilization Facilities.”

Title 10, Code of Federal Regulations, Part 50.47, “Emergency Plans.”

Title 10, Code of Federal Regulations, Part 50.54(q), “Evacuation Processes.”

Title 10, Code of Federal Regulations, Part 50 Annex E, “Emergency Planning and Preparedness for Production and Utilization Facilities.”

Title 18, U.S. Code, Section 2332a, “Use of Weapons of Mass Destruction.”

Title 29, Code of Federal Regulations, Part 1910, “Occupational Safety and Health Standards.”

Title 29, Code of Federal Regulations, Part 1910.120, “Hazardous Waste Operations and Emergency Response.”

Title 29, Code of Federal Regulations, Part 1910.120(f), “Medical Surveillance.”

Title 29, Code of Federal Regulations, Part 1910.120(q), “Emergency Response Program to Hazardous Substance Releases.”

Title 29, Code of Federal Regulations, Part 1910.120, Appendix E, “Training Curriculum Guidelines — (Non-mandatory).”

Title 29, Code of Federal Regulations, Part 1910.134, “Respiratory Protection.”

Title 29, Code of Federal Regulations, Part 1910.134(c), “Respiratory Protection Program.”

Title 29, Code of Federal Regulations, Part 1910.146, “Permit-Required Confined Spaces.”

Title 29, Code of Federal Regulations, Part 1910.147, “Control of Hazardous Energy.”

Title 29, Code of Federal Regulations, Part 1910.151(c), "Medical Services and First Aid."

Title 29, Code of Federal Regulations, Part 1910.1020, "Access to Employee Exposure and Medical Records."

Title 29, Code of Federal Regulations, Part 1910.1020(d), "Preservation of Records."

Title 29, Code of Federal Regulations, Part 1910.1030, "Blood-Borne Pathogens."

Title 29, Code of Federal Regulations, Part 1910.1200, "Hazard Communications."

Title 29, Code of Federal Regulations, Part 1915, "Occupational Safety and Health Standards for Shipyard Employment."

Title 29, Code of Federal Regulations, Part 1926, "Occupational Safety and Health Standards for Construction."

Title 29, Code of Federal Regulations, Part 1926.65, "Hazardous Waste Operations and Emergency Response."

Title 29, Code of Federal Regulations, Part 1928, "Safety and Health Standards for Agriculture."

Title 33, Code of Federal Regulations, Part 104, "Maritime Security: Vessels."

Title 40, Code of Federal Regulations, "Protection of Environment."

Title 40, Code of Federal Regulations, Part 68, "Chemical Accident Prevention Provisions."

Title 40, Code of Federal Regulations, Part 110, "Discharge of Oil."

Title 40, Code of Federal Regulations, Part 112, "Oil Pollution Prevention."

Title 40, Code of Federal Regulations, Part 239–259, "Solid Wastes."

Title 40, Code of Federal Regulations, Part 239–282, "Waste Management."

Title 40, Code of Federal Regulations, Part 260–279, "Hazardous Waste Regulations."

Title 40, Code of Federal Regulations, Part 280, "Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (UST)."

Title 40, Code of Federal Regulations, Part 300, "National Oil and Hazardous Substances Pollution Contingency Plan."

Title 40, Code of Federal Regulations, Part 310, "Reimbursement to Local Governments for Emergency Response to Hazardous Substance Releases."

Title 40, Code of Federal Regulations, Part 311, "Worker Protection."

Title 40, Code of Federal Regulations, Part 311.2, "Definition of Employee."

Title 40, Code of Federal Regulations, Part 355, "Emergency Planning and Notification."

Title 40, Code of Federal Regulations, Part 355, Appendix A, "List of Extremely Hazardous Substances and Their Threshold Planning Quantities."

Title 40, Code of Federal Regulations, Part 370, "Hazardous Chemical Reporting: Community Right-to-Know."

Title 40, Code of Federal Regulations, Part 372, "Toxic Chemical Release Reporting: Community Right-to-Know."

Title 49, Code of Federal Regulations, Part 40, "Transportation."

Title 49, Code of Federal Regulations, Part Subpart B, "Oil Transportation."

Title 49, Code of Federal Regulations, Part 130, "Oil Spill Prevention and Response Plans."

Title 49, Code of Federal Regulations, Subpart C, "Hazardous Materials Regulations."

Title 49, Code of Federal Regulations, Part 171, "General Information, Regulations, and Definitions."

Title 49, Code of Federal Regulations, Part 172, "Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, Training Requirements, and Security Plans."

Title 49, Code of Federal Regulations, Part 173, "General Requirements for Shipments and Packaging."

Title 49, Code of Federal Regulations, Part 174, "Carriage by Rail."

Title 49, Code of Federal Regulations, Part 175, "Carriage by Aircraft."

Title 49, Code of Federal Regulations, Part 176, "Carriage by Vessel."

Title 49, Code of Federal Regulations, Part 177, "Carriage by Public Highway."

Title 49, Code of Federal Regulations, Part 178, "Specifications for Packaging."

Title 49, Code of Federal Regulations, Part 179, "Specifications for Tank Cars."

Title 49, Code of Federal Regulations, Part 180, "Continuing Qualification and Maintenance of Packaging."

Title 49, Code of Federal Regulations, Subpart D, "Pipeline Safety."

Title 49, Code of Federal Regulations, Part 193, "Liquefied Natural Gas Facilities: Federal Safety Standards."

Title 49, Code of Federal Regulations, Part 194, "Response Plans for Onshore Oil Pipelines."

Title 49, Code of Federal Regulations, Part 195, "Transportation of Hazardous Liquids by Pipelines."

2.3.6 Other Publications.

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

2.4 References for Extracts in Recommended Sections. (Reserved)

Chapter 3 Definitions

3.1 General. The definitions contained in this chapter apply to the terms used in this recommended practice. Where terms are not defined in this chapter or within another chapter, they should be defined using their ordinarily accepted meanings within the context in which they are used. Merriam-Webster's Collegiate Dictionary, 11th edition, should be used as 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* Listed. Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose.

3.2.4 Recommended Practice. A document that is similar in content and structure to a code or standard but that contains only nonmandatory provisions using the word "should" to indicate recommendations in the body of the text.

3.2.5 Shall. Indicates a mandatory requirement.

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

3.2.7 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* Allied Professional. That person who possesses the knowledge, skills, and technical competence to provide assistance in the selection, implementation, and evaluation of tasks at a hazardous materials/weapons of mass destruction (WMD) incident.

3.3.2 Analyze. To identify a hazardous materials/weapons of mass destruction (WMD) problem and determine likely behavior and harm within the training and capabilities of the emergency responder.

3.3.3 Area of Specialization.

3.3.3.1 Individual Area of Specialization. The qualifications or functions of a specific job(s) associated with chemicals and/or containers used within an organization.

