

NFPA®

470

**Hazardous Materials/Weapons
of Mass Destruction (WMD)
Standard for Responders**

2022

Includes

NFPA 472 | NFPA 473 | NFPA 1072



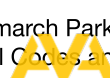
NFPA[®] 470

Hazardous Materials/Weapons of Mass Destruction (WMD) Standard for Responders

2022 Edition



NFPA, 1 Batterymarch Park, Quincy, MA 02269-9101
An International Codes and Standards Organization



Documents
Document Sharing Hub

IMPORTANT NOTICES AND DISCLAIMERS CONCERNING NFPA® STANDARDS

NFPA® codes, standards, recommended practices, and guides (“NFPA Standards”), of which the document contained herein is one, are developed through a consensus standards development process approved by the American National Standards Institute. This process brings together volunteers representing varied viewpoints and interests to achieve consensus on fire and other safety issues. While the NFPA administers the process and establishes rules to promote fairness in the development of consensus, it does not independently test, evaluate, or verify the accuracy of any information or the soundness of any judgments contained in NFPA Standards.

The NFPA disclaims liability for any personal injury, property, or other damages of any nature whatsoever, whether special, indirect, consequential or compensatory, directly or indirectly resulting from the publication, use of, or reliance on NFPA Standards. The NFPA also makes no guaranty or warranty as to the accuracy or completeness of any information published herein.

In issuing and making NFPA Standards available, the NFPA is not undertaking to render professional or other services for or on behalf of any person or entity. Nor is the NFPA undertaking to perform any duty owed by any person or entity to someone else. Anyone using this document should rely on his or her own independent judgment or, as appropriate, seek the advice of a competent professional in determining the exercise of reasonable care in any given circumstances.

The NFPA has no power, nor does it undertake, to police or enforce compliance with the contents of NFPA Standards. Nor does the NFPA list, certify, test, or inspect products, designs, or installations for compliance with this document. Any certification or other statement of compliance with the requirements of this document shall not be attributable to the NFPA and is solely the responsibility of the certifier or maker of the statement.

REMINDER: UPDATING OF NFPA STANDARDS

Users of NFPA codes, standards, recommended practices, and guides (“NFPA Standards”) should be aware that these documents may be superseded at any time by the issuance of a new edition, may be amended with the issuance of Tentative Interim Amendments (TIAs), or be corrected by Errata. It is intended that through regular revisions and amendments, participants in the NFPA standards development process consider the then-current and available information on incidents, materials, technologies, innovations, and methods as these develop over time and that NFPA Standards reflect this consideration. Therefore, any previous edition of this document no longer represents the current NFPA Standard on the subject matter addressed. NFPA encourages the use of the most current edition of any NFPA Standard [as it may be amended by TIA(s) or Errata] to take advantage of current experience and understanding. An official NFPA Standard at any point in time consists of the current edition of the document, including any issued TIAs and Errata then in effect.

To determine whether an NFPA Standard has been amended through the issuance of TIAs or corrected by Errata, visit the “Codes & Standards” section at www.nfpa.org.

ADDITIONAL IMPORTANT NOTICES AND DISCLAIMERS CONCERNING NFPA® STANDARDS

Updating of NFPA Standards

Users of NFPA codes, standards, recommended practices, and guides (“NFPA Standards”) should be aware that these documents may be superseded at any time by the issuance of a new edition, may be amended with the issuance of Tentative Interim Amendments (TIAs), or be corrected by Errata. It is intended that through regular revisions and amendments, participants in the NFPA standards development process consider the then-current and available information on incidents, materials, technologies, innovations, and methods as these develop over time and that NFPA Standards reflect this consideration. Therefore, any previous edition of this document no longer represents the current NFPA Standard on the subject matter addressed. NFPA encourages the use of the most current edition of any NFPA Standard [as it may be amended by TIA(s) or Errata] to take advantage of current experience and understanding. An official NFPA Standard at any point in time consists of the current edition of the document, including any issued TIAs and Errata then in effect.

To determine whether an NFPA Standard has been amended through the issuance of TIAs or corrected by Errata, visit the “Codes & Standards” section at www.nfpa.org.

Interpretations of NFPA Standards

A statement, written or oral, that is not processed in accordance with Section 6 of the Regulations Governing the Development of NFPA Standards shall not be considered the official position of NFPA or any of its Committees and shall not be considered to be, nor be relied upon as, a Formal Interpretation.

Patents

The NFPA does not take any position with respect to the validity of any patent rights referenced in, related to, or asserted in connection with an NFPA Standard. The users of NFPA Standards bear the sole responsibility for determining the validity of any such patent rights, as well as the risk of infringement of such rights, and the NFPA disclaims liability for the infringement of any patent resulting from the use of or reliance on NFPA Standards.

NFPA adheres to the policy of the American National Standards Institute (ANSI) regarding the inclusion of patents in American National Standards (“the ANSI Patent Policy”), and hereby gives the following notice pursuant to that policy:

NOTICE: The user’s attention is called to the possibility that compliance with an NFPA Standard may require use of an invention covered by patent rights. NFPA takes no position as to the validity of any such patent rights or as to whether such patent rights constitute or include essential patent claims under the ANSI Patent Policy. If, in connection with the ANSI Patent Policy, a patent holder has filed a statement of willingness to grant licenses under these rights on reasonable and nondiscriminatory terms and conditions to applicants desiring to obtain such a license, copies of such filed statements can be obtained, on request, from NFPA. For further information, contact the NFPA at the address listed below.

Law and Regulations

Users of NFPA Standards should consult applicable federal, state, and local laws and regulations. NFPA does not, by the publication of its codes, standards, recommended practices, and guides, intend to urge action that is not in compliance with applicable laws, and these documents may not be construed as doing so.

Copyrights

NFPA Standards are copyrighted. They are made available for a wide variety of both public and private uses. These include both use, by reference, in laws and regulations, and use in private self-regulation, standardization, and the promotion of safe practices and methods. By making these documents available for use and adoption by public authorities and private users, the NFPA does not waive any rights in copyright to these documents.

Use of NFPA Standards for regulatory purposes should be accomplished through adoption by reference. The term “adoption by reference” means the citing of title, edition, and publishing information only. Any deletions, additions, and changes desired by the adopting authority should be noted separately in the adopting instrument. In order to assist NFPA in following the uses made of its documents, adopting authorities are requested to notify the NFPA (Attention: Secretary, Standards Council) in writing of such use. For technical assistance and questions concerning adoption of NFPA Standards, contact NFPA at the address below.

For Further Information

All questions or other communications relating to NFPA Standards and all requests for information on NFPA procedures governing its codes and standards development process, including information on the procedures for requesting Formal Interpretations, for proposing Tentative Interim Amendments, and for proposing revisions to NFPA standards during regular revision cycles, should be sent to NFPA headquarters, addressed to the attention of the Secretary, Standards Council, NFPA, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101; email: stds_admin@nfpa.org.

For more information about NFPA, visit the NFPA website at www.nfpa.org. All NFPA codes and standards can be viewed at no cost at www.nfpa.org/docinfo.

Copyright © 2021 National Fire Protection Association®. All Rights Reserved.

NFPA® 470

Hazardous Materials/Weapons of Mass Destruction (WMD) Standard for Responders

2022 Edition

This edition of NFPA 470, *Hazardous Materials/Weapons of Mass Destruction (WMD) Standard for Responders*, was prepared by the Technical Committee on Hazardous Materials Response Personnel, released by the Correlating Committee on Professional Qualifications, and acted on by the NFPA membership during the 2021 NFPA Technical Meeting held June 14–July 2. It was issued by the Standards Council on August 26, 2021, with an effective date of September 15, 2021.

This document has been amended by one or more Tentative Interim Amendments (TIAs) and/or Errata. See “Codes & Standards” at www.nfpa.org for more information.

This edition of NFPA 470 was approved as an American National Standard on September 15, 2021.

Origin and Development of NFPA 470

The 2022 edition of NFPA 470, *Hazardous Materials/Weapons of Mass Destruction (WMD) Standard for Responders*, marks the initial integration of NFPA 472, NFPA 473, and NFPA 1072 into a single hazardous materials/WMD safety standard. At the April 2019 NFPA Standards Council Meeting, the Council directed NFPA staff and all NFPA Emergency Response and Responder Safety (ERRS) Technical Committees to consolidate and unify NFPA standards with similar content areas. The goal of this effort is to increase usability, reduce errors and conflicts, and ultimately produce higher quality standards. For more information about the ERRS consolidation project, please see nfpa.org/errs.

This consolidated document was structured to list the competencies (formerly in NFPA 472) and professional qualifications (formerly in NFPA 1072) for each hazardous materials/WMD responder position sequentially, followed by the competencies specific to emergency medical services (EMS) personnel responding to these incidents (formerly in NFPA 473) at the end of the document.

In NFPA 470, the technical committee updated terminology throughout the standard for better alignment with the National Incident Management System (NIMS) and with NFPA 3000™, *Standard for an Active Shooter/Hostile Event Response (ASHER) Program*. Chapters 17 and 19 were added to address the professional qualifications for hazardous materials officers and hazardous materials safety officers and to align with the competencies for these positions, as adopted from NFPA 472. Chapter 33 was updated to add professional qualifications language to align with the competencies for hazardous materials technicians with a radiological hazard specialty at hazardous materials/WMD incidents. References to NFPA 1891, *Standard on Selection, Care, and Maintenance of Hazardous Materials, CBRN, and Emergency Medical Operations Clothing and Equipment*, were added to Annex A to provide additional information on the process for the selection, care, and maintenance of chemical protective clothing (CPC). Annex D, Competencies for Operations Level Responders Assigned Radiological Agent-Specific Tasks, of NFPA 472 (2018 edition) was converted to mandatory text as Section 8.10, Mission-Specific Competencies: Radiological Hazard-Specific Tasks.

The technical committee wishes to dedicate this first edition of NFPA 470 to a long-time committee member and friend, Mr. Charles J. Wright. Mr. Wright is an original member of the NFPA Technical Committee on Hazardous Materials Response Personnel and one of the principal writers of NFPA 1072, which brought the hazardous materials training standards into the professional qualifications community. The technical committee is deeply indebted to Mr. Wright for his professionalism, commitment to excellence, and passion for making a difference.

Correlating Committee on Professional Qualifications

William E. Peterson, Chair

Kissimmee, FL [M]

Rep. International Fire Service Training Association

Brian Baughman, Generac Power Systems Inc., WI [M]

Brian R. Brauer, University of Illinois Fire Service Institute, IL [E]
Rep. National Board on Fire Service Professional Qualifications

Derrick S. Clouston, North Carolina Department of Insurance, NC [U]

Gregory S. Cross, Texas A&M Engineer Extension Service, TX [SE]

Jason Dolf, Aerial Services Inc, IA [U]

Angus Maclean Duff, Consolidated Fire District 2, KS [U]

Richard A. Dunn, SC State Firefighters' Association, SC [E]

Alec Feldman, Fulcrum Consultants, Ireland [SE]
Rep. JOIFF-International Organisation for Industrial Hazard Management

Douglas P. Forsman, Fairfield Bay Fire Department, AR [L]

Richard Galtieri, Port Of Seattle Fire Department, WA [E]

Douglas R. Goodings, St. Clair Community College, Canada [SE]

Scott M. Gorgon, International Association of Fire Fighters (IAFF), DC [L]

R. Kirk Hankins, Fire Consulting & Case Review International, Inc., MO [U]

Rep. International Association of Arson Investigators, Inc.

Bill Slosson, Washington State Patrol, WA [E]

Philip C. Stittleburg, La Farge Fire Department, WI [L]

Rep. National Volunteer Fire Council

Matthew Brian Thorpe, North Carolina Office of the State Fire Marshal, NC [E]

Rep. International Fire Service Accreditation Congress

Charles "Randy" Watson, S-E-A, Ltd., GA [SE]

Michael J. Yurgec, Global Emergency Products, IL [M]

Alternates

Adam J. Goodman, S-E-A Limited, MD [SE]
(Alt. to Charles "Randy" Watson)

David W. Lewis, Odenton, MD [L]
(Alt. to Philip C. Stittleburg)

Robert W. Rand, Nat'l Board On Fire Service Prof. Qualifications, MA [E]

(Alt. to Brian R. Brauer)

Angela White, Wisconsin Technical College System, WI [E]
(Alt. to Matthew Brian Thorpe)

Nonvoting

Stephen P. Austin, Cumberland Valley Volunteer Firemen's Association, DE [L]
Rep. TC on Traffic Control Incident Management Professional Qualifications

Preet Bassi, Center For Public Safety Excellence, VA [C]
Rep. TC on Fire Service Analysts and Informational Technical Specialist

Alan W. Conkle, Ohio Association of Emergency Vehicle Technicians (OAEVT), OH [M]
Rep. TC on Emergency Vehicle Mechanic Technicians Professional Qualifications

John S. Cunningham, Nova Scotia Firefighters School, Canada [U]
Rep. TC on Fire Fighter Professional Qualifications

Jay Dornseif, III, Priority Dispatch Corporation, UT [M]
Rep. TC on Public Safety Telecommunicator Professional Qualifications

Richard C. Edinger, Chester, VA [SE]
Rep. TC on Hazardous Materials Response Personnel

Ronald R. Farr, Plainwell Fire Department, MI [C]
Rep. TC on Electrical Inspection Practices

Dave E. Hanneman, Self Employed, ID [SE]
Rep. TC on Incident Management Professional Qualifications

Daniel P. Heenan, Clark County Fire Department, NV [E]
Rep. TC on Fire Investigator Professional Qualifications

Orlando P. Hernandez, Texas State Fire Marshal's Office, TX [E]
Rep. TC on Rescue Technician Professional Qualifications

Robert Fash, NFPA Staff Liaison

Ronald L. Hopkins, TRACE Fire Protection & Safety Consultant, Ltd., KY [SE]

Rep. TC on Fire Service Instructor Professional Qualifications

Robert J. James, UL LLC, IL [RT]

Rep. TC on Building Fire and Life Safety Director Professional Qualifications

Randy J. Krause, Port of Seattle Fire Department, WA [E]

Rep. TC on Fire Service Occupational Safety and Health

Peter J. Mulvihill, Reno, NV [SE]

Rep. TC on Fire Inspector Professional Qualifications

Randal E. Novak, Ames, IA [SE]

Rep. TC on Accreditation & Certification Professional Qualifications

Lawrence L. Preston, Maryland Fire and Rescue Institute, MD [E]
Rep. TC on Fire Officer Professional Qualifications

Jim Stumpf, Organizational Quality Associates, ID [SE]

Rep. TC on Wildfire Suppression Professional Qualifications

Robert D. Taylor, PRB Coal Users Group, IN [U]

Rep. TC on Industrial Fire Brigades Professional Qualifications

Nancy J. Trench, Stillwater, OK [M]

Rep. TC on Public Fire Educator Professional Qualifications

Paul Valentine, TUV SUD America Inc./Global Risk Consultants, IL [M]

Rep. TC on Fire Marshal Professional Qualifications

This list represents the membership at the time the Committee was balloted on the final text of this edition. Since that time, changes in the membership may have occurred. A key to classifications is found at the back of the document.

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.

Technical Committee on Hazardous Materials Response Personnel

Richard C. Edinger, *Chair*
Chester, VA [SE]

Albert C. Bassett, Jr., Fairfield County Hazardous Incident Response Team, CT [C]
Rep. Fairfield County Hazardous Incident Response Team
Christina M. Baxter, Emergency Response Tips, LLC, FL [SE]
Armando S. Bevelacqua, Murphy Bevelacqua Consultants and Associates, FL [SE]
Andrew J. Byrnes, Utah Valley University, UT [SE]
Jorge A. Carrasco, AMBIPAR Response/Suatrans, Brazil [SE]
Tom Clawson, Technical Resources Group, Inc., ID [SE]
William R. Coffey, WRC Safety and Risk Consultants, PA [SE]
Rep. American Society of Safety Professionals
Terry L. Colburn, Houston Fire Department, TX [U]
K. Wade Collins, Commonwealth Fire Safe Safety Services, VA [U]
John Culbertson, Montana Fire Services Training School, MT [U]
Rep. North American Fire Training Directors
Cris D'Onofrio, US Environmental Protection Agency, NJ [E]
Richard B. Emery, Emery & Associates, Inc., IL [SE]
Tobias Frost, Lafayette Fire Department, IN [E]
Clay Haberkorn, Denver Fire Department, CO [E]
Chad Hawkins, Oregon State Fire Marshal, OR [E]
Steven Hergenreter, Fort Dodge Fire Fighters, IAFF Local 622, IA [L]
Rep. International Association of Fire Fighters
Peter Jensen, Ventura County Fire Department, CA [E]
Rep. International Association of Fire Chiefs
Thomas C. Jordan, Virginia Department of Emergency Management, VA [C]
Barry Lindley, Specialized Professional Services, Inc., WV [SE]
Carl Makins, Jr., Charleston County Sheriff's Office, SC [U]
Rep. The InterAgency Board
Wayne McNett, Hemlock Semiconductor Corporation, MI [U]
Rep. NFPA Industrial Fire Protection Section

Leslie A. Miller, Fire Protection Publications, OK [M]
Rep. International Fire Service Training Association
Ryan K. Miller, US Federal Bureau of Investigation (FBI), VA [E]
Thomas D. Miller, Sissonville Volunteer Fire Department, WV [C]
Rep. National Volunteer Fire Council
Matthew Minson, Critical Management Programs, TX [SE]
Nicholas Mutter, Boston Police Patrolman's Association- EMS Division, MA [L]
Gregory G. Noll, Hildebrand & Noll Associates Inc., PA [SE]
John F. Porter, Louisiana State Police, LA [C]
Timothy Wiliam Pusztai, Orange County Sheriffs Department, CA [E]
Timothy R. Rehak, National Institute for Occupational Safety & Health (NIOSH), PA [E]
Timothy Rice, Fire Department City of New York (FDNY), NY [E]
Robert W. Royall, Jr., Harris County Fire Marshal's Office, TX [E]
Glen D. Rudner, Norfolk Southern Corporation, AL [U]
Scott Russell, Baltimore County Fire Department, MD [E]
Jonathan Allen Scheibe, Ashland, LLC, DE [M]
Rep. American Chemistry Council
Rob Schnepf, Alameda County Fire Department, CA [C]
Richard Stulp, Emergency Management Systems, FL [SE]
Fred C. Terryn, US Department of the Air Force, FL [U]
Kenneth W. Uzeloc, Calgary Fire Department, Canada [E]
Rep. Canadian Association of Fire Chiefs
Greg Spinner Vaughan, CN Railway, TN [U]
Todd Wardwell, United States Coast Guard (USCG), PA [U]
Charles J. Wright, Omaha, NE [SE]

Alternates

Jeff Beeson, EPAB Fort Worth, TX [SE]
(Alt. to Matthew Minson)
Marcel Borlenghi, Suatrans, Brazil [SE]
(Alt. to Jorge A. Carrasco)
Dana K. Brown, Houston Fire Department, TX [E]
(Alt. to Clay Haberkorn)
Todd Francis Cannon, Virginia Department of Emergency Management (VDEM), VA [C]
(Alt. to Thomas C. Jordan)
Andy Coe, Houston Fire Department, TX [U]
(Alt. to Terry L. Colburn)
Curt Corbin, Orange County Fire Authority, CA [E]
(Alt. to Timothy Wiliam Pusztai)
Travis Day, Louisiana State Police, LA [C]
(Alt. to John F. Porter)
Leo DeBobes, Stony Brook University/SBU Hospital, NY [SE]
(Alt. to William R. Coffey)
Nicholas Del Re, Fire Department City of New York (FDNY), NY [E]
(Alt. to Timothy Rice)
Christopher T. Gallo, US Environmental Protection Agency, NJ [E]
(Alt. to Cris D'Onofrio)

Ronald G. Hassan, International Association of Fire Fighters (IAFF), DC [L]
(Alt. to Steven Hergenreter)
Christopher D. Hawley, Cecil County Department of Emergency Services, MD [C]
(Alt. to Rob Schnepf)
Butch Hayes, Harris County Hazmat, TX [E]
(Alt. to Robert W. Royall, Jr.)
John D. Hearn, US Department of the Air Force, FL [U]
(Alt. to Fred C. Terryn)
Susan Elizabeth Henry, Calgary Fire Department, Canada [E]
(Alt. to Kenneth W. Uzeloc)
Robert J. Ingram, RJI Consulting, NY [SE]
(Alt. to Richard B. Emery)
Scott J. Lancaster, Washington State Patrol, WA [E]
(Alt. to Chad Hawkins)
Mark E. Linsley, Technical Resources Group, Inc., IA [SE]
(Alt. to Tom Clawson)
David A. Matthew, Self Employed, KS [SE]
(Alt. to Andrew J. Byrnes)
Sean Mckenney, Stratford Fire Department, CT [C]
(Alt. to Albert C. Bassett, Jr.)

Tony J. Mussorfiti, Interagency Board, NY [U]
(Alt. to Carl Makins, Jr.)

William Offerman, Elwood Fire Protection District, IL [C]
(Alt. to Thomas D. Miller)

Jim Perkins, US Federal Bureau of Investigation, VA [E]
(Alt. to Ryan K. Miller)

Mike Schultz, Fire Department Jefferson City, MO, MO [SE]
(Alt. to Armando S. Bevelacqua)

Gary Sharp, Federal Resources, MI [SE]
(Alt. to Christina M. Baxter)

Daniel Gary Snell, Houston Fire Department, TX [SE]
(Alt. to Charles J. Wright)

Libby Snyder, Fire Protection Publications, OK [M]
(Alt. to Leslie A. Miller)

Tim Topolinski, Hemlock Semiconductor, TN [U]
(Alt. to Wayne McNett)

Nick Zamiska, Brecksville Fire Department, OH [SE]
(Alt. to Gregory G. Noll)

Nonvoting

Manuel H. Ehrlich, Jr., US Chemical Safety Board, DC [M]

Janis M. McCarroll, US Department of Homeland Security, DC [E]
Rep. US Department of Homeland Security/CBRNE

Wayne E. Yoder, US Department of Homeland Security, MD [SE]

Nicole Cassels, NFPA Staff Liaison

Robert Fash, NFPA Co-Staff Liaison

This list represents the membership at the time the Committee was balloted on the final text of this edition. Since that time, changes in the membership may have occurred. A key to classifications is found at the back of the document.

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 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	470– 10	Chapter 8 Competencies for Hazardous Materials/WMD Operations Level Responders Assigned Mission-Specific Responsibilities (NFPA 472)	470– 29
1.1 Scope.	470– 10	8.1 General.	470– 29
1.2 Purpose.	470– 10	8.2 Mission-Specific Competencies: PPE.	470– 30
1.3 Application.	470– 11	8.3 Mission-Specific Competencies: Mass Decontamination.	470– 31
1.4 Equivalency.	470– 11	8.4 Mission-Specific Competencies: Technical Decontamination.	470– 32
1.5 Units.	470– 11	8.5 Mission-Specific Competencies: Evidence Preservation and Public Safety Sampling.	470– 33
Chapter 2 Referenced Publications	470– 12	8.6 Mission-Specific Competencies: Product Control.	470– 35
2.1 General.	470– 12	8.7 Mission-Specific Competencies: Detection, Monitoring, and Sampling.	470– 36
2.2 NFPA Publications.	470– 12	8.8 Mission-Specific Competencies: Victim Rescue and Recovery.	470– 37
2.3 Other Publications.	470– 12	8.9 Mission-Specific Competencies: Response to Illicit Laboratory Incidents.	470– 39
2.4 References for Extracts in Mandatory Sections.	470– 12	8.10 Mission-Specific Competencies: Radiological Hazard-Specific Tasks.	470– 40
Chapter 3 Definitions	470– 12	8.11 Mission-Specific Competencies: Disablement/Disruption of Improvised Explosive Devices (IEDs), Improvised WMD Dispersal Devices, and Operations at Improvised Explosives Laboratories.	470– 42
3.1 General.	470– 12	8.12 Diving in Contaminated Water Environments. .	470– 45
3.2 NFPA Official Definitions.	470– 12	8.13 Mission-Specific Competencies — Evidence Collection.	470– 47
3.3 General Definitions.	470– 13	Chapter 9 Professional Qualifications for Hazardous Materials/WMD Operations Level Responders Assigned Mission-Specific Responsibilities (NFPA 1072)	470– 49
3.4 Hazardous Materials Responder Level Definitions.	470– 18	9.1 General.	470– 49
Chapter 4 Competencies for Hazardous Materials/WMD Awareness Level Personnel (NFPA 472)	470– 20	9.2 Personal Protective Equipment.	470– 49
4.1 General.	470– 20	9.3 Mass Decontamination.	470– 50
4.2 Competencies — Analyzing the Incident.	470– 20	9.4 Technical Decontamination.	470– 50
4.3 Competencies — Planning the Response. (Reserved)	470– 21	9.5 Evidence Preservation and Public Safety Sampling.	470– 50
4.4 Competencies — Implementing the Planned Response.	470– 21	9.6 Product Control.	470– 51
4.5 Competencies — Evaluating Progress. (Reserved)	470– 22	9.7 Detection, Monitoring, and Sampling.	470– 51
4.6 Competencies — Terminating the Incident. (Reserved)	470– 22	9.8 Victim Rescue and Recovery.	470– 52
Chapter 5 Professional Qualifications for Hazardous Materials/WMD Awareness Level Personnel (NFPA 1072)	470– 22	9.9 Response to Illicit Laboratory Incidents.	470– 52
5.1 General.	470– 22	9.10 Radiological Hazard-Specific.	470– 53
5.2 Recognition and Identification.	470– 22	Chapter 10 Competencies for Hazardous Materials/WMD Technicians (NFPA 472) .	470– 53
5.3 Initiate Protective Actions.	470– 22	10.1 General.	470– 53
5.4 Notification.	470– 22	10.2 Competencies — Analyzing the Incident.	470– 55
Chapter 6 Competencies for Hazardous Materials/WMD Operations Level Responders (NFPA 472)	470– 23	10.3 Competencies — Planning the Response.	470– 59
6.1 General.	470– 23	10.4 Competencies — Implementing the Planned Response.	470– 60
6.2 Competencies — Analyzing the Incident.	470– 23	10.5 Competencies — Evaluating Progress.	470– 62
6.3 Competencies — Planning the Response.	470– 26	10.6 Competencies — Terminating the Incident.	470– 62
6.4 Competencies — Implementing the Planned Response.	470– 26	Chapter 11 Professional Qualifications for Hazardous Materials/WMD Technicians (NFPA 1072)	470– 62
6.5 Competencies — Evaluating and Reporting Progress.	470– 27	11.1 General.	470– 62
6.6 Competencies — Terminating the Incident. (Reserved)	470– 27	11.2 Analyze the Incident.	470– 62
Chapter 7 Professional Qualifications for Hazardous Materials/WMD Operations Level Responders (NFPA 1072)	470– 27	11.3 Response Planning.	470– 64
7.1 General.	470– 27	11.4 Action Plan Implementation.	470– 65
7.2 Identify Potential Hazards.	470– 28	11.5 Evaluating and Reporting Progress.	470– 67
7.3 Identify Tactics.	470– 28	11.6 Terminating the Incident.	470– 67
7.4 Action Plan Implementation.	470– 28		
7.5 Emergency Decontamination.	470– 29		
7.6 Progress Evaluation and Reporting.	470– 29		

Chapter 12 Competencies for Hazardous Materials/WMD Incident Commanders (NFPA 472)	470– 68	Chapter 20 Competencies for Hazardous Materials/WMD Technicians with a Tank Car Specialty (NFPA 472)	470– 90
12.1 General	470– 68	20.1 General	470– 90
12.2 Competencies — Analyzing the Incident	470– 68	20.2 Competencies — Analyzing the Incident	470– 90
12.3 Competencies — Planning the Response	470– 69	20.3 Competencies — Planning the Response	470– 93
12.4 Competencies — Implementing the Planned Response	470– 70	20.4 Competencies — Implementing the Planned Response	470– 93
12.5 Competencies — Evaluating Progress	470– 71	20.5 Competencies — Evaluating Progress	470– 93
12.6 Competencies — Terminating the Incident	470– 71	(Reserved)	470– 93
Chapter 13 Professional Qualifications for Hazardous Materials/WMD Incident Commanders (NFPA 1072)	470– 72	20.6 Competencies — Terminating the Incident	470– 93
13.1 General	470– 72	(Reserved)	470– 93
13.2 Analyze the Incident	470– 72	Chapter 21 Reserved	470– 94
13.3 Plan the Response	470– 72	Chapter 22 Competencies for Hazardous Materials/WMD Technicians with a Cargo Tank Specialty (NFPA 472)	470– 94
13.4 Implement the Incident Action Plan (IAP)	470– 72	22.1 General	470– 94
13.5 Evaluate Progress and Adjust IAP	470– 72	22.2 Competencies — Analyzing the Incident	470– 94
13.6 Termination of the Incident	470– 73	22.3 Competencies — Planning the Response	470– 95
Chapter 14 Competencies for Hazardous Materials/WMD Specialist Employees (NFPA 472)	470– 73	22.4 Competencies — Implementing the Planned Response	470– 95
14.1 General	470– 73	22.5 Competencies — Evaluating Progress	470– 96
14.2 Specialist Employee C	470– 73	(Reserved)	470– 96
14.3 Specialist Employee B	470– 74	22.6 Competencies — Terminating the Incident	470– 96
14.4 Specialist Employee A	470– 77	(Reserved)	470– 96
Chapter 15 Reserved	470– 78	Chapter 23 Reserved	470– 96
Chapter 16 Competencies for Hazardous Materials/WMD Officers (NFPA 472)	470– 78	Chapter 24 Competencies for Hazardous Materials/WMD Technicians with an Intermodal Tank Specialty (NFPA 472)	470– 96
16.1 General	470– 78	24.1 General	470– 96
16.2 Competencies — Analyzing the Incident	470– 78	24.2 Competencies — Analyzing the Incident	470– 96
16.3 Competencies — Planning the Response	470– 78	24.3 Competencies — Planning the Response	470– 98
16.4 Competencies — Implementing the Planned Response	470– 79	24.4 Competencies — Implementing the Planned Response	470– 98
16.5 Competencies — Evaluating Progress	470– 79	24.5 Competencies — Evaluating Progress	470– 98
16.6 Competencies — Terminating the Incident	470– 79	(Reserved)	470– 98
Chapter 17 Professional Qualifications for Hazardous Materials/WMD Officers (NFPA 1072)	470– 80	24.6 Competencies — Terminating the Incident	470– 98
17.1 General	470– 80	(Reserved)	470– 98
17.2 Analyze the Incident	470– 80	Chapter 25 Reserved	470– 99
17.3 Planning the Response	470– 82	Chapter 26 Competencies for Hazardous Materials/WMD Technicians with a Marine Tank and Non-Tank Vessel Specialty (NFPA 472)	470– 99
17.4 Action Plan Implementation	470– 83	26.1 General	470– 99
17.5 Terminating the Incident	470– 83	26.2 Competencies — Analyzing the Incident	470– 99
Chapter 18 Competencies for Hazardous Materials/WMD Safety Officers (NFPA 472)	470– 84	26.3 Competencies — Planning the Response	470– 100
18.1 General	470– 84	26.4 Competencies — Implementing the Planned Response	470– 101
18.2 Competencies — Analyzing the Incident	470– 84	26.5 Competencies — Evaluating Progress	470– 101
18.3 Competencies — Planning the Response	470– 85	(Reserved)	470– 101
18.4 Competencies — Implementing the Planned Response	470– 86	26.6 Competencies — Terminating the Incident	470– 101
18.5 Competencies — Evaluating Progress	470– 87	(Reserved)	470– 101
18.6 Competencies — Terminating the Incident	470– 87	Chapter 27 Reserved	470– 101
Chapter 19 Professional Qualifications for Hazardous Materials/WMD Safety Officers (NFPA 1072)	470– 88	Chapter 28 Competencies for Hazardous Materials/WMD Technicians with a Flammable Liquids Bulk Storage Specialty (NFPA 472)	470– 101
19.1 General	470– 88	28.1 General	470– 101
19.2 Analyze the Incident	470– 88	28.2 Competencies — Analyzing the Incident	470– 102
19.3 Plan the Response	470– 88	28.3 Competencies — Planning the Response	470– 103
19.4 Implement the Action Plan Within the IAP	470– 89		
19.5 Evaluate the Effectiveness of the Response	470– 89		
19.6 Terminate the Incident	470– 90		

28.4	Competencies — Implementing the Planned Response.	470– 104	36.3	Public Protection Actions.	470– 114
28.5	Competencies — Evaluating Progress. (Reserved)	470– 104	36.4	Wide Area Monitoring and Sampling.	470– 114
28.6	Competencies — Terminating the Incident. (Reserved)	470– 104	36.5	Drinking Water Contamination.	470– 114
Chapter 29	Reserved	470– 104	36.6	Open Sources Information.	470– 114
Chapter 30	Competencies for Hazardous Materials/WMD Technicians with a Flammable Gases Bulk Storage Specialty (NFPA 472)	470– 104	36.7	Operational Security (OPSEC).	470– 114
30.1	General.	470– 104	36.8	Competencies — Evaluating Progress. (Reserved)	470– 114
30.2	Competencies — Analyzing the Incident.	470– 105	36.9	Competencies — Terminating the Incident. (Reserved)	470– 114
30.3	Competencies — Planning the Response.	470– 105	Chapter 37	Reserved	470– 115
30.4	Competencies — Implementing the Planned Response.	470– 106	Chapter 38	Competencies for Hazardous Materials/WMD Technicians with an Advanced Chemical Risk Assessment and Analysis Specialty (NFPA 472)	470– 115
30.5	Competencies — Evaluating Progress. (Reserved)	470– 106	38.1	General.	470– 115
30.6	Competencies — Terminating the Incident. (Reserved)	470– 106	38.2	Competencies — Analyzing the Incident.	470– 115
Chapter 31	Reserved	470– 106	38.3	Competencies — Planning the Response.	470– 115
Chapter 32	Competencies for Hazardous Materials/WMD Technicians with a Radiological Hazard Specialty (NFPA 472)	470– 106	38.4	Competencies — Evaluating Progress. (Reserved)	470– 116
32.1	General.	470– 106	38.5	Competencies — Terminating the Incident. (Reserved)	470– 116
32.2	Competencies — Analyzing the Incident.	470– 106	Chapter 39	Reserved	470– 116
32.3	Competencies — Planning the Response.	470– 107	Chapter 40	Competencies for Hazardous Materials/WMD Technicians with an Advanced Product Control Specialty (NFPA 472)	470– 116
32.4	Competencies — Implementing the Planned Response.	470– 108	40.1	General.	470– 116
32.5	Competencies — Evaluating Progress.	470– 108	40.2	Competencies — Analyzing the Incident. (Reserved)	470– 117
32.6	Competencies — Terminating the Incident.	470– 109	40.3	Competencies — Planning the Response. (Reserved)	470– 117
Chapter 33	Professional Qualifications for Hazardous Materials/WMD Technicians with a Radiological Hazard Specialty (NFPA 1072)	470– 109	40.4	Competencies — Implementing the Planned Response. (Reserved)	470– 117
33.1	General.	470– 109	40.5	Competencies — Evaluating Progress. (Reserved)	470– 117
33.2	Analyze the Incident.	470– 109	40.6	Competencies — Terminating the Incident. (Reserved)	470– 117
33.3	Response Planning.	470– 110	Chapter 41	Reserved	470– 117
33.4	Action Plan Implementation.	470– 111	Chapter 42	Competencies for Hazardous Materials/WMD Technicians with a Weapons of Mass Destruction Specialty (NFPA 472)	470– 117
Chapter 34	Competencies for Hazardous Materials/WMD Technicians with an Advanced Monitoring and Detection Specialty (NFPA 472)	470– 111	42.1	General.	470– 117
34.1	General.	470– 111	42.2	Competencies — Analyzing the Incident.	470– 117
34.2	Competencies — Analyzing the Incident. (Reserved)	470– 112	42.3	Competencies — Planning the Response.	470– 118
34.3	Competencies — Planning the Response.	470– 112	42.4	Competencies — Implementing the Planned Response.	470– 118
34.4	Competencies — Implementing the Planned Response.	470– 113	42.5	Competencies — Evaluating Progress. (Reserved)	470– 119
34.5	Competencies — Evaluating Progress. (Reserved)	470– 113	42.6	Competencies — Terminating the Incident. (Reserved)	470– 119
34.6	Competencies — Terminating the Incident. (Reserved)	470– 113	Chapter 43	Reserved	470– 119
Chapter 35	Reserved	470– 113	Chapter 44	Competencies for Hazardous Materials/WMD Technicians with an Advanced Decontamination Specialty (NFPA 472)	470– 119
Chapter 36	Competencies for Hazardous Materials/WMD Technicians with a Consequence Analysis and Planning Specialty (NFPA 472)	470– 113	44.1	General.	470– 119
36.1	General.	470– 113	44.2	Competencies — Analyzing the Incident.	470– 119
36.2	Competencies — Analyzing the Incident.	470– 113	44.3	Competencies — Planning the Response.	470– 120
			44.4	Competencies — Implementing the Planned Response.	470– 120