3.3.3.2 Organization's Area of Specialization. Any chemicals or containers used by the specialist employee's employer.

3.3.4 Awareness Level Personnel. Personnel who, in the course of their normal duties, could encounter an emergency involving hazardous materials/weapons of mass destruction (WMD) and who are expected to recognize the presence of the hazardous materials/weapons of mass destruction (WMD), protect themselves, call for trained personnel, and secure the scene.

3.3.5 CANUTEC. The Canadian Transport Emergency Centre, operated by Transport Canada, that provides emergency response information and assistance on a 24-hour basis for responders to hazardous materials/weapons of mass destruction (WMD) incidents.

3.3.6 CHEMTREC. A public service of the American Chemistry Council, that provides emergency response information and assistance on a 24-hour basis for responders to hazardous materials/weapons of mass destruction (WMD) incidents.

3.3.7 Competence. Possessing knowledge, skills, and judgment needed to perform indicated objectives.

3.3.8* Confined Space. An area large enough and so configured that a member can bodily enter and perform assigned work but which has limited or restricted means for entry and exit and is not designed for continuous human occupancy.

3.3.9 Consensus Standard. A standard that has been adopted and promulgated by a nationally recognized standards-producing organization under procedures whereby it can be determined that persons interested and affected by the scope or provisions of the standard have reached substantial agreement on its adoption; was formulated in a manner that afforded an opportunity for diverse views to be considered; and has been designated as such.

3.3.10 Container. A receptacle, pipe, or pipeline used for storing or transporting material of any kind; synonymous with "packaging" in transportation.

3.3.11 Contaminant. A hazardous material, or the hazardous component of a weapon of mass destruction (WMD), that physically remains on or in people, animals, the environment, or equipment, thereby creating a continuing risk of direct injury or a risk of exposure.

3.3.12 Contamination. The process of transferring a hazardous material, or the hazardous component of a weapon of mass destruction (WMD), from its source to people, animals, the environment, or equipment which can act as a carrier.

3.3.12.1 Cross Contamination. The process by which a contaminant is carried out of the hot zone and contaminates people, animals, the environment, or equipment.

3.3.13 Control. The procedures, techniques, and methods used in the mitigation of hazardous material/weapons of mass destruction (WMD) incidents, including containment, extinguishment, and confinement.

3.3.13.1 Confinement. Those procedures taken to keep a material, once released, in a defined or local area.

3.3.13.2 Containment. The actions taken to keep a material in its container (e.g., stop a release of the material or reduce the amount being released).

3.3.13.3 Extinguishment. To cause to cease burning.

3.3.14* Control Zones. The areas at hazardous materials/weapons of mass destruction incidents within an established perimeter that are designated based upon safety and the degree of hazard.

3.3.14.1 Cold Zone. The control zone of hazardous materials/weapons of mass destruction incidents that contains the incident command post and such other support functions as are deemed necessary to control the incident.

3.3.14.2 Decontamination Corridor. The area usually located within the warm zone where decontamination is performed.

3.3.14.3 Hot Zone. The control zone immediately surrounding hazardous materials/weapons of mass destruction (WMD) incidents, which extends far enough to prevent adverse effects of hazards to personnel outside the zone and where only personnel who are trained, equipped, and authorized to do assigned work are permitted to enter.

3.3.14.4* Warm Zone. The control zone at hazardous materials/weapons of mass destruction (WMD) incidents where personnel and equipment decontamination and hot zone support takes place.

3.3.15 Coordination. The process used to get people who might represent different agencies to work together integrally and harmoniously in a common action or effort.

3.3.16 Decision Point. A predefined circumstance in which the emergency responder is required to determine a path forward to maximize responder safety and public protection.

3.3.17* Decontamination. The physical and/or chemical process of reducing and preventing the spread of contaminants from people, animals, the environment, or equipment involved at hazardous materials/weapons of mass destruction (WMD) incidents.

3.3.17.1* Emergency Decontamination. The physical process of immediately reducing contamination of individuals in potentially life-threatening situations with or without the formal establishment of a decontamination corridor.

3.3.17.2* Gross Decontamination. The phase of the decontamination process during which the amount of surface contaminants is significantly reduced.

3.3.17.3* Mass Decontamination. The physical or chemical process of reducing, removing or neutralizing surface contaminants from large numbers of victims in potentially life-threatening situations in the fastest time possible.

3.3.17.4* Technical Decontamination. The planned and systematic process of reducing contamination to a level that is as low as reasonably achievable.

3.3.18 Degradation. (1) A chemical action involving the molecular breakdown of a protective clothing material or equipment due to contact with a chemical. (2) The molecular breakdown of the spilled or released material to render it less hazardous during control operations.

3.3.19* Demonstrate. To show by actual performance.

3.3.20 Describe. To explain verbally or in writing using standard terms recognized by the hazardous materials/weapons of mass destruction (WMD) response community.

3.3.21 Detection and Monitoring Equipment. Instruments and devices used to detect, classify, or quantify materials.

3.3.22 Dispersal Device. Any weapon or combination of mechanical, electrical or pressurized components that is designed, intended or used to cause death or serious bodily injury through the release, dissemination or impact of toxic or poisonous chemicals or their precursors, biological agent, toxin or vector or radioactive material.

3.3.23 Emergency Response Guidebook (ERG). A reference book, written in plain language, to guide emergency responders in their initial actions at the incident scene, specifically the *Emergency Response Guidebook* from the U.S. Department of Transportation; Transport Canada; and the Secretariat of Transportation and Communications, Mexico.

3.3.24 Endangered Area. The actual or potential area of exposure associated with the release of a hazardous material/weapon of mass destruction (WMD).

3.3.25 Evaluate. The process of assessing or judging the effectiveness of a response operation or course of action within the training and capabilities of the emergency responder.

3.3.26 Example. An illustration of a problem serving to show the application of a rule, principle, or method (e.g., past incidents, simulated incidents, parameters, pictures, and diagrams).

3.3.27* Exposure. The process by which people, animals, the environment, and equipment are subjected to or come in contact with a hazardous material/weapon of mass destruction (WMD).

3.3.28 Exposures. The people, animals, environment, property, and equipment that might potentially become exposed at a hazardous materials/weapons of mass destruction (WMD) incident.

3.3.29* Fissile Material. Material whose atoms are capable of sustained nuclear fission (capable of being split).

3.3.30 Fusion Center. A focal point within the state and local environment for the receipt, analysis, gathering, and sharing of threat-related information between the federal government and state, local, tribal, territorial (SLTT), and private sector partners.

3.3.31 Harm. Adverse effect created by being exposed to a hazard.

3.3.32 Hazard. Capable of causing harm or posing an unreasonable risk to health, safety, or the environment.

3.3.33* Hazardous Material. Matter (solid, liquid, or gas) or energy that when released is capable of creating harm to people, the environment, and property, including weapons of mass destruction (WMD) as defined in 18 U.S. Code, 2332a, as well as any other criminal use of hazardous materials, such as illicit labs, environmental crimes, or industrial sabotage.