44.5	Competencies — Evaluating Progress.	470– 120		Provide Clinical Interventions at Hazardous Materials/WMD Incident.	
44.6	Competencies — Terminating the Incident. (Reserved)	470– 120	48.4	Mission-Specific Competencies — Advanced Life Support (ALS) Responder Assigned to Treatment of Smoke Inhalation Victims.	470– 134
Chapter 45	Reserved	470– 120	Annex A	Explanatory Material	470– 135
Chapter 46	Competencies for Hazardous Materials/WMD Basic Life Support (BLS) Responders (NFPA 473)	470– 120	Annex B	Explanation of the Professional Qualifications Standards and Concepts of JPRs	470– 171
46.1	General.	470– 120	Annex C	An Overview of JPRs for Hazardous Materials/WMD Response Personnel (NFPA 1072)	470– 174
46.2	Competencies — Analyzing the Incident.	470– 121	Annex D	Competencies for Operations Level Responders Assigned Biological Agent-Specific Tasks (NFPA 472)	470– 192
46.3	Competencies — Planning the Response.	470– 122	Annex E	Competencies for Operations Level Responders Assigned Chemical Agent-Specific Tasks (NFPA 472)	470– 194
46.4	Competencies — Implementing the Planned Response.	470– 123	Annex F	Overview of Responder Levels and Tasks at Hazardous Materials/WMD Incidents (NFPA 472)	470– 196
46.5	Competencies — Terminating the Incident.	470– 125	Annex G	Definitions of Hazardous Materials (NFPA 472)	470– 199
Chapter 47	Competencies for Hazardous Materials/WMD Advanced Life Support (ALS) Responders (NFPA 473)	470– 125	Annex H	UN/DOT Hazard Classes and Divisions (NFPA 472)	470– 199
47.1	General.	470– 125	Annex I	Toxicity Analysis and Antidote Tables (NFPA 473)	470– 201
47.2	Competencies — Analyzing the Hazardous Materials Incident.	470– 126	Annex J	National Fallen Firefighters Foundation (NFPA 1072)	470– 202
47.3	Competencies — Planning the Response.	470– 127	Annex K	Informational References	470– 203
47.4	Competencies — Implementing the Planned Response.	470– 128	Index		470– 207
47.5	Competencies — Terminating the Incident.	470– 130			
Chapter 48	Competencies for Hazardous Materials/WMD Advanced Life Support (ALS) Responders Assigned Mission-Specific Responsibilities (NFPA 473)	470– 131			
48.1	General.	470– 131			
48.2	Mission-Specific Competencies — Advanced Life Support (ALS) Responder Assigned to a Hazardous Materials/WMD Team.	470– 131			
48.3	Mission-Specific Competencies — Advanced Life Support (ALS) Responder Assigned to	470– 133			

NFPA 470

Hazardous Materials/Weapons of Mass Destruction (WMD) Standard for Responders

2022 Edition

IMPORTANT NOTE: This NFPA document is made available for use subject to important notices and legal disclaimers. These notices and disclaimers appear in all publications containing this document and may be found under the heading “Important Notices and Disclaimers Concerning NFPA Standards.” They can also be viewed at www.nfpa.org/disclaimers or obtained on request from NFPA.

UPDATES, ALERTS, AND FUTURE EDITIONS: New editions of NFPA codes, standards, recommended practices, and guides (i.e., NFPA Standards) are released on scheduled revision cycles. This edition may be superseded by a later one, or it may be amended outside of its scheduled revision cycle through the issuance of Tentative Interim Amendments (TIAs). An official NFPA Standard at any point in time consists of the current edition of the document, together with all TIAs and Errata in effect. To verify that this document is the current edition or to determine if it has been amended by TIAs or Errata, please consult the National Fire Codes® Subscription Service or the “List of NFPA Codes & Standards” at www.nfpa.org/docinfo. In addition to TIAs and Errata, the document information pages also include the option to sign up for alerts for individual documents and to be involved in the development of the next edition.

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. 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 and extracted publications can be found in Chapter 2 and Annex K.

Chapter 1 Administration

1.1* Scope. This standard provides minimum requirements for personnel responding to incidents involving hazardous materials and weapons of mass destruction (WMD).

1.1.1 Even numbered Chapters 4 through 44 identify the minimum levels of competence required by responders to emergencies involving hazardous materials/WMD.

1.1.1.1 Even numbered Chapters 4 through 44 apply to any individual or member of any organization who responds to hazardous materials/WMD incidents.

1.1.1.2 Even numbered Chapters 4 through 44 cover the competencies for Awareness Level Personnel, Operations Level Responders, Hazardous Materials Technicians, Incident Commanders, Hazardous Materials Officers, Hazardous Materials Safety Officers, and other Specialist Employees.

1.1.2 Odd numbered Chapters 5 through 45 identify 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.

1.1.3 Chapters 6 through 46 identify the levels of competence required of emergency medical services (EMS) personnel who respond to incidents involving hazardous materials or WMD.

1.1.3.1 Chapters 46 through 48 cover the requirements for all levels of certified EMS personnel in the out-of-hospital setting.

1.1.3.2 Chapter 46 is based on the premise that all emergency medical responder (EMR) and emergency medical technician (EMT) or equivalent certified personnel are trained to meet at least the core competencies of the Operations Level Responders as defined in Chapter 6.

1.2 Purpose. The purpose of this standard is to specify minimum requirements for the following:

- (1) Levels of competence required by responders to emergencies involving hazardous materials/WMD
- (2) JPRs for personnel at the scene of a hazardous materials/WMD incident
- (3) Levels of competence required by EMS personnel who respond to incidents involving hazardous materials/WMD

1.2.1 The purpose of even numbered Chapters 4 through 44 is to specify minimum competencies required for those who respond to hazardous materials/WMD incidents and necessary for a risk-based response to these incidents.

1.2.1.1 The competencies contained in even numbered Chapters 4 through 44 help reduce the numbers of accidents, injuries, and illnesses during response to hazardous materials/WMD incidents and shall help prevent exposure to hazardous materials/WMD, thus reducing the possibility of fatalities, illness, and disabilities to emergency response personnel.

1.2.1.2 Even numbered Chapters 4 through 44 provide the requisite knowledge that forms the basis for the associated JPRs established in odd numbered Chapters 5 through 45.

1.2.2 The purpose of odd numbered Chapters 5 through 45 is to specify the minimum JPRs for service at the scene of a hazardous materials/WMD incident at the following levels: awareness, operations, operations mission-specific, Hazardous Materials Technician, and Incident Commander.

1.2.2.1 Odd numbered Chapters 5 through 45 define 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.

1.2.2.2 The intent of odd numbered Chapters 5 through 45 is to ensure that personnel at the scene of a hazardous materials/WMD incident at the levels of awareness, operations, operations mission-specific, Hazardous Materials Technician, and Incident Commander are qualified.

1.2.2.3* Odd numbered Chapters 5 through 45 do not address organization or management responsibility.

1.2.2.4 JPRs for each level and position are the tasks personnel must be able to perform to carry out the job duties.

1.2.2.5* Personnel at the scene of a hazardous materials/WMD incident at the levels of awareness, operations, operations mission-specific, Hazardous Materials Technician,

and Incident Commander must remain current with the general knowledge and skills and JPRs addressed for each level or position of qualification.

1.2.3 The purpose of Chapters 46 through 48 is to specify minimum requirements of competence and to enhance the safety and protection of response personnel and all components of the EMS system.

1.2.3.1* CDC Categories A, B, and C. Chapters 46 through 48 use the US Centers for Disease Control and Prevention (CDC) categories of diseases and agents.

1.3* Application. This standard can be applied as follows:

- (1) Chapters 1 through 3, even numbered Chapters 4 through 44, and Annexes A, D, E, F, G, H, and K constitute the 2022 edition of NFPA 472, incorporated in this standard.
- (2) Chapters 1 through 3, odd numbered Chapters 5 through 45, and Annexes A, B, J, and K constitute the 2022 edition of NFPA 1072, incorporated in this standard.
- (3) Chapters 1 through 3, 46 through 48, and Annexes A, I, and K constitute the 2022 edition of NFPA 473, incorporated in this standard.

1.3.1 The requirements in this standard (Chapters 4 through 48) are to be accomplished in accordance with the requirements of the authority having jurisdiction (AHJ) and all applicable NFPA standards.

1.3.1.1 It is not required that the requirements in this standard (Chapters 4 through 48) be mastered in the order in which they appear. The AHJ must establish instructional priority and the training program content to prepare personnel to meet the requirements of this standard.

1.3.1.2* Performance of each requirement in this standard (Chapters 4 through 48) must be evaluated by personnel approved by the AHJ.

1.3.1.3 Performance of each requirement in this standard (Chapters 4 through 48) must be completed in accordance with recognized practices and procedures or as defined by law or by the AHJ.

1.3.1.4 Personnel assigned the duties for each level or position in this standard must meet all the requirements defined in the standard for that level or position prior to being qualified.

1.3.1.5 The AHJ must provide personal protective clothing and the equipment necessary to conduct assignments.

1.3.1.6 Requirements involving exposure to products of combustion must be performed in approved PPE.

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

1.3.1.8* For each level and position as identified in odd numbered Chapters 5 through 45, persons must participate in continuing professional development activities to maintain competency with the JPRs covered in this standard for each level and position that the person is professionally qualified to act.

1.3.2 Prior to training to meet the requirements of this standard, personnel must meet the following requirements:

- (1) Educational requirements established by the AHJ
- (2) Age requirements established by the AHJ
- (3) Medical requirements established by the AHJ
- (4) Job-related physical performance requirements established by the AHJ

1.3.3 It is not the intent of Chapters 4 through 48 to restrict any jurisdiction from exceeding these minimum requirements.

1.4 Equivalency. Nothing in this standard is intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, and safety over those prescribed by this standard.

1.4.1 Technical documentation must be submitted to the AHJ to demonstrate equivalency.

1.4.2 The system, method, or device must be approved for the intended purpose by the AHJ.

1.5 Units. In this standard, equivalent values in SI units are not to be considered as the requirement, as these values can be approximate. (See Table 1.5.)

Table 1.5 US-to-SI Conversions

Quantity	US 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
Volume	gallon (gal)	liter (L)	1 gal = 3.785 L
	quart (qt)	liter (L)	1 qt = 0.9463 L
Weight	pound (lb)	gram (g)	1 lb = 453.6 g
Pressure	atmosphere (atm)	millimeters of mercury (mm Hg)	1 atm = 760 mm Hg
	inches of mercury (in. Hg)	millimeters of mercury (mm Hg)	1 in. Hg = 25.4 mm Hg
	inches of water (in. H ₂ O)	millimeters of mercury (mm Hg)	1 in H ₂ O = 1.87 mm Hg
	pounds per square inch (psi)	millimeters of mercury (mm Hg)	1 psi = 51.7 mm Hg
	pounds per square inch (psi)	bar	1 psi = 0.068 bar
	pounds per square inch (psi)	pascal (Pa)	1 psi = 6894.8 Pa
		gray (Gy)	100 rad = 1 Gy
Radiation	rad	gray (Gy)	100 rem = 1 Sv
	rem	sievert (Sv)	1 Bq = 2.7 × 10 ⁻¹¹ Ci
	curie (Ci)	becquerel (Bq)	

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.

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

NFPA 11, *Standard for Low-, Medium-, and High-Expansion Foam*, 2021 edition.

NFPA 704, *Standard System for the Identification of the Hazards of Materials for Emergency Response*, 2022 edition.

NFPA 1001, *Standard for Fire Fighter Professional Qualifications*, 2019 edition.

NFPA 1584, *Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises*, 2022 edition.

NFPA 1891, *Standard on Selection, Care, and Maintenance of Hazardous Materials Clothing and Equipment*, 2022 edition.

2.3 Other Publications.

2.3.1 ASTM Publications. ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

ASTM A240/A240M, *Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications*, 2020.

2.3.2 ATSDR Publications. Agency for Toxic Substances and Disease Registry, Centers for Disease Control and Prevention, 1600 Clifton Road, Atlanta, GA 30329.

Managing Hazardous Materials Incidents (MHMIs), Volume III — Medical Management Guidelines (MMGs) for Acute Chemical Exposures, 2000.

2.3.3 DOT Publications. US Department of Transportation, 1200 New Jersey Avenue, SE, Washington, DC 20590.

Emergency Response Guidebook, Pipeline and Hazardous Materials Administration, 2020.

National Standard Curriculum: *Emergency Medical Technician Paramedic*, 1998.

2.3.4 EPA Publications. US Environmental Protection Agency, William Jefferson Clinton East Building, 1200 Pennsylvania Avenue, NW, Washington, DC 20460.

Emergency Planning and Community Right-to-Know Act (EPCRA), 42 U.S.C. § 116, 1986.

Superfund Amendments and Reauthorization Act (SARA), 1986.

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

ICS Form 206, *Medical Plan*.

2.3.6 US Government Publications. US Government Publishing Office, 732 North Capitol Street, NW, Washington, DC 20401-0001.

18 US Code, Section 2332a.

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

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

2.3.7 Other Publications.

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

2.4 References for Extracts in Mandatory Sections.

NFPA 51, *Standard for the Design and Installation of Oxygen–Fuel Gas Systems for Welding, Cutting, and Allied Processes*, 2018 edition.

NFPA 70®, *National Electrical Code®*, 2020 edition.

NFPA 1000, *Standard for Fire Service Professional Qualifications Accreditation and Certification Systems*, 2022 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 Labeled. Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

3.2.4* 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.

3.2.5 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 Advanced Life Support (ALS). Emergency medical treatment beyond basic life support level as defined by the medical authority having jurisdiction in conjunction with the American Heart Association guidelines.

3.3.1.1 Emergency Medical Technician — Intermediate (EMT-I).

An individual who has completed a course of instruction that includes selected modules of the US Department of Transportation National Standard EMT — Paramedic curriculum and who holds an intermediate level EMT-I or EMT-C certification from the authority having jurisdiction.

3.3.1.2 Emergency Medical Technician — Paramedic (EMT-P).

An individual who has successfully completed a course of instruction that meets or exceeds the requirements of the US Department of Transportation National Standard EMT — Paramedic curriculum and who holds an EMT-P certification from the authority having jurisdiction.

3.3.1.3 Medical Director. An individual who plans and directs all aspects of an organization's or system's medical policies and programs, including operations and offline (protocol) and online medical direction (direct communication consultation); is responsible for strategic clinical relationships with other physicians; oversees the development of the clinical content in materials; ensures all clinical programs are in compliance; writes and reviews research publications appropriate to support clinical service offerings; requires an active degree in medicine with specialty experience or training in emergency and disaster medical mitigation, administration, and management; relies on experience and judgment to plan and accomplish goals; and typically coordinates with the incident command.

3.3.1.4* Medical Team Specialist. Any health care provider or medically trained specialist acting under the authority of the medical director, and within the context of the National Incident Management System, authorized to act as the medical point of contact for an incident.

3.3.2* 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.

3.3.3 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.

3.3.4 Area of Safe Refuge. An area where people are held until they can be safely decontaminated, treated, or removed.

3.3.5 Area of Specialization.

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

3.3.5.2 Organization's Area of Specialization. Any chemicals or containers used by the Specialist Employee's employer.

3.3.6 Assignment. A job, task, role, or function to be performed that can come from a supervisor or other established authority as determined by the authority having jurisdiction (AHJ) (e.g., Hazardous Materials Technician, allied professional, emergency response plans, or standard operating procedures).