3.3.34* Hazardous Materials Branch/Group. The function within an overall incident management system that deals with

the mitigation and control of the hazardous materials/weapons of mass destruction (WMD) portion of an incident.

3.3.35* Hazardous Materials Officer. The person who is responsible for directing and coordinating all operations involving hazardous materials/weapons of mass destruction (WMD) as assigned by the incident commander (IC).

3.3.36 Hazardous Materials Response Program (HMRP). A program designed to manage emergency preparedness issues (i.e., planning, prevention, response, recovery) associated with hazardous materials/weapons of mass destruction (WMD) within a jurisdiction.

3.3.37* Hazardous Materials Response Team (HMRT). An organized group of trained response personnel operating under an emergency response plan and applicable standard operating procedures who perform hazardous material technician level skills at hazardous materials/weapons of mass destruction (WMD) incidents.

3.3.38* Hazardous Materials Safety Officer. The person who works within an incident management system (IMS) (specifically, the hazardous materials branch/group) to ensure that recognized hazardous materials/weapons of mass destruction (WMD) safe practices are followed at hazardous materials/WMD incidents.

3.3.39* Hazardous Materials Technician. Person who responds to hazardous materials/weapons of mass destruction (WMD) incidents using a risk-based response process by which they analyze a problem involving hazardous materials/WMD, plan a response to the problem, implement the planned response, evaluate progress of the planned response to the problem, and assist in terminating the incident.

3.3.39.1* Hazardous Materials Technician with a Cargo Tank Specialty. Person who provides technical support pertaining to cargo tanks, provides oversight for product removal and movement of damaged cargo tanks, and acts as a liaison between the hazardous materials technician and other outside resources.

3.3.39.2 Hazardous Materials Technician with a Flammable Gases Bulk Storage Specialty. Person who, in incidents involving flammable gas bulk storage tanks, provide support to the hazardous materials technician and other personnel, provide strategic and tactical recommendations to the on-scene incident commander, provide oversight for fire control and product removal operations, and act as a liaison between technicians, fire-fighting personnel, and other resources.

3.3.39.3 Hazardous Materials Technician with a Flammable Liquids Bulk Storage Specialty. Person who, in incidents involving bulk flammable liquid storage tanks and related facilities, provides support to the hazardous materials technician and other personnel, provides strategic and tactical recommendations to the on-scene incident commander, provides oversight for fire control and product removal operations, and acts as a liaison between technicians, response personnel, and outside resources.

3.3.39.4 Hazardous Materials Technician with a Marine Tank and Non-tank Vessel Specialty. Person who provides technical support pertaining to marine tank and non-tank vessels, provides oversight for product removal and movement of damaged marine tank and non-tank vessels, and acts as a

liaison between the hazardous materials technician and other outside resources.

3.3.39.5* Hazardous Materials Technician with an Intermodal Tank Specialty. Person who provides technical support pertaining to intermodal tanks, provides oversight for product removal and movement of damaged intermodal tanks, and acts as a liaison between the hazardous materials technician and other outside resources.

3.3.39.6 Hazardous Materials Technician with a Radioactive Materials Specialty. Person who provides support to the hazardous materials technician and other personnel, uses radiation detection instruments, manages the control of radiation exposure, conducts hazards assessment, and acts as a liaison between hazardous materials technicians at incidents involving radioactive materials.

3.3.39.7* Hazardous Materials Technician with a Tank Car Specialty. Person who provides technical support pertaining to tank cars, provides oversight for product removal and movement of damaged tank cars, and acts as a liaison between the hazardous materials technician and other outside resources.

3.3.40 Identify. To select or indicate verbally or in writing using standard terms to establish the fact of an item being the same as the one described.

3.3.41 Incident. An emergency involving the release or potential release of hazardous materials/weapons of mass destruction (WMD).

3.3.42* 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.

3.3.43 Incident Command System (ICS). A specific component of an incident management system (IMS) designed to enable effective and efficient on-scene incident management by integrating organizational functions, tactical operations, incident planning, incident logistics, and administrative tasks within a common organizational structure.

3.3.44* Incident Management System (IMS). A process that defines the roles and responsibilities to be assumed by personnel and the operating procedures to be used in the management and direction of emergency operations to include the incident command system (ICS), unified command, multi-agency coordination system, training, and management of resources.

3.3.45 Laws. Legislative action by governmental bodies such as Congress, individual states, and local government that provides broad goals and objectives, sets mandatory dates for compliance, and establishes penalties for noncompliance.

3.3.46 Match. To provide with a counterpart.

3.3.47 Objective. A goal that is achieved through the attainment of a skill, knowledge, or both, that can be observed or measured.

3.3.48 Penetration. The movement of a material through a suit's closures, such as zippers, buttonholes, seams, flaps, or other design features of chemical-protective clothing, and through punctures, cuts, and tears.

3.3.49 Permeation. A chemical action involving the movement of chemicals, on a molecular level, through intact material.

3.3.50* Personal Protective Equipment (PPE). The protective clothing and respiratory protective equipment provided to shield or isolate a person from the hazards encountered at hazardous materials/weapons of mass destruction (WMD) incidents operations.

3.3.51 Plan.

3.3.51.1* Emergency Response Plan. A plan developed by the authority having jurisdiction (AHJ) with the cooperation of all participating agencies and organizations, including a jurisdiction with emergency responsibilities and those outside jurisdictions who have entered into response/support agreements, that identifies goals and objectives for that emergency type, agency roles, and overall strategies.

3.3.51.2* Incident Action Plan. An oral or written plan approved by the incident commander containing general objectives reflecting the overall strategy for managing an incident.

3.3.51.3 Site Safety and Control Plan. A site-specific tactical document used by the hazardous materials branch under the incident command system (ICS) to organize information important to hazardous materials response operations.

3.3.52* Planned Response. The incident action plan, with the site safety and control plan, consistent with the emergency response plan and/or standard operating procedures for a specific hazardous material/weapon of mass destruction (WMD) incident.

3.3.53 Predict. The process of estimating or forecasting the future behavior of a hazardous materials/weapons of mass destruction (WMD) container and/or its contents within the training and capabilities of the emergency responder.

3.3.54 Productivity and Quality of Life. A multidimensional concept that includes domains related to physical, mental, emotional, and social functioning and focuses on the impact that health status has on quality of life.

3.3.55* Protective Clothing. Equipment designed to protect the wearer from thermal hazards, hazardous materials, or the hazardous component of a weapon of mass destruction (WMD) contacting the skin or eyes.

3.3.55.1 Ballistic Protective Clothing (BPC). An item of personal protective equipment (PPE) that provides protection against specific ballistic threats by helping to absorb the impact and reduce or prohibit penetration to the body from bullets and steel fragments from handheld weapons and exploding munitions.