3.3.7* Backup Team. A required team comprising two or more responders equipped with approved personal protective equipment (PPE)/chemical protective clothing (CPC) and assigned by the Incident Commander to provide emergency removal of a stricken entry team member from the hot zone.

3.3.8 Basic Life Support (BLS). Emergency medical treatment at a level as defined by the medical authority having jurisdiction in conjunction with American Heart Association guidelines.

3.3.8.1* Emergency Care First Responder (ECFR). An individual who has successfully completed the specified emergency care first responder course developed by the US Department of Transportation and who holds an ECFR certification from the authority having jurisdiction.

3.3.8.2 Emergency Medical Technician — Ambulance/Basic (EMT-A/B). An individual who has successfully completed an EMT-A or EMT-B curriculum developed by the U.S. Department of Transportation or equivalent and who holds an EMT-A/B certification from the authority having jurisdiction.

3.3.9 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.

3.3.10 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.

3.3.11 Competence. Possessing knowledge, skills, and judgment needed to perform assigned incident objectives.

3.3.12* Components of Emergency Medical Service (EMS) System. The parts of a comprehensive plan to treat an individual in need of emergency medical care following an illness or injury.

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

3.3.14 Container. A receptacle, piping, or pipeline used for storing or transporting material of any kind; synonymous with “packaging” in transportation.

3.3.14.1* Bulk Transportation Containers. Containers, including transport vehicles, having a liquid capacity of

more than 119 gal (450 L), a solids capacity of more than 882 lb (400 kg), or a compressed gas water capacity of more than 1001 lb (454 kg) that are either placed on or in a transport vehicle or vessel or are constructed as an integral part of the transport vehicle, including the following: (1) cargo tanks including nonpressure tanks — MC-306/DOT-406 or equivalent, low-pressure tanks — MC-307-DOT-407 or equivalent, corrosive liquid tanks — MC-312/DOT-412 or equivalent, high-pressure tanks — MC-331 or equivalent, and cryogenic liquid tanks — MC-338 or equivalent, compressed gas tubes trailers, and dry bulk cargo tanks; (2) portable tanks such as intermodal tanks, including tanks for liquids and solids, tanks for liquefied compressed gases, tanks for refrigerated liquefied gases (cryogenic liquids), and multiple-element gas containers (MEGC) for nonrefrigerated compressed gases; (3) tank cars including nonpressure tank cars, pressure tank cars, and cryogenic liquid tank cars; and (4) ton containers.

3.3.14.2 Facility Storage Tanks. Atmospheric and low-pressure storage tanks, pressurized storage tanks, and cryogenic storage tanks.

3.3.14.3 Intermediate Bulk Containers (IBCs). Pressure, nonpressure, and cryogenic rigid or flexible portable containers, other than cylinders or portable tanks, designed for mechanical lifting.

3.3.14.4 Nonbulk Containers. Containers, including bags, boxes, carboys, cylinders, drums, and Dewar flasks for cryogenic liquids, having a liquid capacity of 119 gal (450 L) or less, a solids capacity of 882 lb (400 kg) or less, or a compressed gas water capacity of 1001 lb (454 kg) or less.

3.3.14.5 Pipeline. A length of pipe including pumps, valves, flanges, control devices, strainers, and/or similar equipment for conveying fluids. [70:427.2]

3.3.14.6 Piping. Assemblies of piping components used to convey, distribute, mix, separate, discharge, meter, control, or snub fluid flows. Piping also includes pipe-supporting elements but does not include support structures, such as building frames, bents, foundations, or any other equipment excluded from this standard. [51, 2018]

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

3.3.15 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.

3.3.16 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.

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

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

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

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

3.3.17.3 Extinguishment. To cause to cease burning.

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

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

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

3.3.19.2* Gross Decontamination. A phase of the decontamination process where significant reduction of the amount of surface contamination takes place as soon as possible, most often accomplished by mechanical removal of the contaminant or initial rinsing from handheld hose lines, emergency showers, or other nearby sources of water.

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

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

3.3.20 Degradation. A chemical action involving the molecular breakdown of a protective clothing material or equipment due to contact with a chemical.

3.3.21* Demonstrate. To show by actual performance.

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

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

3.3.24 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.

3.3.25 Emergency Medical Services (EMS). The provision of treatment, such as first aid, cardiopulmonary resuscitation, basic life support, advanced life support, and other prehospital procedures, including transportation, of patients.

3.3.26 Emergency Response Guidebook (ERG). The 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 US Department of Transportation, Transport Canada, and the Secretariat of Transport and Communications, Mexico.

3.3.27 Endangered Area. The actual or potential area of exposure associated with the release of a hazardous materials/weapons of mass destruction (WMD).

3.3.28* Entry Team. A team comprising two or more responders equipped with approved personal protective equipment (PPE)/chemical protective clothing (CPC) and assigned by the Incident Commander to perform duties in the hot zone.

3.3.29 Evaluate. To assess or judge the effectiveness of a response operation or course of action within the training and capabilities of the emergency responder.

3.3.30 Evidence. Material(s) that can be presented to a court or jury in proof of the facts and that can include records, documents, or objects.

3.3.31 Evidence Preservation. Deliberate and specific actions taken with the intention of protecting potential evidence from contamination, damage, loss, or destruction.

3.3.32 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).

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

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

3.3.35 Field Screening. A set of procedures, to include at a minimum nondestructive field testing to identify the presence of explosive devices, radiological materials, flammable materials, volatile organic compounds (VOC), strong oxidizers, fluorides, or corrosives, that serves as a protective safety measure prior to collection, transportation, and laboratory analysis.

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

3.3.37* Harm. An adverse effect caused by being exposed to a hazard.

3.3.38* Hazard. A condition or material capable of causing harm to life, container, property, or the environment.

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

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

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

3.3.39.3 Hot Zone. The hazard 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.

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

3.3.40* 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 US Code, Section 2332a, as well as any other criminal use of hazardous materials, such as illicit labs, environmental crimes, or industrial sabotage.

3.3.41* Hazardous Materials Branch/Group. The function within an overall incident command system (ICS) that deals with the mitigation and control of the hazardous materials/weapons of mass destruction (WMD) portion of an incident.

3.3.42* 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 Materials Technician level skills at hazardous materials/weapons of mass destruction (WMD) incidents.

3.3.43* Hazardous Materials Technician. See 3.4.3.1.

3.3.44 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.

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

3.3.46 Incident Analysis. The process of analyzing the risk at an incident by identifying the materials and containers involved, predicting the likely behavior of each container and its contents, and estimating the potential harm or outcomes associated with that behavior.

3.3.47 Incident Command System (ICS). A component of an incident command system (ICS) 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.

3.3.48* Incident Objectives. Incident-specific statements describing intended outcomes within a given operational period.

3.3.49* Job Performance Requirement (JPR). A written statement that describes a specific job task, lists the items necessary to complete the task, and defines measurable or observable outcomes and evaluation areas for the specific task. [1000, 2022]

3.3.50 Match. To provide with a counterpart.

3.3.51* Mayday. Any situation at a hazardous materials/weapons of mass destruction (WMD) incident where an entry team member is unable to safely exit the hot zone or an event cannot be resolved by the entry team member within 30 seconds.

3.3.52 Medical Control. The physician or designee providing direction for patient care activities in the prehospital setting.

3.3.53 Medical Surveillance. The ongoing process of medical evaluation of Hazardous Materials Response Team members and public safety personnel who respond to a hazardous materials incident.

3.3.54 Mission-Specific Competencies. See 3.4.2.1.2

3.3.55 Modes of Operation (Nonintervention, Defensive, and Offensive).

3.3.55.1* Nonintervention Mode. An operating mode used where the risk to emergency responders is greater than the benefit, in which responders do not operate near the hazardous materials/weapons of mass destruction (WMD) or container, focusing on public protective actions only and allowing the container or product to take its natural course.

3.3.55.2* Defensive Mode. An operating mode characterized as medium risk to emergency responders, in which responders do not have direct contact with the hazardous materials/weapons of mass destruction (WMD), focusing on safely controlling or limiting the effects of a release.

3.3.55.3* Offensive Mode. An operating mode characterized as higher risk to emergency responders, in which responders could have direct contact with the hazardous materials/weapons of mass destruction (WMD), taking aggressive actions to control the release of hazardous materials/WMD.

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

3.3.57 Patient. Any person or persons requiring or requesting a BLS/ALS evaluation or intervention at the scene of a hazardous materials/WMD incident.

3.3.58 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.

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

3.3.60* 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) incident operations.

3.3.61 Plan.

3.3.61.1* Emergency Response Plan (ERP). 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 the jurisdiction who have entered into response/support agreements, that identifies goals and incident objectives for that emergency type, agency roles, and overall strategies.

3.3.61.2* Incident Action Plan (IAP). An oral or written plan approved by the Incident Commander (IC) containing inci-

dent objectives reflecting the overall strategy for managing an incident for a specific time frame and target location.

3.3.61.2.1* Action Plan. Creation of a plan to determine strategies and tactics within an incident action plan (IAP) and is a detailed proposal that will safely accomplish incident objectives, favorably influence outcomes, and increase the safety of responders and the public.

3.3.61.3* Site Safety and Control Plan. A site-specific safety document used within the incident command system (ICS) to organize information important to hazardous materials response operations.

3.3.62* 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 materials/weapons of mass destruction (WMD) incident.

3.3.63 Predict. To estimate or forecast 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.

3.3.64 Priority Conditions. A process by which a responder can arrange or organize individuals that have had an exposure to a potential hazardous substance contamination, which has influence from chemical and physical properties of a hazardous chemical with associated route of entry and potential mechanism of toxicological occurrence (low-level contamination with a highly toxic substance, low-level contamination with a low-toxicity substance).

3.3.65* Protective Clothing. One component of personal protective equipment (PPE) that is defined as any clothing specifically designed, treated, or fabricated to protect personnel from hazards that are caused by extreme environmental conditions or a dangerous work environment.

3.3.65.1* Ballistic Protective Clothing (BPC). An item of personal protective equipment 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.

3.3.65.2* 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.

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

3.3.65.2.2* 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.

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

3.3.65.4* Structural Firefighting Protective Clothing. The fire-resistant protective clothing normally worn by firefighters during structural firefighting 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.

3.3.66 Protocol. A guideline for a series of sequential steps directing patient treatment.

3.3.67* Public Safety Bomb Technician. A trained individual who is authorized by the AHJ to perform interrogation and render safe activities on improvised explosive devices or other devices that could contain a hazardous material.

3.3.68 Public Safety Sampling. The detection, monitoring, or collection of a material for the purposes of determining the hazards present and to guide public safety response decisions.

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

3.3.70 Region. A geographic area that includes the local and neighboring jurisdiction for an EMS agency.

3.3.71* Rescue Team. Consists of responders trained to receive a stricken entry team member who has been removed from the hot zone by the backup team. Use of the rescue team is an option that is activated by the Incident Commander based on an assessment of risk and the needs of the incident.

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

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

3.3.74* Risk. The probability of an adverse outcome.

3.3.75* Risk-Based Response. Systematic process, based on the facts, science, and circumstances of the incident, by which responders analyze a problem involving hazardous materials/weapons of mass destruction (WMD) to assess the hazards and consequences, develop an incident action plan (IAP), and evaluate the effectiveness of the plan.

3.3.76* 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.

3.3.77* Sampling. The process of selecting materials to analyze.

3.3.78 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.

3.3.79 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).

3.3.80 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.

3.3.81 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.

3.3.82* Strategies. The general course of action, direction, or plan to accomplish incident objectives.

3.3.83 Surrounding Conditions. Conditions to be taken into consideration when identifying the scope of a hazardous materials/WMD incident, including but not limited to topography; land use, including utilities and fiber-optic cables; accessibility; weather conditions; bodies of water, including recharge ponds; public exposure potential; patient presentation; overhead and underground wires and pipelines; storm and sewer drains; possible ignition sources; adjacent land use such as rail lines, highways, and airports; and the nature and extent of injuries.

3.3.84* Tactics. Specific actions or tasks taken to achieve strategies involving the deployment and directing of resources on an incident.

3.3.85 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 and include specifications for debriefing, post-incident analysis, and critique in a specific sequence.

3.3.85.1 Critique. An element of incident termination that examines the overall effectiveness of the emergency response effort and develops recommendations for improvement.

3.3.85.2 Debriefing. An element of incident termination that focuses on the following: (1) informing responders exactly what hazmat they were (possibly) exposed to and the signs and symptoms of exposure; (2) identifying damaged equipment requiring replacement or repair; (3) identifying equipment or supplies requiring specialized decontamination or disposal; (4) identifying unsafe work conditions; (5) assigning information-gathering responsibilities for a post-incident analysis.

3.3.85.3 Post-Incident Analysis. An element of incident termination that includes completion of the required incident reporting forms, determining the level of financial responsibility, and assembling documentation for conducting a critique.

3.3.86* 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.

3.3.87 Victim Prioritization and Patient Triage. Victim prioritization utilizes risk-based factors to establish an action plan for victim removal and eventual treatment. Patient triage is a clinical prioritization employed to maximize survival and to prioritize application of therapeutic modalities.

3.3.88* Weapon of Mass Destruction (WMD). Any weapon or material that is designed to cause death or serious injury or damage to buildings, structures, or the environment such as an explosive or incendiary bomb, rocket, or grenade (destructive or delivery device); containing or delivering a toxic or danger-

ous chemical; biological agent, toxin, or vectors; or a weapon that is designed to release dangerous levels of radiation.

3.3.88.1* Radiological Weapons of Mass Destruction.

3.3.88.1.1* 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.

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

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

3.4 Hazardous Materials Responder Level Definitions.

3.4.1 Awareness Level.

3.4.1.1 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/WMD, protect themselves, call for trained personnel, and secure the scene.

3.4.2 Operations Level.

3.4.2.1 Operations Level Competencies.

3.4.2.1.1 Agent-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 (AHJ) to respond to releases or potential releases of a specific group of WMD agents.

3.4.2.1.2 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 (AHJ) to perform mission-specific tasks, such as decontamination, victim/hostage rescue and recovery, evidence preservation, and sampling.

3.4.2.1.3* 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, animals, the environment, or property from the effects of the release.

3.4.2.1.4 Operations Mission-Specific Responders.

3.4.2.1.4.1 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.

3.4.2.1.4.2 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.

3.4.2.1.4.3 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.

3.4.2.1.4.4 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.

3.4.2.1.4.5 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.

3.4.2.1.4.6 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.

3.4.2.1.4.7 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.

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

3.4.2.1.4.9 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.

3.4.2.1.4.10 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 Materials Technician, response personnel, and other outside resources regarding chemical issues.

3.4.2.1.4.11 Operations Level Responders Assigned Responsibilities for Radiological Hazard-Specific Response. Persons, competent at the operations level, who, at hazardous materials/weapons of mass destruction (WMD) incidents involving a radiological hazard, 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 radiological hazard-specific issues.

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

3.4.3 Technician Level.

3.4.3.1 Hazardous Materials Technician. A person who responds to hazardous materials/weapons of mass destruction (WMD) incidents using a risk-based response process to analyze a problem involving hazardous materials/WMD, plan a response to the problem, implement the planned response, evaluate progress of the planned response and adjust accordingly, and assist in terminating the incident.

3.4.3.2 Hazardous Materials Technician with an Advanced Chemical Risk Assessment and Analysis Specialty. A person who provides technical support to the Hazardous Materials Technician and other personnel by implementing advanced chemical risk assessment and analysis operations at hazardous materials/weapons of mass destruction (WMD) incidents.

3.4.3.3 Hazardous Materials Technician with an Advanced Decontamination Specialty. A person who provides technical support to the Hazardous Materials Technician and other personnel by applying advanced knowledge of decontamination applications, technology, and procedures.

3.4.3.4 Hazardous Materials Technician with an Advanced Monitoring and Detection Specialty. A person who provides technical support to the Hazardous Materials Technician and other personnel by implementing advanced monitoring and detection operations at hazardous materials/WMD incidents.

3.4.3.5 Hazardous Materials Technician with an Advanced Product Control Specialty. A person who provides technical support to the Hazardous Materials Technician and other personnel and implements advanced knowledge of product control applications, technology, and procedures at hazardous materials/weapons of mass destruction (WMD) incidents.

3.4.3.6 Hazardous Materials Technician with a Cargo Tank Specialty. A 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 at hazardous materials/weapons of mass destruction (WMD) incidents.

3.4.3.7 Hazardous Materials Technician with a Consequence Analysis and Planning Specialty. A person who provides technical

support to the Hazardous Materials Technician and other personnel using technology systems and technical resource data to analyze the problem and estimate the area of impact, formulating recommendations for public protective actions, and assisting in developing IAPs at hazardous materials/weapons of mass destruction (WMD) incidents.

3.4.3.8 Hazardous Materials Technician with a Flammable Gases Bulk Storage Specialty. A person who, in incidents involving flammable gas bulk storage tanks, 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, firefighting personnel, and other resources.

3.4.3.9 Hazardous Materials Technician with a Flammable Liquids Bulk Storage Specialty. A 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.

3.4.3.10 Hazardous Materials Technician with an Intermodal Tank Specialty. A person who provides technical support pertaining to intermodal tanks, including UN portable tanks and multiple-element gas containers (MEGC), 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 at hazardous materials/weapons of mass destruction (WMD) incidents.

3.4.3.11 Hazardous Materials Technician with a Marine Tank and Non-Tank Vessel Specialty. A 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 at hazardous materials/weapons of mass destruction (WMD) incidents.

3.4.3.12 Hazardous Materials Technician with a Radiological Hazard Specialty. A person who provides support pertaining 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.

3.4.3.13 Hazardous Materials Technician with a Tank Car Specialty. A 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.

3.4.3.14 Hazardous Materials Technician with a Weapons of Mass Destruction (WMD) Specialty. A person who provides technical support to the Hazardous Materials Technician and other emergency response personnel by applying advanced knowledge of WMD agents, response equipment,

and response procedures during the intentional release of hazardous materials or WMD(s).

3.4.4 Command Level.

3.4.4.1* 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).

3.4.4.2* Hazardous Materials Safety Officer. The person who works within an incident command system (ICS) (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.

3.4.4.3* 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.

3.4.5 Specialist Employees.

3.4.5.1* 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.

3.4.5.2* Specialist Employee B. That person who, during 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.

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

3.4.6 Emergency Medical Services Responders to Hazardous Materials/Weapons of Mass Destruction (WMD).

3.4.6.1 Emergency Medical Services Responders to Hazardous Materials/Weapon of Mass Destruction (WMD) at the ALS Level (ALS Responder). Operations Level Responders who are ALS certified, assigned EMS mission-specific responsibilities at hazardous materials/WMD incidents, and trained to meet all competencies in Chapters 4, 6, and 8 and all competencies for the assigned responsibilities in Chapters 46, 47, and 48.

3.4.6.2 Emergency Medical Services Responders to Hazardous Materials/Weapon of Mass Destruction (WMD) at the BLS Level (BLS Responder). Operations Level Responders who are BLS certified, assigned EMS mission-specific responsibilities at hazardous materials/WMD incidents, and trained to meet all competencies in Chapters 4 and 6 and all competencies for the assigned responsibilities in Chapter 46.

Chapter 4 Competencies for Hazardous Materials/WMD Awareness Level Personnel (NFPA 472)

4.1 General.

4.1.1 Introduction.

4.1.1.1 Awareness Level Personnel shall be persons 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/WMD, protect themselves, call for trained personnel, and secure the area.

4.1.1.2 Awareness Level Personnel shall be trained to meet all competencies defined in Sections 4.1 through 4.4 of this chapter.

4.1.1.3 Awareness Level Personnel shall receive additional training to meet applicable governmental occupational health and safety regulations.

4.1.2 Goal.

4.1.2.1 The goal of the competencies in this chapter shall be to provide personnel who in the course of normal duties encounter hazardous materials/WMD incidents with the knowledge and skills to perform the tasks in 4.1.2.2 in a safe and effective manner.

4.1.2.2 Given examples of hazardous materials/WMD incidents, policies and procedures, approved reference sources, and approved communications equipment, Awareness Level Personnel shall be able to perform the following tasks:

- (1) Analyze the incident to identify both the hazardous materials/WMD present and the basic hazards for each hazardous materials/WMD agent involved by completing the following tasks:
 - (a) Recognize the presence of hazardous materials/WMD.
 - (b) Identify the name, United Nations/North American (UN/NA) identification number, marking/label/placard, container shape included in the *Emergency Response Guidebook (ERG)*, or other distinctive marking applied for the hazardous materials/WMD involved from a safe location.
 - (c) Identify potential hazards from the current edition of the ERG, safety data sheet (SDS), shipping papers, and other approved reference sources.
- (2) Implement actions consistent with the authority having jurisdiction (AHJ) emergency response plan, standard operating procedures, and the current edition of the ERG, SDS, or an equivalent document by completing the following tasks:
 - (a) Isolate the hazard area and deny entry, follow personal safety procedures, and avoid or minimize hazards.
 - (b) Initiate required notifications and communicate necessary information.

4.2 Competencies — Analyzing the Incident.

4.2.1 Recognizing the Presence of Hazardous Materials/WMD. Given examples of hazardous materials/WMD incidents and approved reference sources, Awareness Level Personnel shall recognize those situations where hazardous materials/WMD are present by completing the following requirements:

- (1) Define the terms *hazardous material* (*dangerous goods* internationally) and *WMD*.
- (2) Identify the hazard classes and divisions of hazardous materials/WMD and identify common examples of materials in each hazard class or division.
- (3) Identify the primary hazards and associated harm with each hazard class and division.
- (4) Identify the difference(s) between hazardous materials/WMD incidents and other emergencies.

- (5) Identify typical occupancies and locations in the community where hazardous materials/WMD are manufactured, transported, stored, used, or disposed of.
- (6) Identify typical container shapes included in the ERG that can indicate the presence of hazardous materials/WMD.
- (7) Identify facility and transportation markings and colors that indicate hazardous materials/WMD, including the following:
 - (a) Transportation markings, including UN/NA identification number marks, marine pollutant mark, elevated temperature (HOT) mark, commodity marking, and inhalation hazard mark
 - (b) NFPA 704 markings
 - (c) Military hazardous materials/WMD markings
 - (d) Special hazard communication markings for each hazard class
 - (e) Pipeline markings
 - (f) Container markings
- (8) Given an NFPA 704 marking, describe the significance of the colors, numbers, and special symbols.
- (9) Identify placards and labels that indicate hazardous materials/WMD.
- (10) Identify the following basic information about SDS:
 - (a) Where to find SDS
 - (b) Major sections of an SDS
- (11) Match the name of the shipping papers found in transportation (air, highway, rail, and water) with the mode of transportation.
- (12) Identify the following basic information on shipping papers for hazardous materials:
 - (a) Entries on shipping papers that indicate the presence of hazardous materials
 - (b) Person responsible for having the shipping papers in each mode of transportation
 - (c) Where the shipping papers are found in each mode of transportation
 - (d) Where the papers can be found in an emergency in each mode of transportation
- (13) Identify examples of other clues, including senses (sight, sound, and odor), that indicate the presence of hazardous materials/WMD.

4.2.2 Identifying Hazardous Materials/WMD. Given examples of hazardous materials/WMD incidents, Hazardous Materials Awareness Level Personnel shall, from a safe location, identify the hazardous materials/WMD involved in each situation by name, UN/NA identification number, marking/label/placard applied, or container shape from the ERG or approved reference sources by completing the following requirements:

- (1) Identify difficulties encountered in determining the specific names of hazardous materials/WMD at facilities and in transportation.
- (2) Identify sources for obtaining the names of, UN/NA identification numbers for, types of placard/label applied, or container shape associated with hazardous materials/WMD in transportation.
- (3) Identify sources for obtaining the names of hazardous materials/WMD at a facility.

4.2.3* Collecting Hazard Information. Given examples of hazardous materials/WMD by name, UN/NA identification number, marking/label/placard applied, and/or container shape, Hazardous Materials Awareness Level Personnel shall

identify the potential hazards for each material using the current edition of the ERG or other approved reference sources; SDS; and manufacturer, shipper, and carrier documents (including shipping papers and emergency response information) and contacts by completing the following:

- (1) Identify various methods for determining the ERG guide page for a hazardous material/WMD, including the name of the material; UN/NA identification number; table of markings, labels, and placards; and container identification charts.
- (2) Identify the primary hazard (explosion, fire, or health) on the guide page for a given material.

4.3* Competencies — Planning the Response. (Reserved)

4.4 Competencies — Implementing the Planned Response.

4.4.1* Isolate the Hazard Area. Given examples of hazardous materials/WMD incidents, the emergency response plan, policies and procedures, and the current edition of the ERG, Awareness Level Personnel shall isolate and deny entry to the hazard area by completing the following requirements:

- (1) Identify the location of both the emergency response plan and/or standard operating procedures.
- (2) Identify the role of the Awareness Level Personnel during hazardous materials/WMD incidents.
- (3) Identify the following basic precautions to be taken to protect themselves and others in hazardous materials/WMD incidents:
 - (a) Identify the precautions necessary when providing emergency medical care to victims of hazardous materials/WMD incidents.
 - (b) Identify typical ignition sources found at the scene of hazardous materials/WMD incidents.
 - (c)* Identify the ways hazardous materials/WMD are harmful to people, animals, the environment, and property.
 - (d)* Identify the general routes of entry for human exposure to hazardous materials/WMD.
- (4)* Given examples of hazardous materials/WMD and the identity of each hazardous material/WMD (name, UN/NA identification number, marking/label/placard, container shape), identify the following response information:
 - (a) Emergency action (fire, spill, or leak and first aid)
 - (b) The following recommended PPE:
 - i. Work uniforms
 - ii. Structural firefighting protective clothing or other high temperature-protective clothing
 - iii. Positive pressure self-contained breathing apparatus (SCBA)
 - iv. Chemical-protective clothing and equipment
- (5) Identify the definitions for each of the following protective actions:
 - (a) Isolation of the hazard area and denial of entry
 - (b) Evacuation
 - (c)* Shelter-in-place
- (6) Identify the size and shape of recommended initial isolation and protective action zones.
- (7) Describe the difference(s) between small and large spills as found in the Table of Initial Isolation and Protective Action Distances in the ERG or equivalent document.

- (8) Identify the circumstances under which the following distances are used at hazardous materials/WMD incidents:
 - (a) Table of Initial Isolation and Protective Action Distances
 - (b) Isolation distances in the numbered guides
- (9) Describe the difference(s) between the isolation distances on the orange-bordered guidebook pages and the protective action distances on the green-bordered ERG pages.
- (10) Identify the purpose of and methods used to isolate the hazard area and deny entry to unauthorized persons at hazardous materials/WMD incidents.

4.4.2 Initiating the Notification Process. Given a hazardous materials/WMD incident, policies and procedures, and approved communications equipment, Awareness Level Personnel shall initiate notifications at a hazardous materials/WMD incident and communicate the necessary information.

4.5* Competencies — Evaluating Progress. (Reserved)

4.6* Competencies — Terminating the Incident. (Reserved)

Chapter 5 Professional Qualifications for Hazardous Materials/WMD Awareness Level Personnel (NFPA 1072)

5.1 General.

5.1.1 Awareness Level Personnel are those persons 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/WMD, protect themselves, call for trained personnel, and secure the area.

5.1.2* Awareness Level Personnel shall meet the JPRs defined in Sections 5.2 through 5.4.

5.1.3 General Knowledge Requirements. Role of Awareness Level Personnel at a hazardous materials/WMD incident, location and contents of the AHJ emergency response plan, and standard operating procedures for Awareness Level Personnel.

5.1.4 General Skills Requirements. (Reserved)

5.2* Recognition and Identification.

5.2.1 Recognize and identify the hazardous materials/WMD and hazards involved in a hazardous materials/WMD incident, given a hazardous materials/WMD incident and approved reference sources, so that the presence of hazardous materials/WMD is recognized, and the materials, their hazards, and associated harm are identified.

(A)* Requisite Knowledge. What hazardous materials (dangerous goods internationally) and WMD are; the differences between hazardous materials/WMD incidents and other emergencies; definitions of hazard classes and divisions of hazardous materials/WMD; ways in which hazard classes and divisions are harmful to people, the environment, animals, and property; general routes of entry for human exposure to hazardous materials/WMD; sights, sounds, and odors that might indicate the presence of hazardous materials; limitations of using senses to determine presence of hazardous materials/WMD; indicators to the presence of hazardous materials including container shapes included in the ERG, NFPA 704

markings, globally harmonized system (GHS) markings, placards, labels, pipeline markings, other transportation markings [including UN/NA identification number marks, marine pollutant mark, elevated temperature (HOT) mark, commodity marking and inhalation mark], shipping papers and emergency response information and the person responsible for the shipping papers in each mode of transportation (air, highway, rail, and water), where shipping papers are found during emergencies and nonemergency situations in each mode of transportation, and other indicators (including military hazardous materials/WMD markings, special hazard communication markings, and special container markings); difficulties encountered in determining the specific names of hazardous materials/WMD at facilities and in transportation; accessing response information from the *Emergency Response Guidebook* (ERG) (current edition) using the alphabetical index of chemical names, numerical index of identification numbers, table of markings, labels, and placards, or container identification charts; and types of hazard information available from the ERG, safety data sheets (SDS), shipping papers and emergency response information, and sources for obtaining the names of hazardous materials/WMD at a facility.

(B)* Requisite Skills. Recognizing indicators to the presence of hazardous materials/WMD; identifying hazardous materials/WMD by name, UN/NA identification number, marking/label/placard applied, or container shapes identified in the ERG; and using the ERG, SDS, manufacturer/shipper/carrier documents (including shipping papers and emergency response information) and other approved reference sources to identify hazardous materials/WMD and their primary hazards.

5.3* Initiate Protective Actions.

5.3.1 Isolate the hazard area and deny entry at a hazardous materials/WMD incident, given a hazardous materials/WMD incident, policies and procedures, and approved reference sources, so that the hazard area is isolated and secured, personal safety procedures are followed, hazards are avoided or minimized, and additional people are not exposed to further harm.

(A)* Requisite Knowledge. Use of the ERG, SDS, shipping papers and emergency response information, or other approved reference sources to identify initial isolation and protective action distances, identify initial emergency actions (fire, spill, or leak and first aid), identify initial PPE, and identify recommended protective actions; the difference between the isolation distances on the orange-bordered guidebook pages and the protective action distances on the green-bordered ERG pages; the difference(s) between small and large spills as found in the Table of Initial Isolation and Protective Action Distances in the ERG or equivalent document; policies and procedures for isolating the hazard area and denying entry; and the purpose of and methods for isolating the hazard area and denying entry.

(B)* Requisite Skills. Recognizing precautions for protecting responders and the public; identifying isolation areas, denying entry, and avoiding or minimizing hazards.

5.4 Notification.

5.4.1 Initiate required notifications at a hazardous materials/WMD incident, given a hazardous materials/WMD incident, policies and procedures, and approved communica-

tions equipment, so that the notification process is initiated and the necessary information is communicated.

(A)* Requisite Knowledge. Policies and procedures for notification, reporting, and communications.

(B) Requisite Skills. Communicating in accordance with policies and procedures.

Chapter 6 Competencies for Hazardous Materials/WMD Operations Level Responders (NFPA 472)

6.1 General.

6.1.1 Introduction.

6.1.1.1* The Operations Level Responder shall be that person who responds to hazardous materials/weapons of mass destruction (WMD) incidents for the purpose of implementing or supporting actions to protect nearby persons, animals, the environment, or property from the effects of the release.

6.1.1.2 The Operations Level Responder shall be trained to meet all competencies at the awareness level (*see Chapter 4*) and the competencies defined in Sections 6.2 through 6.5.

6.1.1.3* The Operations Level Responder shall receive additional training to meet applicable occupational health and safety regulations.

6.1.2 Goal.

6.1.2.1 The goal of the competencies in this chapter shall be to provide Operations Level Responders with the knowledge and skills to perform the competencies in 6.1.2.2 in a safe manner.

6.1.2.2* When responding to hazardous materials/WMD incidents, Operations Level Responders shall be able to perform the following tasks:

- (1) Identify the scope of the problem, including the potential hazards, harm, and outcomes, by completing the following tasks:
 - (a) Survey a hazardous materials/WMD incident to identify the location and form of any release, the containers and materials involved, and the surrounding conditions.
 - (b) Collect hazard and response information from the ERG, SDS, CHEMTREC/CANUTEC/SETIQ, governmental authorities, and shipper/manufacture/carryer documents, including shipping papers and emergency response information and shipper/manufacture/carryer contacts.
 - (c) Identify the likely behavior of a hazardous material/WMD and its container.
 - (d) Identify the potential hazards, harm, and outcomes.
- (2) Plan an initial response to a hazardous materials/WMD incident within the capabilities and competencies of available personnel and PPE by completing the following tasks:
 - (a) Describe the strategies for the incident.
 - (b) Describe the tactics available for each objective.
 - (c) Determine whether the PPE provided is suitable for implementing each option.
 - (d) Identify decontamination needs — emergency decontamination for people and animals and gross

decontamination for tools, equipment, PPE, and apparatus.

- (e) Develop a plan of action, including safety considerations.
- (3) Perform assigned tasks at a hazardous materials/WMD incidents to favorably change the outcomes consistent with the emergency response plan and standard operating procedures by completing the following tasks:
 - (a) Establish and maintain scene control procedures, including control zones, and communications.
 - (b) Where criminal or terrorist acts are suspected, establish a means of evidence preservation.
 - (c) Initiate an incident command system (ICS) for hazardous materials/WMD incidents.
 - (d) Perform tasks assigned as identified in the incident action plan.
 - (e) Perform emergency decontamination for people and animals and gross decontamination for tools, equipment, PPE, and apparatus.
 - (4) Evaluate and report the progress of the assigned tasks taken at a hazardous materials/WMD incident to ensure that the strategies are met in a safe, effective, and efficient manner by completing the following tasks:
 - (a) Evaluate the status of the actions taken in accomplishing the strategies.
 - (b) Communicate the status of the planned response.

6.2 Competencies — Analyzing the Incident.

6.2.1* Surveying Hazardous Materials/WMD Incidents. Given examples of hazardous materials/WMD incidents, an assignment, policies and procedures, and approved reference sources, Operations Level Responders shall identify the scope of the problem including container types, materials involved and their physical state (gas, liquid, solid), location and physical state of any release, and surrounding conditions by completing the requirements of 6.2.1.1 through 6.2.1.1.6.

6.2.1.1 Given examples of containers for various hazard classes of hazardous materials/WMD, Operations Level Responders shall identify each container by type.