3.3.55.2* Chemical-Protective Clothing (CPC). The ensemble elements (garment, gloves, and footwear) provided to shield or isolate a person from the hazards encountered during hazardous materials/WMD incident operations.

3.3.55.2.1* Liquid Splash-Protective Ensemble. Multiple elements of compliant protective clothing and equipment that when worn together provide protection from some, but not all, risks of hazardous materials/WMD emergency incident operations involving liquids.

3.3.55.2.2* Vapor-Protective Ensemble. Multiple elements of compliant protective clothing and equipment that when worn together provide protection from some, but not all, risks of vapor, liquid-splash, and particulate environments during hazardous materials/WMD incident operations.

3.3.55.3* High Temperature-Protective Clothing. Protective clothing designed to protect the wearer for short-term high-temperature exposures.

3.3.55.4* Structural Fire-Fighting Protective Clothing. The fire-resistant protective clothing normally worn by fire fighters during structural fire-fighting operations, which includes a helmet, coat, pants, boots, gloves, PASS device, and a fire-resistant hood to cover parts of the head and neck not protected by the helmet and respirator facepiece.

3.3.56 Qualified. Having knowledge of the installation, construction, or operation of apparatus and the hazards involved.

3.3.57* Radioactive Materials Containers. Excepted packaging, industrial packaging, Type A, Type B, and Type C packaging for radioactive materials.

3.3.58 Regulations. Official rules created by government agencies that detail how something should be done.

3.3.59* Respiratory Protection. Equipment designed to protect the wearer from the inhalation of contaminants.

3.3.60* Response. That portion of incident management in which personnel are involved in controlling hazardous materials/weapons of mass destruction (WMD) incidents.

3.3.61 Risk-Based Response Process. Systematic process by which responders analyze a problem involving hazardous materials/weapons of mass destruction (WMD), assess the hazards, evaluate the potential consequences, and determine appropriate response actions based upon facts, science, and the circumstances of the incident.

3.3.62* Safety Data Sheet (SDS). Formatted information provided by chemical manufacturers and distributors of hazardous products about chemical composition, physical and chemical properties, health and safety hazards, emergency response, and waste disposal of the material.

3.3.63 Scenario. A sequence or synopsis of actual or imagined events used in the field or classroom to provide information necessary to meet student competencies; can be based upon threat assessment.

3.3.64 SETIQ. The Emergency Transportation System for the Chemical Industry in Mexico that provides emergency response information and assistance on a 24-hour basis for responders to emergencies involving hazardous materials/weapons of mass destruction (WMD).

3.3.65 Specialist Employees.

3.3.65.1* Specialist Employee A. That person who is specifically trained to handle incidents involving chemicals or containers for chemicals used in the organization's area of specialization.

3.3.65.2* Specialist Employee B. That person who, in the course of his or her regular job duties, works with or is trained in the hazards of specific chemicals or containers within the individual's area of specialization.

3.3.65.3* Specialist Employee C. That person who responds to emergencies involving chemicals and/or containers within the organization's area of specialization.

3.3.66 Stabilization. The point in an incident when the adverse behavior of the hazardous material, or the hazardous component of a weapon of mass destruction (WMD), is controlled.

3.3.67 Standard Operating Guidelines (SOG). A written directive that establishes recommended strategies/concepts of emergency response to an incident.

3.3.68 Standard Operating Procedure (SOP). A written directive that establishes specific operational or administrative methods to be followed routinely for the performance of a task or for the use of equipment.

3.3.69* Termination. That portion of incident management after the cessation of tactical operations in which personnel are involved in documenting safety procedures, site operations, hazards faced, and lessons learned from the incident.

3.3.70* UN/NA Identification Number. The four-digit number assigned to a hazardous material/weapon of mass destruction (WMD), that is used to identify and cross-reference products in the transportation mode.

3.3.71* Weapon of Mass Destruction (WMD). (1) Any destructive device, such as any explosive, incendiary, or poison gas bomb, grenade, rocket having a propellant charge of more than 4 oz (113 grams), missile having an explosive or incendiary charge of more than .25 oz (7 grams), mine, or similar device; (2) any weapon involving toxic or poisonous chemicals; (3) any weapon involving a disease organism; or (4) any weapon that is designed to release radiation or radioactivity at a level dangerous to human life.

3.3.71.1* Radiological Weapons of Mass Destruction.

3.3.71.1.1* Improvised Nuclear Device (IND). An illicit nuclear weapon that is bought, stolen, or otherwise obtained from a nuclear state (that is, a national government with nuclear weapons), or a weapon fabricated from fissile material that is capable of producing a nuclear explosion.

3.3.71.1.2* Radiation Exposure Device (RED). A device intended to cause harm by exposing people to radiation without spreading radioactive material.

3.3.71.1.3* Radiological Dispersal Device (RDD). A device designed to spread radioactive material through a detonation of conventional explosives or other means.

3.4 Operations-Level Responders Definitions.

3.4.1 Mission-Specific Competencies. The knowledge, skills, and judgment needed by operations level responders who have completed the operations level competencies and who are designated by the authority having jurisdiction to perform mission specific tasks, such as decontamination, victim/hostage rescue and recovery, evidence preservation, and sampling.

3.4.2* Operations-Level Responders. Persons who respond to hazardous materials/weapons of mass destruction (WMD) incidents for the purpose of implementing or supporting actions to protect nearby persons, the environment, or property from the effects of the release.

3.4.3 Operations-Level Responders Assigned to Disablement/Disruption of Improvised Explosives Devices (IED), Improvised WMD Dispersal Devices, and Operations at Improvised Explosive Laboratories. Persons, competent at the operations level, who are assigned to interrupt the functioning of improvised explosive devices (IED) and improvised WMD dispersal devices and to conduct operations at improvised explosive laboratories.

3.4.4 Operations-Level Responders Assigned Responsibilities for Biological Response. Persons, competent at the operations level, who, at hazardous materials/weapons of mass destruction (WMD) incidents involving biological materials, are assigned to support the hazardous materials technician and other personnel, provide strategic and tactical recommendations to the on-scene incident commander, serve in a technical specialist capacity to provide technical oversight for operations, and act as a liaison between the hazardous materials technician, response personnel, and other outside resources regarding biological issues.

3.4.5 Operations-Level Responders Assigned Responsibilities for Chemical Response. Persons, competent at the operations level, who, at hazardous materials/weapons of mass destruction (WMD) incidents involving chemical materials, are assigned to support the hazardous materials technician and other personnel, provide strategic and tactical recommendations to the on-scene incident commander, serve in a technical specialist capacity to provide technical oversight for operations, and act as a liaison between the hazardous material technician, response personnel, and other outside resources regarding chemical issues.