6.2.1.1.1* Given examples of the following containers for nonrefrigerated liquefied compressed gases and chemicals under pressure, Operations Level Responders shall identify each container by type:

- (1) Bulk fixed facility pressure containers
- (2) Pressure tank cars
- (3) High-pressure cargo tanks
- (4) Pressure UN portable tanks (intermodal tanks)
- (5) Multiple-element gas containers (MEGCs)
- (6) Ton containers
- (7) Y-cylinders
- (8) Liquefied compressed gas cylinders
- (9) Vehicle-mounted pressure containers

6.2.1.1.2 Given examples of the following containers for refrigerated liquefied gases (cryogenic liquids), Operations Level Responders shall identify each container by type:

- (1) Bulk fixed facility cryogenic containers
- (2) Cryogenic liquid tank cars
- (3) Cryogenic liquid cargo tanks
- (4) Cryogenic liquid UN portable tanks (intermodal tanks)
- (5) Cryogenic cylinders
- (6) Dewar flasks

6.2.1.1.3 Given examples of the following containers for liquids, Operations Level Responders shall identify each container by type:

- (1) Bulk fixed facility tanks
- (2) Nonpressure tank cars (general service)
- (3) Nonpressure liquid cargo tanks
- (4) Low-pressure chemical cargo tanks
- (5) Nonpressure UN portable tanks (intermodal tanks)
- (6) Flexible intermediate bulk containers/rigid intermediate bulk containers (FIBCs/RIBCs)
- (7) Flexible bladders
- (8) Drums
- (9) Bottles, flasks, carboys

6.2.1.1.4 Given examples of the following containers for solids, Operations Level Responders shall identify each container by type:

- (1) Bulk fixed facility containers
- (2) Railway gondolas, coal cars, hopper cars, nonpressure tank cars
- (3) Dry bulk cargo trailers
- (4) Nonpressure UN portable tanks (intermodal tanks)
- (5) FIBCs/RIBCs
- (6) Drums
- (7) Bags, bottles, boxes

6.2.1.1.5 Given examples of the following containers for nonrefrigerated, compressed gases (high pressure), Operations Level Responders shall identify each container by type:

- (1) Compressed gas tube trailers
- (2) Multiple-element gas containers (MEGC) (intermodal tube modules)
- (3) Cylinders

6.2.1.1.6 Given examples of the following containers for mixed-loads, Operations Level Responders shall identify each container by type:

- (1) Box cars
- (2) Mixed cargo trailers
- (3) Freight containers

6.2.1.1.7 Given examples of the following radioactive material containers, Operations Level Responders shall identify the characteristics of each container by type (*see A.3.3.14.7*):

- (1) Excepted (package)
- (2) Industrial (package)
- (3) Type A (package)
- (4) Type B (package)
- (5) Type C (package)

6.2.1.2 Given examples of transport vehicles and facility storage containers, Operations Level Responders shall identify the markings that differentiate one container from another.

6.2.1.2.1 Given examples of the following marked transport vehicles and their corresponding shipping papers, Operations Level Responders shall identify marking used for identifying the specific transport vehicle:

- (1) Highway transport vehicles, including cargo tanks
- (2) Intermodal equipment, including UN portable tanks (intermodal tanks)
- (3) Rail transport vehicles, including tank cars

6.2.1.2.2 Given examples of facility storage tanks, Operations Level Responders shall identify the markings indicating

container size, product contained, and site identification numbers.

6.2.1.3 Given examples of hazardous materials incidents, Operations Level Responders shall identify the name(s) of the hazardous material(s) in 6.2.1.3.1 through 6.2.1.3.3.

6.2.1.3.1 Given examples of pipeline markers, Operations Level Responders shall identify the emergency telephone number, owner, and products as applicable.

6.2.1.3.2* Given examples of pesticide labels, Operations Level Responders shall identify the active ingredient, hazard statement, name of pesticide, and pest control product registration number.

6.2.1.3.3 Given examples of labels for a radioactive material, Operations Level Responders shall identify the type or category of label, contents, activity, transport index, and criticality safety index as applicable.

6.2.1.4 Operations Level Responders shall identify and list the surrounding conditions that should be noted when surveying a hazardous materials/WMD incident, including but not limited to the following:

- (1) Topography
- (2) Land use
- (3) Accessibility
- (4) Weather conditions
- (5) Bodies of water
- (6) Public exposure potential
- (7) Overhead and underground wires and pipelines
- (8) Storm and sewer drains
- (9) Possible ignition sources
- (10) Adjacent land use such as rail lines
- (11) Highways
- (12) Airports
- (13) Nature and extent of injuries
- (14) Building information, including the following:
 - (a) Floor drains
 - (b) Ventilation ducts
 - (c) Air returns

6.2.1.5 Operations Level Responders shall describe resources to verify information obtained from the survey of a hazardous materials/WMD incident.

6.2.1.6* Given examples of hazardous materials/WMD incidents involving terrorist or criminal activities, Operations Level Responders shall identify the following at a minimum:

- (1) Locations that could be targets for terrorist or criminal activities
- (2) Indicators of possible terrorist or criminal activity involving chemical agents
- (3) Indicators of possible terrorist or criminal activity involving biological agents and toxins
- (4) Indicators of possible terrorist or criminal activity involving radiological agents
- (5) Indicators of possible terrorist or criminal activity involving illicit laboratories
- (6) Indicators of possible terrorist or criminal activities involving explosives
- (7) Indicators of secondary devices
- (8) Actions necessary when an incident is suspected to involve terrorist or criminal activity

6.2.1.7 Operations Level Responders shall describe ways in which responders are exposed to toxic products of combustion.

6.2.2 Collecting Hazard and Response Information. Given examples of hazardous materials/WMD incidents, an assignment, the names of the hazardous materials/WMD involved, policy and procedures, and approved reference sources, Operations Level Responders shall collect hazard and response information from SDS, CHEMTREC/CANUTEC/SETIQ, governmental authorities, and manufacturers, shippers, and carriers (highway, rail, water, air, and pipeline) by completing the following requirements:

- (1) Using an SDS for a specified material, identify the following hazard and response information:
 - (a) Identification, including supplier identifier and emergency telephone number
 - (b) Hazard identification
 - (c) Composition/information on ingredients
 - (d) First aid measures
 - (e) Firefighting measures
 - (f) Accident release measures
 - (g) Handling and storage
 - (h) Exposure controls/personal protection
 - (i) Physical and chemical properties
 - (j) Stability and reactivity
 - (k) Toxicological information
 - (l) Ecological information (nonmandatory)
 - (m) Disposal considerations (nonmandatory)
 - (n) Transport information (nonmandatory)
 - (o) Regulatory information (nonmandatory)
 - (p) Other information
- (2) Identify the types of assistance provided by, procedure for contacting, and information to be provided to CHEMTREC/CANUTEC/SETIQ and governmental authorities.
- (3) Identify methods of contacting manufacturers, shippers, and carriers (highway, rail, marine, air, and pipeline) to obtain hazard and response information.
- (4) Identify the type of assistance provided by governmental authorities with respect to criminal or terrorist activities involving the release or potential release of hazardous materials/WMD.
- (5) Identify methods to communicate with carrier representatives to reduce the impact of a release.

6.2.3* Predicting the Likely Behavior of a Material and Its Container. Given examples of hazardous materials/WMD incidents involving a single hazardous material/WMD, an assignment, results of the incident survey, hazard information collected, and policies and procedures, Operations Level Responders shall describe the likely behavior of the material or agent and its container and the potential hazards associated with that behavior by completing the following requirements:

- (1) Use the hazard information obtained from the current edition of the ERG, SDS, CHEMTREC/CANUTEC/SETIQ, governmental authorities, and manufacturer, shipper, and carrier contacts to describe the significance and impact of the following terms and chemical and physical properties on the product, the container, and the environment:
 - (a)* Biological agents and toxins
 - i. Bacteria
 - ii. Viruses
 - (b) Carcinogen

- (c) Corrosivity
 - i. Acid
 - ii. Base
 - iii. Concentration
 - iv. pH scale
 - v. Strength
- (d) Expansion ratio (liquefied gases and cryogenics)
- (e) Flammability
 - i. Boiling point
 - ii. Flammable range
 - iii. Flash point
 - iv. Ignition (autoignition) temperature
 - v. Lower explosive limit (LEL)
 - vi. Upper explosive limit (UEL)
- (f) Persistence
- (g) Physical state (solid, liquid, gas)
- (h) Poison
- (i) Products of combustion (toxic)
- (j) Reactivity
 - i. Air
 - ii. Chemical
 - iii. Energetic
 - iv. Oxidizers
 - v. Polymerization
 - vi. Water
- (k) Radiation (ionizing and nonionizing)
- (l) Routes of exposure
- (m) Specific gravity
- (n) Vapor density
- (o) Vapor pressure
- (p) Toxicity

- (2) Use the hazard information obtained from the current edition of the ERG, SDS, CHEMTREC/CANUTEC/SETIQ, governmental authorities, and manufacturer, shipper, and carrier contacts to identify the differences between the following terms:

- (a) *Contamination* and *secondary contamination*
- (b) *Exposure* and *contamination*
- (c) *Exposure* and *hazard*
- (d) *Infectious* and *contagious*
- (e) *Acute effects* and *chronic effects*
- (f) *Acute exposures* and *chronic exposures*

- (3)* Identify ways containers can breach (disintegration, runaway cracking, closures open up, punctures, and splits or tears).
- (4)* Identify ways containers can release their contents (detonation, violent rupture, rapid relief, spill, or leak).
- (5)* Identify dispersion patterns that can be created upon release of a hazardous material (hemispherical, cloud, plume, cone, stream, pool, and irregular).
- (6)* Identify the time frames for estimating the duration that hazardous materials/WMD will present an exposure risk (short-term, medium-term, and long-term).
- (7)* Identify the health and physical hazards that could cause harm.
- (8) Identify types of skin contact hazards encountered.

6.2.4* Estimating Potential Outcomes. Given examples of hazardous materials/WMD incidents, an assignment, the identified behavior of the hazardous materials/WMD and its container and the hazards associated with that behavior, the surrounding conditions, policies and procedures, and approved reference sources, Operations Level Responders shall

identify the potential outcomes affecting people, animals, the environment, and property by completing the following requirements:

- (1)* Identify a resource for determining the size of an endangered area of a hazardous materials/WMD incident.
- (2) Given the dimensions of the endangered areas and the surrounding conditions at a hazardous materials/WMD incident, describe the number and type of exposures within that endangered area.
- (3) Identify resources available for determining the concentrations of a released hazardous materials/WMD within an endangered area.
- (4)* Given the concentrations of the released materials, describe the factors for determining the extent of physical, health, and safety hazards within the endangered area of a hazardous materials/WMD incident.
- (5) Describe the impact that time, distance, and shielding have on exposure to radioactive materials specific to the expected dose rate.
- (6) Describe the potential for secondary devices at criminal or terrorist events.

6.3 Competencies — Planning the Response.

6.3.1 Collecting Response Information. Given examples of hazardous materials/WMD incidents, an assignment, the identity of hazardous materials/WMD involved, policy and procedures, and approved reference sources, Operations Level Responders shall collect response information on the hazardous materials/WMD involved from ERG, SDS, CHEMTREC/CANUTEC/SETIQ, governmental authorities, and manufacturers, shippers, and carriers (highway, rail, marine, air, pipeline).

6.3.2 Describing Strategies. Given examples of hazardous materials/WMD incidents, an assignment, policies and procedures, approved reference sources, scope of the problem including behavior of the hazardous materials/WMD and its container and likely harm and outcomes, and response information collected, Operations Level Responders shall describe the strategies for the problem by completing the following:

- (1) Describe the number of exposures that could be saved with the resources provided by the AHJ.
- (2) Describe the steps for determining strategies.
- (3) Describe how to assess the risk to a responder for each hazard class in rescuing injured persons at a hazardous materials/WMD incident.
- (4) Identify the three modes of operation at hazardous materials/WMD incidents, which includes the following:
 - (a) Offensive
 - (b) Defensive
 - (c) Nonintervention

6.3.3 Identifying Tactics. Given examples of hazardous materials/WMD incidents, an assignment, policies and procedures, approved reference sources, the scope of the problem, and strategies, Operations Level Responders shall identify the tactics for each strategy by completing the following:

- (1) Identify the options to accomplish a given strategy.
- (2) Describe the prioritization of emergency medical care and removal of victims from the hazard area relative to exposure and contamination concerns.

6.3.4 Determining Suitability of Personal Protective Equipment (PPE). Given examples of hazardous materials/WMD

incidents, an assignment, policies and procedures, approved reference sources, scope of the problem, strategies, and tactics, Operations Level Responders shall identify whether available PPE is applicable to performing assigned tasks by completing the following requirements:

- (1)* Identify the respiratory protection required for a given tactic and the following:
 - (a) Describe the advantages, limitations, uses, and operational components of the following types of respiratory protection at hazardous materials/WMD incidents:
 - i. Self-contained breathing apparatus (SCBA)
 - ii. Supplied air respirators
 - iii. Powered air-purifying respirators
 - iv. Air-purifying respirators
 - (b) Identify the required physical capabilities and limitations of personnel working in respiratory protection.
- (2) Identify skin contact hazards encountered at hazardous materials/WMD incidents and the purpose, advantages, and limitations of the following types of protective clothing at hazardous materials/WMD incidents:
 - (a) Chemical-protective clothing, including liquid splash-protective ensembles and vapor-protective ensembles (*see A.3.3.65.2, A.3.3.65.2.1, and A.3.3.65.2.2*)
 - (b) High temperature-protective clothing, including proximity suits and entry suits (*see A.3.3.65.3*)
 - (c) Structural firefighting protective clothing (*see A.3.3.65.4*)

6.3.5* Identifying Emergency Decontamination Issues. Given examples of hazardous materials/WMD incidents, an assignment, policies and procedures, approved reference sources, scope of the problem, strategies, tactics, and personal protective equipment to be used, Operations Level Responders shall identify the emergency decontamination needs for the problem by completing the following:

- (1) Identify ways that people, PPE, apparatus, tools, and equipment become contaminated.
- (2) Describe how the potential for secondary contamination determines the need for emergency decontamination.
- (3) Explain the importance, differences, and limitations of emergency/field expedient, gross, technical, and mass decontamination procedures at hazardous materials incidents.
- (4) Identify the purpose of emergency decontamination procedures at hazardous materials incidents.

6.4 Competencies — Implementing the Planned Response.

6.4.1 Establishing Scene Control. Given examples of hazardous materials/WMD incidents, an assignment with limited potential of contact with hazardous materials/WMD, policies and procedures, scope of the problem, likely behavior and harm, and authorized tools, equipment, and PPE, Operations Level Responders shall establish and maintain scene control, including control zones and emergency decontamination, and communications between responders and to the public by completing the following requirements:

- (1) Identify the procedures for establishing scene control through control zones.

- (2) Identify the criteria for determining the locations of the control zones at hazardous materials/WMD incidents.
- (3) Identify the basic techniques for the following protective actions at hazardous materials/WMD incidents:
 - (a) Evacuation
 - (b) Shelter-in-place
- (4)* Perform emergency decontamination while preventing spread of contamination and avoiding hazards while using PPE.
- (5)* Identify the items to be considered in a safety briefing prior to allowing personnel to work at the following:
 - (a) Hazardous material incidents
 - (b)* Hazardous materials/WMD incidents involving criminal activities
- (6) Identify the procedures for ensuring coordinated communication between responders and to the public.

6.4.2* Recognizing and Preserving Evidence. Given examples of hazardous materials/WMD incidents, Operations Level Responders shall describe how to recognize and preserve evidence as listed in the emergency response plan or standard operating procedures.

6.4.3* Initiating the Incident Command System. Given examples of hazardous materials/WMD incidents, an assignment with limited potential of contact with hazardous materials/WMD, policies and procedures, and the scope of the problem, Operations Level Responders shall participate in the incident command system as required by the AHJ by completing the following requirements:

- (1) Identify the role of the Operations Level Responder during hazardous materials/WMD incidents as specified in the emergency response plan and standard operating procedures.
- (2) Identify the levels of hazardous materials/WMD incidents as defined in the emergency response plan.
- (3) Identify the organization, purpose, importance, benefits, and elements of the incident command system for hazardous materials/WMD incidents.
- (4) Identify the duties and responsibilities of the following functions within the incident command system:
 - (a)* Incident Safety Officer
 - (b) Hazardous materials branch or group
- (5) Identify the considerations for determining the location of the incident command post for a hazardous materials/WMD incident.
- (6) Identify the procedures for requesting additional resources at a hazardous materials/WMD incident.
- (7) Describe the role and strategies of other agencies that respond to hazardous materials/WMD incidents.

6.4.4 Using Personal Protective Equipment (PPE). Given examples of hazardous materials/WMD incidents, an assignment with limited potential for contact with hazardous materials/WMD, the scope of the problem, strategies, assigned tasks, and policies and procedures, Operations Level Responders shall select and use the approved PPE provided by the AHJ by completing the following requirements:

- (1) Identify the importance of the buddy system.
- (2) Identify the importance of the backup team.
- (3) Identify the safety precautions to be observed when approaching and working at hazardous materials/WMD incidents.

- (4) Identify the signs and symptoms of thermal stress and procedures for their control.
- (5) Identify the capabilities and limitations of personnel working in the PPE provided by the AHJ.
- (6)* Identify the procedures for inspection, donning, working in, going through decontamination while wearing, and doffing approved PPE provided by the AHJ.
- (7) Identify the procedures for cleaning, disinfecting, and inspecting PPE provided by the AHJ [*see A.6.4.4(6)*].
- (8) Inspect, don, work in, go through decontamination while wearing, and doff approved PPE [*see A.6.4.4(6)*].
- (9) Isolate contaminated tools, equipment, and PPE.
- (10) Clean, disinfect, and inspect PPE provided by the AHJ.
- (11) Maintain and store PPE following the instructions provided by the manufacturer on the care, use, and maintenance of the protective ensemble elements.