3.4.6 Operations-Level Responders Assigned Responsibilities for Radioactive Material Response. Persons, competent at the operations level, who, at hazardous materials/weapons of mass destruction (WMD) incidents involving radioactive materials, are assigned to support the hazardous materials technician and other personnel, provide strategic and tactical recommendations to the on-scene incident commander, serve in a technical specialist capacity to provide technical oversight for operations, and act as a liaison between the hazardous material technician, response personnel, and other outside resources regarding radioactive material issues.

3.4.7 Operations-Level Responders Assigned to Perform Air Monitoring and Sampling. Persons, competent at the operations level, who are assigned to implement air monitoring and sampling operations at hazardous materials/weapons of mass destruction (WMD) incidents.

3.4.8 Operations-Level Responders Assigned to Perform Evidence Preservation and Sampling. Persons, competent at the operations level, who are assigned to preserve forensic evidence, take samples, and/or seize evidence at hazardous materials/weapons of mass destruction (WMD) incidents involving potential violations of criminal statutes or governmental regulations.

3.4.9 Operations-Level Responders Assigned to Perform Mass Decontamination. Persons, competent at the operations level, who are assigned to implement mass decontamination operations at hazardous materials/weapons of mass destruction (WMD) incidents.

3.4.10 Operations-Level Responders Assigned to Perform Product Control. Persons, competent at the operations level,

who are assigned to implement product control measures at hazardous materials/weapons of mass destruction (WMD) incidents.

3.4.11 Operations-Level Responders Assigned to Perform Technical Decontamination. Persons, competent at the operations level, who are assigned to implement technical decontamination operations at hazardous materials/weapons of mass destruction (WMD) incidents.

3.4.12 Operations-Level Responders Assigned to Perform Victim Rescue/Recovery. Persons, competent at the operations level, who are assigned to rescue and/or recover exposed and contaminated victims at hazardous materials/weapons of mass destruction (WMD) incidents.

3.4.13 Operations-Level Responders Assigned to Respond to Illicit Laboratory Incidents. Persons, competent at the operations level, who, at hazardous materials/weapons of mass destruction (WMD) incidents involving potential violations of criminal statutes specific to the illegal manufacture of methamphetamines, other drugs, or weapons of mass destruction (WMD), are assigned to secure the scene, identify the laboratory/process, and preserve evidence.

3.4.14 Operations-Level Responders Assigned to Use Personal Protective Equipment. Persons, competent at the operations level, who are assigned to use of personal protective equipment at hazardous materials/weapons of mass destruction (WMD) incidents.

Chapter 4 Laws, Regulations, Consensus Standards, and Guidance Documents

4.1 Scope. This chapter applies to those organizations and jurisdictions responsible for organizing, managing, and sustaining a hazardous materials/weapons of mass destruction (WMD) response program (HMRP) and provides information on applicable laws, regulations, consensus standards, and guidance documents that impact each program.

4.1.1 Laws are enacted by legislative action of governmental bodies such as Congress, individual states, and local government. Laws typically provide broad goals and objectives, set mandatory dates for compliance, and establish penalties for noncompliance.

4.1.2 Regulations are official rules created by government agencies that detail how something should be done.

4.1.3 A consensus standard is a standard that has been adopted and promulgated by a nationally recognized standards-producing organization under procedures whereby it can be determined that persons interested and affected by the scope or provisions of the standard have reached substantial agreement on its adoption; was formulated in a manner that afforded an opportunity for diverse views to be considered; and has been designated as such.

4.2 Purpose.

4.3 Laws.

4.3.1 General.

4.3.1.1 Laws are enacted by legislative action of governmental bodies such as Congress, individual states, and local government. Laws typically provide broad goals and objectives, set

mandatory dates for compliance, and establish penalties for noncompliance. Subsections 4.3.2 through 4.3.11 provide a brief summary of the provisions of several laws that can impact an HMRP.

4.3.2 Resource Conservation and Recovery Act (RCRA). Passed by Congress in 1976, RCRA establishes a uniform national policy for proper management and disposal of all waste materials. It is intended to provide general oversight to state programs, which can be more stringent than RCRA but not less stringent. RCRA establishes the following four major programs:

- (1) *Hazardous Waste Management.* Subtitle C establishes a program to manage hazardous waste from “cradle-to-grave” (i.e., from generation to disposal) to protect human health and the environment.
- (2) *State and Regional Solid Waste Plans.* Subtitle D encourages states to develop comprehensive plans to manage nonhazardous industrial solid waste and municipal solid waste, sets criteria for municipal solid waste landfills and other solid waste disposal facilities, and prohibits the open dumping of solid waste.
- (3) *Regulation of Underground Storage Tanks.* Subtitle I establishes a program for preventing leaks of petroleum products and hazardous substances from underground tanks to groundwater and for cleaning up past leakage. Standards for new tanks and regulations for leak detection and prevention are also addressed.
- (4) *Standards for Tracking and Management of Medical Waste.* Subtitle J establishes a program to track medical waste from generation, to disposal.

4.3.3 Clean Air Act (CAA). Passed by Congress in 1970 and last amended in 1990, the CAA authorizes the development of comprehensive federal and state regulations to limit hazardous chemical emissions from both stationary (e.g., production, processing, and storage facilities) and mobile sources. The 1990 amendments established emergency response and planning activities at facilities using hazardous chemicals, a national permitting program, and mandates for making information available to the public.

4.3.3.1 Chemical Accident Prevention Provisions. Section 112(r) of the CAA requires owners and operators of stationary sources that produce, process, or store hazardous substances to identify all hazards associated with an accidental release, design and maintain a safe facility, minimize the consequences of an accidental release, and develop a risk management plan (RMP) to submit to the Environmental Protection Agency (EPA).

4.3.4 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Passed by Congress in 1980, the CERCLA, commonly known as the Superfund, authorizes the EPA to respond to actual or threatened releases of hazardous substances that could endanger public health, public welfare, or the environment; establishes prohibitions and requirements concerning closed and abandoned hazardous waste sites; provides for liability of persons responsible for releases of hazardous waste at these sites; establishes a trust fund to provide for cleanup where no responsible party can be identified; and enables the EPA to force parties responsible for environmental contamination to clean it up or to reimburse the Superfund for response or remediation costs incurred by the EPA.

4.3.5 Superfund Amendments and Reauthorization Act (SARA). Passed by Congress in 1986 to amend CERCLA, SARA revises various sections of CERCLA. SARA addresses hazardous material releases and cleanup of inactive hazardous waste disposal sites; requires National Response Center notification by parties responsible for releases above reportable quantity (RQ) levels; and requires development of safety standards for work groups that handle or respond to chemical emergencies. Key provisions of SARA include the following:

- (1) *Provisions Relating Primarily to Response and Liability.* SARA Title I required OSHA to develop health and safety standards for worker groups that handle or respond to chemical emergencies and led to the development of 29 CFR 1910.120.
- (2) *Emergency Planning and Community Right-to-Know Act (EPCRA).* SARA Title III, or EPCRA, is designed to improve community access to information about chemical hazards and to facilitate the development of chemical emergency response plans. EPCRA establishes emergency planning and community right-to-know reporting on hazard and toxic chemicals to help increase the public's knowledge and access to information at individual facilities, including information on the uses of any hazardous or toxic chemicals and any release of hazardous or toxic chemical into the environment. EPCRA led to the establishment of State Emergency Response Commissions (SERCs) and Local Emergency Planning Committees (LEPCs). Key provisions of EPCRA include the following:
 - (a) *Sections 301–303: Emergency Planning.* These sections require state and local governments to prepare chemical emergency response plans, review them annually, and establish SERCs and LEPCs to oversee and coordinate planning efforts.
 - (b) *Section 304: Emergency Release Notification.* This section requires notification by facilities that store, produce, or use a hazardous chemical (i.e., any chemical that is a physical or health hazard) of any release of an RQ of a substance contained in either of the following two tables published by the EPA in the Code of Federal Regulations:
 - i. List of extremely hazardous substances (EHS)
 - ii. List of CERCLA hazardous substances
- (3) *Sections 311–312: Community Right-to-Know.* The data required by these sections increases public knowledge and allows first responders access to information on chemicals at individual facilities. States and communities, working with individual facilities, can use this information to improve chemical safety and protect public health and the environment. These sections increase public knowledge of and make first responders aware of the hazards and chemical inventories present at individual facilities. The safety data sheets (SDSs), which are required by Section 311, and the annual chemical inventories, which are Tier II forms, are sent to the SERC, LEPC, and fire department with jurisdiction over the facility. First responders can use the information to guide their response. For example, the Tier II forms contain the name and phone number of the designated facility's "emergency contact," who could provide responders with first-hand knowledge of the facility.
- (4) *Section 313: Toxic Chemical Release Inventory.* Under this section, the EPA is required to establish the toxic release inventory (TRI), which is an inventory of routine toxic

chemical emissions from certain facilities. This report, commonly known as Form R, covers releases and transfers of toxic chemicals to various facilities and environmental media, and allows the EPA to compile the national TRI database. The TRI also includes information on source reduction, recycling, and treatment. The data gathered assists in research and development of regulations, guidelines, and standards.

4.3.6 Federal Water Pollution Control Act (FWPCA). Passed by Congress in 1972 and amended in 1977 to become the Clean Water Act, FWPCA requires the EPA and U.S. Coast Guard to regulate spills of oil and/or other hazardous substances that threaten coastal waters and inland waterways and to restore and maintain the chemical, physical, and biological integrity of the waters of the United States by preventing, reducing, and eliminating pollution.

4.3.7 Clean Water Act (CWA). Passed by Congress in 1977, the CWA establishes the basic structure (i.e., plans and permits) for regulating discharges of pollutants into the waters of the United States (e.g., navigable waterways, surface waters) and quality standards for surface waters.

4.3.7.1 The EPA's National Pollutant Discharge Elimination System (NPDES) permit program seeks to control discharges from industrial, municipal, and other facilities where such facilities discharge directly to surface waters.

4.3.8 Oil Pollution Act (OPA). Passed by Congress in 1990 to cover both facilities and carriers of oil and related liquid product, including deep-water marine terminals, marine vessels, pipelines, and railcars, the OPA requires development of emergency response plans, with regular training and exercise sessions; verification of spill resources and contractor capabilities; establishment of a national planning and response system on four levels: national, area, local, and facility; activation of the facility response plan (FRP) with other plans as needed; and owners or operators of a regulated facility to have a spill prevention, control, and countermeasure (SPCC) program.

4.3.8.1 Spill Prevention, Control, and Countermeasure Plans (SPCC). The OPA mandated the creation of SPCC plans for facilities engaged in drilling, producing, gathering, storing, processing, refining, transferring, distributing, or consuming oil and oil product where there is a risk of discharging oil in quantities that could be harmful if discharged into or on navigable waterways or adjoining shoreline, or on the water on the contiguous zone.

4.3.9 Hazardous Materials Transportation Act (HMTA). Passed by Congress in 1975 and reauthorized by the Hazardous Materials Transportation Safety and Security Reauthorization Act of 2005, HMTA protects against risks to life, property, and environment that are inherent in intrastate, interstate, and foreign transportation of hazardous material.

4.3.10 Robert T. Stafford Disaster Relief and Emergency Assistance Act (The Stafford Act). Passed by Congress in 1988, the Stafford Act designates the Federal Emergency Management Agency (FEMA) as the primary federal agency responsible for coordinating federal responses to disasters.

4.3.11 Maritime Transportation Security Act (MTSA). Passed by Congress in 2002, the MTSA addresses port and waterway security. It requires vessels and port facilities to conduct vulnerability assessments and develop security plans that could include passenger, vehicle, and baggage screening procedures;

security patrols; establishing restricted areas; personnel identification procedures; access control measures; and/or installation of surveillance equipment.

4.4 Regulations by Agency.

4.4.1 General. Regulations are official rules created by government agencies that detail how something should be done. Section 4.4 contains a brief summary of the provisions of each regulation that can impact an HMRP.

4.4.2 Department of Homeland Security.

4.4.2.1 Chemical Facility Anti-Terrorism Standards (CFATS). CFATS, found in 6 CFR 27, addresses security regulations for high-risk chemical facilities, such as chemical plants, electrical generating facilities, refineries, and universities.

4.4.2.2 Area Maritime Security Committees (AMSC). AMSCs, established under MTSA I 33 CFR 104, are required in U.S. ports to coordinate the activities of port stakeholders, including other federal, local, and state agencies; industries; and the boating public to best deter, prevent and respond to terror threats.

4.4.3 U.S. Occupational Safety and Health Administration (OSHA).

4.4.3.1 OSHA regulations governing hazardous materials can be found in 29 CFR 1910. Several regulations of significance can be found in 4.4.3.1.1 through 4.4.3.1.6.

4.4.3.1.1 Hazardous Waste Operations and Emergency Response (HAZWOPER). Both 29 CFR 1910.120 and 29 CFR 1926.65 address emergency response operations for the release, or substantial threat of release, of hazardous substances without regard to the location of the hazard. Paragraph (q) of these parallel documents provides procedures for emergency response to hazardous substance releases pursuant to Section 303 of SARA.

4.4.3.1.2 Respiratory Protection. Title 29 CFR 1910.134 sets requirements to control occupational diseases caused by breathing contaminated air (e.g., harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors) by preventing atmospheric contamination through accepted engineering control measures (e.g., enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). Where effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used pursuant to this section per 29 CFR 1910.134.

4.4.3.1.3 Permit-Required Confined Spaces. Title 29 CFR 1910.146 sets requirements for practices and procedures to protect general-industry employees from the hazards of entry into permit-required confined spaces. This section does not apply to agriculture, construction, or shipyard employment (*see 29 CFR 1928, 1926, and 1915, respectively*).