6.5 Competencies — Evaluating and Reporting Progress.

6.5.1 Evaluating the Status of Planned Response. Given examples of hazardous materials/WMD incidents, an assignment, policies and procedures, scope of the incident, an incident action plan, and assigned tasks, Operations Level Responders shall evaluate the progress and effectiveness of the assigned tasks in accomplishing the incident objectives and shall meet the following requirements:

- (1) Identify the facts and circumstances that would indicate improving, static, or deteriorating conditions based on the effectiveness of strategies and tactics employed to accomplish the incident objectives in the IAP.
- (2) Determine the status of assigned tasks.
- (3) Describe the circumstances under which it would be prudent to withdraw from a hazardous materials/WMD incident.

6.5.2 Communicating the Status of Planned Response. Given examples of hazardous materials/WMD incidents an assignment, policies and procedures, an evaluation of the progress and effectiveness of the assigned tasks, and approved communication tools and equipment, Operations Level Responders shall report the progress and effectiveness of the assigned tasks to the supervisor as necessary by completing the following requirements:

- (1) Identify the procedures for reporting the status of the planned response through the normal chain of command.
- (2) Identify the methods for immediate notification of the Incident Commander and other response personnel about critical emergency conditions at the incident.

6.6* Competencies — Terminating the Incident. (Reserved)

Chapter 7 Professional Qualifications for Hazardous Materials/WMD Operations Level Responders (NFPA 1072)

7.1 General.

7.1.1 Operations Level Responders are those 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.

7.1.2 Operations Level Responders shall meet the job performance requirements (JPRs) defined in Sections 5.1 through 5.4.

7.1.3 Operations Level Responders shall meet the JPRs defined in Sections 7.2 through 7.6.

7.1.4 General Knowledge Requirements. Role of Operations Level Responders at a hazardous materials/WMD incident; location and contents of AHJ emergency response plan and standard operating procedures for Operations Level Responders, including those response operations for hazardous materials/WMD incidents.

7.1.5 General Skills Requirements. (Reserved)

7.2* Identify Potential Hazards.

7.2.1 Identify the scope of the problem at a hazardous materials/WMD incident, given a hazardous materials/WMD incident, an assignment, policies and procedures, and approved reference sources, so that container types, materials, location and physical state (form) of release, and surrounding conditions are identified, hazard and response information is collected, the potential behavior of a material and its container is identified, and the potential hazards, harm, and outcomes associated with that behavior are identified.

(A)* Requisite Knowledge. Types of information to be collected during the hazardous materials/WMD incident survey, including types of containers and the physical state of their likely contents, material involved, general location and physical state (form) of release, and surrounding conditions in accordance with 6.2.1.4; container identification markings, including transportation vehicles and facility storage tanks, pesticide labels, radioactive material labels, piping and pipeline markings and contacting information; availability of shipping papers in transportation and of safety data sheets (SDS) at facilities; types of hazard and response information available from and how to contact CHEMTREC, CANUTEC, and SETIQ, governmental authorities, and manufacturers, shippers, and carriers (highway, rail, water, air, pipeline); how to communicate with subject matter experts including carrier and manufacturer representatives to reduce impact of a release; basic physical and chemical properties in accordance with 6.2.3(1) and 6.2.3(2); how to identify the behavior of a material and its container based on the material's physical and chemical properties and identify hazards associated with that behavior; examples of potential criminal and terrorist targets; indicators of possible criminal or terrorist activity for each of the following: chemical agents, biological agents, radiological agents, illicit laboratories and explosives; additional hazards associated with terrorist or criminal activities, such as secondary devices and threats; and how to determine the likely harm and outcomes associated with the identified behavior and the surrounding conditions.

(B)* Requisite Skills. Identifying container types, materials, location and physical state (form) of release, and surrounding conditions at a hazardous materials/WMD incident; collecting hazard and response information; communicating with pipeline operators or carrier representatives; describing the likely behavior of the hazardous materials or WMD and its container; and describing the likely outcomes associated with the identified behavior and surrounding conditions.

7.3* Identify Tactics.

7.3.1 Identify the tactics for a hazardous materials/WMD incident, given a hazardous materials/WMD incident, an assignment, policies and procedures, approved reference sources, and the scope of the problem, so that response information is collected; strategies, tactics, safety precautions, suitability of

approved personal protective equipment (PPE) available, and emergency decontamination needs are identified; and an action plan is developed.

(A)* Requisite Knowledge. Basic components of an incident action plan (IAP); modes of operation (offensive, defensive, and nonintervention); types of strategies; types of tactics; types of response information available from the *Emergency Response Guidebook* (ERG), SDS, shipping papers and emergency response information, and other resources; types of assistance provided by, procedure for contacting, and information to be provided to CHEMTREC, CANUTEC, and SETIQ, governmental authorities, and manufacturers, shippers, and carriers (highway, rail, water, air, pipeline); safety procedures; actions necessary when incident involves potential criminal or terrorist activities; risk analysis concepts; purpose, advantages, limitations, required physical capabilities and limitation of personnel working in PPE; uses of approved PPE to determine if PPE is suitable for the incident conditions; difference between the terms included in 10.2.3.1(B); contamination types, including sources and hazards of carcinogens at incident scenes; types of decontamination (emergency, mass, and technical); purpose, advantages, and limitations of emergency decontamination; and procedures, tools, and equipment for performing emergency decontamination.

(B)* Requisite Skills. Identifying strategies and tactics based on the scope of the problem and available resources; identifying whether approved PPE is suitable for the incident conditions; and identifying emergency decontamination needs based on the scope of the problem.

7.4* Action Plan Implementation.

7.4.1 Perform assigned tasks at a hazardous materials/WMD incident, given a hazardous materials/WMD incident; an assignment with limited potential of contact with hazardous materials/WMD, policies and procedures, the scope of the problem, approved tools, equipment, and PPE, so that protective actions and scene control are established and maintained, on-scene incident command is initiated, evidence is preserved, approved PPE is selected and used in the proper manner, exposures and personnel are protected, safety procedures are followed, hazards are avoided or minimized, assignments are completed, and emergency decontamination is conducted in the field.

(A)* Requisite Knowledge. Scene control procedures; procedures, including control zones and the criteria for determining the locations of the control zones; for protective actions, including evacuation and sheltering-in-place; procedures for ensuring coordinated communications between responders and to the public; evidence recognition and preservation procedures; incident command organization; purpose, importance, benefits, and organization of incident command at hazardous materials/WMD incidents; policies and procedures for implementing incident command at hazardous materials/WMD incidents; duties and responsibilities of the Incident Safety Officer; items to be considered in a safety briefing per 6.4.1(5); duties and responsibilities of the hazardous materials branch or group; capabilities, limitations, inspection, donning, working in, going through decontamination while wearing, and doffing of approved PPE; signs and symptoms of thermal stress; safety precautions when working at hazardous materials/WMD incidents; purpose, advantages, and limitations of emergency decontamination; the need for emergency decontamination in the field based on the task(s) performed

and contamination received, including sources and hazards of carcinogens at incident scenes; emergency decontamination; and cleaning, disinfecting, and inspecting tools, equipment, and PPE.

(B)* Requisite Skills. Establishing and maintaining scene control; recognizing and preserving evidence; inspecting, donning, working in, going through decontamination while wearing, and doffing approved PPE; isolating contaminated tools, equipment, and PPE; conducting emergency decontamination; and cleaning, disinfecting, and inspecting approved tools, equipment, and PPE.

7.5 Emergency Decontamination.

7.5.1 Perform emergency decontamination at a hazardous materials/WMD incident, given a hazardous materials/WMD incident that requires emergency decontamination; an assignment; scope of the problem; policies and procedures; and approved tools, equipment, and PPE for emergency decontamination, so that emergency decontamination needs are identified, approved PPE is selected and used, exposures and personnel are protected, safety procedures are followed, hazards are avoided or minimized, emergency decontamination is set up and implemented, and victims and responders are decontaminated.

(A)* Requisite Knowledge. Contamination, cross contamination, and exposure; contamination types; routes of types of decontamination (emergency, mass, and technical); purpose, advantages, and limitations of emergency decontamination; policies and procedures for performing emergency decontamination; approved tools and equipment for emergency decontamination; and hazard avoidance for emergency decontamination.

(B) Requisite Skills. Selecting an emergency decontamination method; setting up emergency decontamination in a safe area; using PPE in the proper manner; implementing emergency decontamination; preventing spread of contamination; and avoiding hazards during emergency decontamination.

7.6* Progress Evaluation and Reporting.

7.6.1 Evaluate and report the progress of an assigned task for a hazardous materials/WMD incident, given a hazardous materials/WMD incident, an assignment, policies and procedures, status of implemented strategies and tactics, and approved communication tools and equipment, so that the effectiveness of the assigned task is evaluated and communicated to the Incident Commander or designee so that the IAP can be adjusted as needed.

(A)* Requisite Knowledge. Components of progress reports; policies and procedures for evaluating and reporting progress; methods for immediate notification of Incident Commander and other response personnel regarding critical emergency conditions at an incident; use of approved communication tools and equipment; facts and circumstances indicating improving, static, or deteriorating conditions based on the assigned tasks intended to accomplish the incident objectives; and the ability to compare actual behavior of the material and the container to the predicted circumstances under which it would be prudent to withdraw from a hazardous materials/WMD incident.

(B)* Requisite Skills. Determining incident status; determining whether the strategies are being accomplished; using

approved communications tools and equipment; and communicating the status of assigned tasks.

Chapter 8 Competencies for Hazardous Materials/WMD Operations Level Responders Assigned Mission-Specific Responsibilities (NFPA 472)

8.1 General.

8.1.1 Introduction.

8.1.1.1* This chapter shall address competencies for Operations Level Responders who are assigned mission-specific responsibilities at hazardous materials/WMD incidents by the AHJ beyond the competencies at the operations level (*see Chapter 6*). Operations Mission-Specific Responders will be identified by the specialty area as follows:

- (1) PPE (*see Section 8.2*)
- (2) Mass decontamination (*see Section 8.3*)
- (3) Technical decontamination (*see Section 8.4*)
- (4) Evidence preservation and public safety sampling (*see Section 8.5*)
- (5) Product control (*see Section 8.6*)
- (6) Detection, monitoring, and sampling (*see Section 8.7*)
- (7) Victim rescue and recovery (*see Section 8.8*)
- (8) Illicit laboratory incidents (*see Section 8.9*)
- (9) Radiological hazard-specific tasks (*see Section 8.10*)
- (10) Disablement/disruption of improvised explosive devices (IED), improvised WMD dispersal devices, and operations at improvised explosives laboratories (*see Section 8.11*)
- (11) Diving in contaminated water environment (*see Section 8.12*)
- (12) Evidence collection (*see Section 8.13*)

8.1.1.2 Operations Mission-Specific Responders shall be trained to meet all competencies at the awareness level (*see Chapter 4*), all competencies at the operations level (*see Chapter 6*), all competencies in Section 8.2, and all competencies for each assigned responsibility in Sections 8.3 through 8.11.

8.1.1.3* Operations Mission-Specific Responders shall receive additional training to meet applicable AHJ occupational health and safety regulations.

8.1.1.4 Operations Mission-Specific Responders shall operate under the guidance of a Hazardous Materials Technician, an allied professional, an emergency response plan, or standard operating procedures.

8.1.1.5 The development of assigned mission-specific knowledge and skills shall be based on the resources and procedures provided by the AHJ for the mission-specific responsibilities assigned.

8.1.2 Goal. The goal of the competencies in this chapter shall be to provide Operations Mission-Specific Responders with the knowledge and skills to perform the assigned mission-specific responsibilities in a safe and effective manner.

8.1.3 Mandating of Competencies. This standard shall not mandate that the response organizations perform mission-specific responsibilities.

8.1.3.1 Operations Mission-Specific Responders, operating within the scope of their training in this chapter, shall be able to perform their assigned mission-specific responsibilities.

8.1.3.2 If a response organization desires to train some or all of its Operations Mission-Specific Responders with responsibilities at hazardous materials/WMD incidents, the minimum required competencies shall be as set out in this chapter.

8.2 Mission-Specific Competencies: PPE.

8.2.1 General.

8.2.1.1 Introduction.

8.2.1.1.1 Operations Mission-Specific Responders at hazardous materials/WMD incidents shall be assigned by the AHJ to select, inspect, don, work in, go through decontamination while wearing, and doff AHJ-provided PPE at hazardous materials/WMD incidents.

8.2.1.1.2 Operations Mission-Specific Responders at hazardous materials/WMD incidents assigned to use AHJ-provided PPE shall be trained to meet all competencies at the awareness level (*see Chapter 4*), all competencies at the operations level (*see Chapter 6*), and all competencies in this section.

8.2.1.1.3 Operations Mission-Specific Responders at hazardous materials/WMD incidents assigned to use AHJ-provided PPE shall operate under the guidance of a Hazardous Materials Technician, an allied professional, an emergency response plan, or standard operating procedures.

8.2.1.1.4 Operations Mission-Specific Responders assigned to use AHJ-provided PPE shall receive the additional training necessary to meet specific needs of the AHJ.

8.2.1.1.4.1 Operations Mission-Specific Responders shall have the knowledge of the types of AHJ-approved communications equipment and be competent in the equipment's operation.

8.2.1.2 Goal. The goal of the competencies in this section shall be to provide Operations Mission-Specific Responders assigned to select, inspect, don, work in, go through decontamination while wearing, and doff AHJ-provided PPE with the knowledge and skills to perform the tasks in a safe and effective manner. Given examples of hazardous materials/WMD incidents, an assignment; the scope of the problem; strategies and tactics for the incident; policies and procedures; access to a Hazardous Materials Technician, an allied professional, an emergency response plan, or standard operating procedures; approved PPE; and policies and procedures, Operations Mission-Specific Responders assigned to use AHJ-provided PPE shall be able to perform the following tasks:

- (1) Select PPE provided by the AHJ based on tasks assigned.
- (2) Inspect, don, work in, go through emergency and technical decontamination while wearing, and doff PPE provided by the AHJ consistent with the AHJ standard operating procedures and the incident site safety and control plan by following safety procedures, avoiding or minimizing hazards, and protecting exposures and personnel.
- (3) Maintain and store PPE consistent with AHJ policies and procedures.
- (4) Report and document the use of PPE.

8.2.2 Competencies — Analyzing the Incident. (Reserved)

8.2.3 Competencies — Planning the Response.

8.2.3.1 Selecting PPE. Given examples of hazardous materials/WMD incidents with known and unknown hazardous materials/WMD and the PPE provided by the AHJ, Operations

Mission-Specific Responders assigned to use PPE provided by the AHJ shall select the PPE required to support assigned tasks based on AHJ policies and procedures by completing the following requirements:

- (1)* Describe the importance of working under the guidance of a Hazardous Materials Technician, an allied professional, an emergency response plan, or standard operating procedures.
- (2) Describe the purpose of each type of PPE provided by the AHJ for response to hazardous materials/WMD incidents based on NFPA standards and how these items relate to EPA levels of protection.
- (3) Describe capabilities and limitations of PPE provided by the AHJ for the hazards and associated types of harm based on a determination of the risks for that jurisdiction or community.
- (4) Select PPE provided by the AHJ for assigned mission-specific tasks at hazardous materials/WMD incidents based on AHJ policies and procedures.
 - (a) Describe the following terms and explain their impact and significance on the selection of chemical-protective clothing (CPC):
 - i. Degradation
 - ii. Penetration
 - iii. Permeation
 - (b) Identify indications of material degradation of CPC.
 - (c) Identify the different designs of vapor-protective clothing and liquid splash-protective clothing, and describe the advantages and disadvantages of each type.
 - (d)* Identify the advantages and disadvantages of the following cooling measures:
 - i. Air cooled
 - ii. Ice cooled
 - iii. Water cooled
 - iv. Phase change cooling technology
 - (e) Identify the physiological and psychological stresses that can affect users of PPE.
 - (f) Describe AHJ policies and procedures for going through the emergency and technical decontamination process while wearing PPE.

8.2.4 Competencies — Implementing the Planned Response.

8.2.4.1 Using PPE. Given examples of the PPE provided by the AHJ, Operations Mission-Specific responders assigned to use PPE shall demonstrate the ability to inspect, don, work in, go through decontamination while wearing, and doff the AHJ-provided PPE to support assigned mission-specific tasks by completing the following requirements:

- (1) Describe safety precautions for responders wearing PPE, including buddy systems, backup systems, accountability systems, safety briefings, and evacuation/escape procedures
- (2) Inspect, don, work in, and doff PPE provided by the AHJ following safety procedures, protecting exposures and responders, and avoiding or minimizing hazards
- (3) Go through the process of being decontaminated (emergency and technical) while wearing PPE
- (4) Maintain and store PPE according to AHJ policies and procedures

8.2.5 Competencies — Evaluating Progress. (Reserved)**8.2.6 Competencies — Terminating the Incident.**

8.2.6.1 Reporting and Documenting PPE Use. Given examples of hazardous materials/WMD incidents and AHJ policies and procedures, Operations Mission-Specific Responders assigned PPE provided by the AHJ shall report and document use of the PPE by the AHJ by completing the following [see A.8.11.3.1(1)(b)]:

- (1) Identify the reports and supporting documentation required by the AHJ pertaining to PPE use.
- (2) Describe the importance of responders exposure records.
- (3) Identify the steps in keeping an activity log and exposure records.
- (4) Identify the requirements for filing documents and maintaining records.

8.3 Mission-Specific Competencies: Mass Decontamination.**8.3.1 General.****8.3.1.1 Introduction.**

8.3.1.1.1 Operations Mission-Specific Responders assigned to perform mass decontamination at hazardous materials/WMD incidents shall be competent at the operations level (see Chapter 6) and assigned by the AHJ to select, set up, implement, evaluate, and terminate mass decontamination for ambulatory and nonambulatory victims at hazardous materials/WMD incidents.