4.4.3.1.4 Control of Hazardous Energy (Lock Out/Tag Out). Title 29 CFR 1910.147 sets minimum performance requirements of servicing and maintaining machines and equipment from which unexpected starting, energizing, or release of stored energy could harm employees.

4.4.3.1.5 Blood-Borne Pathogens. Title 29 CFR 1910.1030 focuses on the creation of a written exposure control plan that describes how an employer will protect employees from all

occupational exposure to blood or other potentially infectious materials.

4.4.3.1.6 Hazard Communication (HAZCOM). Title 29 CFR 1910.1200 establishes procedures to ensure that the hazards of all produced or imported chemicals are classified, and that information concerning the classified hazards is transmitted to employers and employees. The requirements of this section are intended to be consistent with the provisions of the United Nations' globally harmonized system of classification and labeling of chemicals (GHS). The transmittal of this information is to be accomplished by means of comprehensive hazard communication programs, which are to include container labeling and other forms of warning, SDSs, and employee training.

4.4.4 U.S. Environmental Protection Agency (EPA).

4.4.4.1 EPA regulations governing hazardous materials can be found in 40 CFR. Several regulations of significance can be found in 4.4.4.1.1 through 4.4.4.1.7.

4.4.4.1.1 Chemical Accident Prevention Provisions. Title 40 CFR 68 sets forth risk management programs for accidental chemical release prevention activities, including hazard assessment, prevention programs, and emergency response considerations.

4.4.4.1.2 National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The NCP, addressed in 40 CFR 300, is the federal government's blueprint for responding to oil spills and hazardous substance releases. It develops a national response capability and promotes coordination among the hierarchy of responders and contingency plans. It establishes the National Response Team (NRT) and its roles and responsibilities in the national response system, which includes planning and coordinating responses, providing guidance to regional response teams, coordinating a national program of preparedness planning and response, and facilitating research to improve response activities.

4.4.4.1.3 Reimbursement to Local Governments for Emergency Response to Hazardous Substance Releases. Title 40 CFR 310 provides the procedures for seeking local government reimbursement for emergency responses to hazardous substance releases.

4.4.4.1.4 Worker Protection. Worker protection, addressed in 40 CFR 311, incorporates 29 CFR 1910.120 - requirements for states without OSHA-approved state plans.

4.4.4.1.5 Emergency Planning and Notification. Title 40 CFR 355 establishes requirements for a facility to provide information necessary for developing and implementing state and local chemical emergency response plans and requirements for emergency notification of chemical releases. This part also lists EHSs and threshold planning quantities (TPQs) in appendices A and B.

4.4.4.1.6 Hazardous Chemical Reporting: Community Right-to-Know. Title 40 CFR 370 establishes reporting requirements for providing the public with important information on hazardous chemicals in their communities. Such reporting raises community awareness of chemical hazards and aids in the development of state and local emergency response plans. Reporting requirements include SDSs and inventory reporting to the SERC, LEPC, and local fire department.

4.4.4.1.7 Toxic Chemical Release Inventory. Title 40 CFR 372 requires facilities to complete and submit a toxic chemical release inventory form (i.e., Form R) annually. A Form R must be submitted for each of the over 600 TRI chemicals that are manufactured or otherwise used above the applicable threshold quantities.

4.4.4.2 Discharge of Oil. Title 40 CFR 110 requires federal agencies to report discharges of oil from vessels or facilities under their jurisdiction or control to the National Response Center (NRC).

4.4.4.3 Oil Pollution Prevention. Title 40 CFR 112 establishes procedures, methods, equipment, and other requirements to prevent the discharge of oil from non-transportation-related onshore and offshore facilities into or on the navigable waters of the United States or adjoining shorelines.

4.4.4.4 Solid Wastes. Title 40 CFR 238–282 contains waste management regulations in support of the RCRA. CFRs 239 through 259 contain the regulations for solid waste. CFRs 260 through 279 pertain to hazardous waste regulations and also contains the definitions for characteristic and listed hazardous wastes. CFR 280 contains requirements for underground storage tanks.

4.4.5 U.S. Department of Transportation (DOT). DOT regulations governing the transportation of hazardous materials/dangerous goods in commerce (e.g., highway, rail, air, and water) are found in 49 CFR. Where spills occur while the hazardous material is on the vehicle or otherwise “in transportation,” OSHA’s 29 CFR 1910.120(q) HAZWOPER regulations apply to emergency response personnel who respond to the incident. Several regulations of significance can be found in 4.4.5.1 through 4.4.5.3.

4.4.5.1 Subchapter B Hazardous Materials and Oil Transportation.

4.4.5.1.1 Oil Spill Prevention and Response Plans. Title 49 CFR 130 contains prevention, containment, and response planning requirements applicable to the transportation of oil by motor vehicles and rolling stock.

4.4.5.2 Subchapter C Hazardous Materials Regulations (Parts 171–180). The following is a breakdown of the regulations in Subchapter C:

- (1) 49 CFR 171 — General Information Regulations and Definitions
- (2) 49 CFR 172 — Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, Training Requirements, and Security Plans
- (3) 49 CFR Part 173 — General Requirements for Shipments and Packagings
- (4) 49 CFR Part 174 — Carriage by Rail
- (5) 49 CFR Part 175 — Carriage by Aircraft
- (6) 49 CFR Part 176 — Carriage by Vessel
- (7) 49 CFR Part 177 — Carriage by Public Highway
- (8) 49 CFR Part 178 — Specifications for Packaging
- (9) 49 CFR Part 179 — Specifications for Tank Cars
- (10) 49 CFR Part 180 — Continuing Qualification and Maintenance of Packagings

4.4.5.3 Subchapter D - Pipeline Safety (Parts 193–195) The following is a breakdown of the regulations in Subchapter D:

- (1) 49 CFR 193 — Liquefied Natural Gas Facilities: Federal Safety Standards
- (2) 49 CFR 194 — Response Plans for Onshore Oil Pipelines
- (3) 49 CFR 195 — Transportation of Hazardous Liquids by Pipelines

4.4.6 U.S. Department of Energy (DOE). DOE regulations governing hazardous materials are found in 10 CFR. Several regulations of significance can be found in 4.4.6.1 through 4.4.6.1.2.

4.4.6.1 Nuclear Regulatory Commission. Parts 1–199 establish procedures for transportation and storage of nuclear materials; use of radioactive materials at nuclear power plants, research and test reactors, uranium recovery facilities, waste repositories, and other nuclear facilities; and use of nuclear materials for medical, industrial, and academic purposes. Subpart C establishes the requirements for the DOE to comply with Section 102(2) of the National Environmental Policy Act (NEPA) of 1969 and the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA (*see 40 CFR 1500–1508*). Parts 1500–1508 supplement, and are to be used in conjunction with, the CEQ regulations.

4.4.6.1.1 Standards for Protection Against Radiation. Part 20 establishes standards for protection against ionizing radiation resulting from activities conducted under licenses issued by the Nuclear Regulatory Commission. The following regulations were issued under the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974, as amended:

- (1) 10 CFR 20.1201–1208 — Occupational Dose Limits
- (2) 10 CFR 20.1301–1302 — Radiation Dose Limits for Individual Members of the Public
- (3) 10 CFR 20.1601–1602 — Control of Exposure from External Sources in Restricted Areas
- (4) 10 CFR 20.1901–1906 — Precautionary Procedures
- (5) 10 CFR 20 Appendix B — Annual Limits on Intake (ALIs) and Derived Air Concentrations (DACs) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sewerage
- (6) 10 CFR 20 Appendix G — Requirements for Transfers of Low-Level Radioactive Waste Intended for Disposal at Licensed Land Disposal Facilities and Manifests

4.4.6.1.2 Domestic Licensing of Production and Utilization Facilities. Title 10 CFR 50 provides for the licensing of production and utilization facilities (i.e., nuclear reactors). The following regulations can be found in 10 CFR 50:

- (1) 10 CFR 50.47 includes the 16 planning standards of 10 CFR 50.47(b) and the “realism rule” in 10 CFR 50.47(c), which recognizes that state and local government officials do their best to protect public health and safety.
- (2) 10 CFR 50.54(q) contains requirements for following and maintaining in-effect emergency plans.
- (3) 10 CFR Appendix E to 10 CFR 50, describes information needed to demonstrate compliance with emergency preparedness requirements in Section IV of this appendix.

4.5 Consensus Standards by Organization.

4.5.1 General.

4.5.1.1 A consensus standard is a standard that has been adopted and promulgated by a nationally recognized standards-producing organization under procedures whereby it can be determined that persons interested and affected by the scope or provisions of the standard have reached substantial agreement on its adoption; was formulated in a manner that afforded an opportunity for diverse views to be considered; and has been designated as such.

4.5.1.2 The documents or portions thereof listed in Section 4.5 are referenced within this recommended practice and should be considered part of the recommendations of this document.

4.5.2 NFPA Standards. This subsection contains a partial list of NFPA standards. To determine if other NFPA standards apply, review the complete list of NFPA standards at nfpa.org/codes-and-standards.

4.5.2.1 NFPA 472 provides a framework by which an organization can meet the requirements of the OSHA HAZWOPER regulation. By meeting this standard, compliance with OSHA 1910.120 is met or exceeded.

4.5.2.2 NFPA 473 identifies the levels of competence required of emergency medical services (EMS) personnel who respond to incidents involving hazardous materials or WMD.

4.5.2.3 NFPA 1072 identifies the minimum job performance requirements (JPRs) for personnel at the scene of a hazardous materials/WMD incident at the following levels: awareness, operations, operations mission-specific, hazardous materials technician, and incident commander.

4.5.2.4 NFPA 1500 contains minimum requirements for a fire service-related safety and health program. Items covered include personal protective equipment (PPE), staffing, medical requirements, and physical requirements.

4.5.2.5 NFPA 1521 contains minimum requirements for the assignment, duties, and responsibilities of a health and safety officer (HSO) and an incident safety officer (ISO) for a fire department.

4.5.2.6 NFPA 1582 provides guidance on annual physicals for fire fighters and members of hazardous materials response teams.

4.5.2.7 NFPA 1584 establishes the minimum criteria for developing and implementing a rehabilitation process for fire department members at incident scene operations and training exercises.

4.5.2.8 NFPA 1951 specifies the minimum design, performance, testing, and certification requirements for utility technical rescue; rescue and recovery technical rescue; and chemical, biological, radiological, and nuclear (CBRN) technical rescue and protective ensembles for use by emergency services personnel during technical rescue incidents.

4.5.2.9 NFPA 1981 specifies certification, labeling, design requirements, performance requirements, and test methods that apply to all open-circuit self-contained breathing apparatus (SCBA) and combination SCBA/supplied air respirator (SAR) used during firefighting, rescue, hazardous materials incidents, terrorist incidents, and similar operations where responders

could encounter confined spaces, atmospheres that are unknown, atmospheres that are or could become immediately dangerous to life and health (IDLH), or atmospheres that are or could become oxygen deficient.

4.5.2.10 NFPA 1982 specifies cover design, performance, testing, and certification of PASS that monitor an emergency responder's motion and automatically emit an audible signal to summon aid in the event the user becomes incapacitated or needs assistance.

4.5.2.11 NFPA 1991 contains requirements for protection for emergency responders against adverse vapor environments during hazardous materials incidents, and from specified chemical, biological, or radiological terrorism agents during chemical and biological terrorism incidents.

4.5.2.12 NFPA 1992 provides requirements for protection for emergency responders against adverse liquid-splash environments during hazardous materials emergency incidents.

4.5.2.13 NFPA 1994 establishes requirements for protective ensembles and ensemble elements to safeguard emergency first responder personnel from CBRN terrorism agents.

4.5.3 American Society for Testing and Materials (ASTM) Standards. This subsection contains a partial list of ASTM standards. To determine if other ASTM standards apply, review the complete list of ASTM standards at astm.org/standards.

4.5.3.1 ASTM F1127, *Standard Guide for Containment of Hazardous Material Spill by Emergency Response Personnel*, is the standard of care for hazardous materials response personnel.

4.5.3.2 ASTM E2458, *Standard Practices for Bulk Sample Collection and Swab Sample Collection of Visible Powders Suspected of Being Biothreat Agents from Nonporous Surfaces*, covers bulk and onsite sampling.

4.5.3.3 ASTM E2601, *Standard Practice for Radiological Emergency Response*, provides decision-making considerations for response to incidents that involve radioactive materials. It provides information and guidance for what to include in response planning and what activities to conduct during a response.

4.5.3.4 ASTM E2770, *Standard Guide for Operational Guidelines for Initial Response to a Suspected Biothreat Agent*, provides considerations for decision-makers where responding to incidents that could involve biothreats.

4.5.4 American National Standards Institute (ANSI) Standards. This subsection contains a partial list of ANSI standards. To determine if any other ANSI standards apply, review the complete list of ANSI standards at ansi.org.

4.5.4.1 ANSI Z88.2, *American National Standard Practices for Respiratory Protection*, sets forth accepted practices for respirator users; provides information and guidance on the proper selection, use, and care of respirators; and contains requirements for establishing and regulating respirator programs.

4.5.4.2 ANSI Z88.10, *Fit Test Method*, provides guidance on how to conduct fit testing of tight-fitting respirators and appropriate methods to be used.

4.5.5 American Petroleum Institute (API) Standards. This subsection contains a partial list of API standards. To determine if any other API standards apply, review the complete list of API standards at api.org/standards/.