8.3.1.1.2 Operations Mission-Specific Responders assigned to perform mass decontamination at hazardous materials/WMD incidents shall be trained to meet all competencies at the awareness level (see Chapter 4), all competencies at the operations level (see Chapter 6), all mission-specific competencies for PPE (see Section 8.2), and all competencies in this section.

8.3.1.1.3 Operations Mission-Specific Responders assigned to perform mass decontamination at hazardous materials/WMD incidents shall operate under the guidance of a Hazardous Materials Technician, an allied professional, an emergency response plan, or standard operating procedures.

8.3.1.1.4* Operations Mission-Specific Responders assigned to perform mass decontamination at hazardous materials/WMD incidents shall receive the additional training necessary to meet specific needs of the AHJ.

8.3.1.2 Goal.

8.3.1.2.1 The goal of the competencies in this section shall be to provide Operations Mission-Specific Responders assigned to select, set up, implement, evaluate, and terminate mass decontamination for ambulatory and nonambulatory victims at hazardous materials/WMD incidents with the knowledge and skills to perform the tasks in 8.3.1.2.2 in a safe and effective manner.

8.3.1.2.2 Given examples of hazardous materials/WMD incidents that require mass decontamination; an assignment; the scope of the problem; policies and procedures; AHJ-provided resources and PPE; and access to a Hazardous Materials Technician, an allied professional, an emergency response plan, or standard operating procedures, Operations Mission-Specific Responders assigned to perform mass decontamination shall be able to perform the following tasks:

- (1) Select a mass decontamination process to minimize the hazard for an assigned mission-specific task within the

capabilities of available responders, PPE, and response equipment provided by the AHJ.

- (2) Set up and implement the selected mass decontamination process to decontaminate victims, responders, tools, and equipment consistent with AHJ policies and procedures and the incident site safety and control plan following safety procedures, avoiding or minimizing hazards, and protecting exposures and responders.
- (3) Evaluate the effectiveness of the mass decontamination process.
- (4) Report and document mass decontamination activities.

8.3.2 Competencies — Analyzing the Incident. (Reserved)**8.3.3 Competencies — Planning the Response.**

8.3.3.1 Selecting a Mass Decontamination Process. Given examples of hazardous materials/WMD incidents requiring mass decontamination, Operations Mission-Specific Responders assigned to perform mass decontamination shall select a mass decontamination process that will minimize the hazard and spread of contamination based on AHJ policies and procedures by completing the following requirements:

- (1) Describe the importance of working under the guidance of a Hazardous Materials Technician, an allied professional, an emergency response plan, or standard operating procedures when performing assigned tasks.
- (2) Identify the advantages and limitations of mass decontamination methods.
- (3) Identify sources of information for determining the correct mass decontamination methods, and identify how to access those resources in a hazardous materials/WMD incident.
- (4) Identify the tools, equipment, and PPE required to set up and implement mass decontamination operations.
- (5) Describe crowd control techniques that can be used at incidents where mass decontamination is required.
- (6) Describe the AHJ's mass decontamination unit/team positions, and describe the roles and responsibilities.

8.3.4 Competencies — Implementing the Planned Response.

8.3.4.1 Performing Decontamination Operations Identified in the Incident Action Plan. Given examples of mass decontamination processes, resources, and PPE provided by the AHJ, Operations Mission-Specific Responders assigned to perform mass decontamination shall demonstrate the ability to set up and implement mass decontamination operations for ambulatory and nonambulatory victims consistent with AHJ policies and procedures following safety procedures, protecting exposures and Responders, and avoiding or minimizing hazards.

8.3.5 Competencies — Evaluating Progress.

8.3.5.1 Evaluating the Effectiveness of the Mass Decontamination Process. Given examples of contaminated items that have undergone the required decontamination, Operations Mission-Specific Responders assigned to mass decontamination operations shall identify procedures for determining whether the items have been fully decontaminated according to the standard operating procedures of the AHJ or the incident action plan.

8.3.6 Competencies — Terminating the Incident.

8.3.6.1 Reporting and Documenting Mass Decontamination Operations. Given examples of hazardous materials/WMD incidents involving mass decontamination operations and AHJ

policies and procedures, Operations Mission-Specific Responders assigned to perform mass decontamination shall identify the reporting and documentation required by the AHJ.

8.4 Mission-Specific Competencies: Technical Decontamination.

8.4.1 General.

8.4.1.1 Introduction.

8.4.1.1.1 Operations Mission-Specific Responders assigned to perform technical decontamination at hazardous materials/WMD incidents shall be competent at the operations level (*see Chapter 6*) and assigned by the AHJ to select, set up, implement, evaluate, and terminate technical decontamination in support of entry operations and for ambulatory and nonambulatory victims at hazardous materials/WMD incidents.

8.4.1.1.2 Operations Mission-Specific Responders assigned to perform technical decontamination at hazardous materials/WMD incidents shall be trained to meet all competencies at the awareness level (*see Chapter 4*), all competencies at the operations level (*see Chapter 6*), all mission-specific competencies for PPE (*see Section 8.2*), and all competencies in this section.

8.4.1.1.3 Operations Mission-Specific Responders assigned to perform technical decontamination at hazardous materials/WMD incidents shall operate under the guidance of a Hazardous Materials Technician, an allied professional, or standard operating procedures.

8.4.1.1.4* Operations Mission-Specific Responders assigned to perform technical decontamination at hazardous materials/WMD incidents shall receive the additional training necessary to meet specific needs of the AHJ.

8.4.1.2 Goal.

8.4.1.2.1 The goal of the competencies in this section shall be to provide Operations Mission-Specific Responders assigned to select, set up, implement, evaluate, and terminate technical decontamination in support of entry operations and for ambulatory and nonambulatory victims at hazardous materials/WMD incidents with the knowledge and skills to perform the tasks in 8.4.1.2.2 in a safe and effective manner.

8.4.1.2.2 Given examples of hazardous materials/WMD incidents that require technical decontamination; an assignment; the scope of the problem; policies and procedures for technical decontamination; AHJ-approved resources and PPE; and access to a Hazardous Materials Technician, an allied professional, an emergency response plan, or standard operating procedures, Operations Mission-Specific Responders assigned to perform technical decontamination shall be able to perform the following tasks:

- (1) Select a technical decontamination process in support of entry operations and/or for ambulatory and nonambulatory victims, the capabilities of available responders, PPE, and response equipment in accordance with AHJ policies and procedures.
- (2) Set up and implement the selected technical decontamination operations and methods following safety procedures, avoiding or minimizing hazards, and protecting exposures and responders.
- (3) Evaluate the effectiveness of the technical decontamination process.

- (4) Report and document the technical decontamination operations.

8.4.2 Competencies — Analyzing the Incident. (Reserved)

8.4.3 Competencies — Planning the Response.

8.4.3.1 Selecting a Technical Decontamination Process. Given examples of hazardous materials/WMD incidents that require technical decontamination; an assignment; the scope of the problem; policies and procedures; AHJ-approved resources and PPE; and access to a Hazardous Materials Technician, an allied professional, an emergency response plan, or standard operating procedures, Operations Mission-Specific Responders assigned to perform technical decontamination shall select a technical decontamination process to minimize the hazard and spread of contamination in support of entry operations and for ambulatory and nonambulatory victims by completing the following requirements:

- (1) Describe the importance of working under the guidance of a Hazardous Materials Technician, an allied professional, an emergency response plan, or standard operating procedures when performing assigned tasks.
- (2) Describe the advantages and limitations of each of the following technical decontamination methods:
 - (a) Absorption
 - (b) Adsorption
 - (c) Chemical degradation
 - (d) Dilution
 - (e) Disinfection
 - (f) Evaporation
 - (g) Isolation and disposal
 - (h) Neutralization
 - (i) Solidification
 - (j) Sterilization
 - (k) Vacuuming
 - (l) Washing
- (3) Identify sources of information on the technical decontamination operations and methods available, and identify how to access those sources in hazardous materials/WMD incidents.
- (4) Identify the tools, equipment, and PPE for performing required setup, and implement the selected technical decontamination operations.
- (5) Identify the procedures, tools, equipment, and safety precautions for processing evidence collected during technical decontamination at hazardous materials/WMD incidents.
- (6) Identify procedures, equipment, and safety precautions for handling resources, tools, equipment, weapons, criminal suspects, and animals brought to the decontamination corridor at hazardous materials/WMD incidents.

8.4.4 Competencies — Implementing the Planned Response.

8.4.4.1 Setting Up and Implementing Technical Decontamination. Given examples of technical decontamination operations, methods, and resources and PPE provided by the AHJ, Operations Mission-Specific Responders assigned to perform technical decontamination shall set up and implement technical decontamination operations and methods in support of entry operations and for ambulatory and nonambulatory victims following safety procedures, protecting exposures and personnel, and avoiding or minimizing hazards.

8.4.5 Competencies — Evaluating Progress.

8.4.5.1 Evaluating the Effectiveness of the Technical Decontamination Process. Given examples of contaminated victims, responders, tools, equipment, and PPE that have undergone the selected technical decontamination operations and methods, Operations Mission-Specific Responders assigned to perform technical decontamination shall evaluate the effectiveness of the technical decontamination process consistent with AHJ policies and procedures or the IAP by describing the procedures for evaluating effectiveness of the technical decontamination process by visual observations, monitoring device(s), ultraviolet lights, wipe sampling, and chemical analysis.

8.4.6 Competencies — Terminating the Incident.

8.4.6.1 Reporting and Documenting Technical Decontamination Operations. Given examples of a hazardous materials/WMD incidents involving technical decontamination operations/activities and AHJ policies and procedures, Operations Mission-Specific Responders assigned to perform technical decontamination shall identify the reporting and documentation required by the AHJ.

8.5 Mission-Specific Competencies: Evidence Preservation and Public Safety Sampling.

8.5.1 General.

8.5.1.1 Introduction.

8.5.1.1.1 Operations Mission-Specific Responders assigned to perform evidence preservation and public safety sampling and to preserve forensic evidence at hazardous materials/WMD incidents involving potential violations of criminal statutes or governmental regulations, including those involving suspicious letters and packages, illicit laboratories, a release/attack with a WMD agent, and environmental crimes shall be trained to the operations level (*see Chapter 6*) at a minimum.

8.5.1.1.2 Operations Mission-Specific Responders assigned to perform evidence preservation and public safety sampling at hazardous materials/WMD incidents shall be trained to meet all competencies at the awareness level (*see Chapter 4*), all competencies at the operations level (*see Chapter 6*), all mission-specific competencies for PPE (*see Section 8.2*), and all competencies in this section.

8.5.1.1.3 Operations Mission-Specific Responders assigned to perform evidence preservation and public safety sampling at hazardous materials/WMD incidents shall operate under the guidance of a Hazardous Materials Technician, an allied professional, or standard operating procedures.

8.5.1.1.4 Operations Mission-Specific Responders assigned to perform evidence preservation and public safety sampling at hazardous materials/WMD incidents shall receive the additional training necessary to meet specific needs of the AHJ.

8.5.1.2 Goal.

8.5.1.2.1 The goal of the competencies in this section shall be to provide Operations Mission-Specific Responders assigned to perform evidence preservation and public safety sampling at hazardous materials/WMD incidents with the knowledge and skills to perform the tasks in 8.5.1.2.2 in a safe and effective manner.

8.5.1.2.2 Given examples of hazardous materials/WMD incidents involving potential violations of criminal statutes or governmental regulations, including those involving suspicious letters and packages, illicit laboratories, a release/attack with a WMD agent, and environmental crimes; an assignment; the scope of the problem; policies and procedures; and AHJ-provided resources and PPE, Operations Mission-Specific Responders assigned to perform evidence preservation and public safety sampling shall be able to perform the following tasks:

- (1) Analyze hazardous materials/WMD incidents to determine the complexity of the problem and potential outcomes by completing the following tasks:
 - (a) Determine if the incident is potentially criminal in nature, and identify the law enforcement agency having investigative authority.
 - (b) Identify unique aspects of criminal hazardous materials/WMD incidents.
- (2) Plan a response for an activity where there is potential criminal intent involving hazardous materials/WMD within the capabilities and competencies of available responders, PPE, and resources by completing the following tasks:
 - (a) Determine the tactics to conduct evidence preservation and public safety.
 - (b) Describe how the tactics are within the legal authorities, capabilities, and competencies of available responders, PPE, and other resources.
- (3) Implement the planned response to hazardous materials/WMD incidents involving potential violations of criminal statutes or governmental regulations by completing the following tasks under the guidance of law enforcement/the AHJ:
 - (a) Secure the scene.
 - (b) Identify and preserve evidence.
 - (c) Collect public safety samples.
- (4) Report and document evidence preservation and public safety sampling operations.

8.5.2 Competencies — Analyzing the Incident.

8.5.2.1 Determining If the Incident Is Potentially Criminal in Nature. Given examples of hazardous materials/WMD incidents, Operations Mission-Specific Responders assigned to perform evidence preservation and public safety sampling shall describe indicators of criminal activity that might be associated with each of the following situations:

- (1) Hazardous materials/WMD suspicious letter
- (2) Hazardous materials/WMD suspicious package
- (3) Hazardous materials/WMD illicit laboratory
- (4) Release/attack with a WMD agent
- (5) Environmental crimes

8.5.2.2 Identifying the Law Enforcement Agency That Has Investigative Jurisdiction (AHJ). Given examples of hazardous materials/WMD incidents involving potential criminal activity, Operations Mission-Specific Responders assigned to perform evidence preservation and public safety sampling shall identify the agency having investigative authority and the incident response considerations associated with each of the following situations:

- (1) Hazardous materials/WMD suspicious letter
- (2) Hazardous materials/WMD suspicious package

- (3) Hazardous materials/WMD illicit laboratory
- (4) Release/attack with a WMD agent
- (5) Environmental crimes

8.5.3 Competencies — Planning the Response.

8.5.3.1 Identifying Unique Aspects of Criminal Hazardous Materials/WMD Incidents. Operations Mission-Specific Responders assigned to evidence preservation and public safety sampling shall describe the unique aspects associated with illicit laboratories, hazardous materials/WMD incidents, and environmental crimes by completing the following requirements:

- (1) Given examples of incidents involving illicit laboratories, hazardous materials/WMD(s), or environmental crimes, Operations Mission-Specific Responders assigned to perform evidence preservation and public safety sampling shall perform the following tasks:
 - (a) Describe the procedure for securing the scene.
 - (b) Describe the procedure to notify the agency with investigative authority.
 - (c) Describe the procedure to notify the Public Safety Bomb Technician.
 - (d) Describe the procedure to determine whether Operations Mission-Specific Responders are within their legal authority to perform evidence preservation and public safety sampling tasks.
 - (e) Describe the procedure to document responders and scene operations associated with the incident.
 - (f) Identify substance/material to sample.
 - (g) Identify the applicable public safety sampling equipment.
 - (h) Describe the procedures to protect public safety samples from contamination.
 - (i) Describe procedures for documenting public safety sampling.
 - (j) Describe public safety sampling process and techniques.
 - (k) Describe field screening protocols.
 - (l) Describe public safety labeling and packaging procedures.
 - (m) Describe public safety sampling packaging decontamination procedures.
 - (n) Describe packaging procedures for transportation public safety samples.
 - (o) Describe chain-of-custody procedures.
- (2) Given examples of illicit laboratory incidents, Operations Mission-Specific Responders assigned to evidence preservation and public safety sampling shall be able to perform the following tasks:
 - (a) Describe the hazards, safety procedures, decontamination, and tactical guidelines for this type of incident.
 - (b) Describe the factors to be evaluated in selecting the PPE, sampling equipment, detection devices, and public safety sample packaging and transport containers.
 - (c) Describe the sampling options for both liquid and solid public safety sample collection.
- (3) Given examples of environmental crimes, Operations Mission-Specific Responders assigned to evidence preservation and public safety sampling shall be able to perform the following tasks:
 - (a) Describe the hazards, safety procedures, decontamination, and tactical guidelines for this type of incident.
 - (b) Describe the factors to be evaluated in selecting the PPE, sampling equipment, detection devices, and public safety sample packaging and transport containers.
 - (c) Describe the sampling options for both liquid and solid materials.
- (4) Given examples of hazardous materials/WMD incidents with suspicious letters, Operations Mission-Specific Responders assigned to evidence preservation and public safety sampling shall be able to perform the following tasks:
 - (a) Describe the hazards, safety procedures, decontamination, and tactical guidelines for this type of incident.
 - (b) Describe the factors to be evaluated in selecting the PPE, sampling equipment, detection devices, and public safety sample packaging and transport containers.
 - (c) Describe the sampling options for both the liquid and solid materials.
- (5) Given examples of a hazardous materials/WMD incidents with suspicious packages, Operations Mission-Specific Responders assigned to evidence preservation and public safety sampling shall be able to perform the following tasks:
 - (a) Describe the hazards, safety procedures, decontamination, and tactical guidelines for this type of incident.
 - (b) Describe the factors to be evaluated in selecting the PPE, sampling equipment, detection devices, and public safety sample packaging and transport containers.
 - (c) Describe the sampling options for both liquid and solid materials.
- (6) Given examples of hazardous materials/WMD incidents/attacks involving the release agents, Operations Mission-Specific Responders assigned to evidence preservation and public safety sampling shall be able to perform the following tasks:
 - (a) Describe the hazards, safety procedures, decontamination, and tactical guidelines for this type of incident.
 - (b) Describe the factors to be evaluated in selecting the PPE, sampling equipment, detection devices, and public safety sample packaging and transport containers.
 - (c) Describe the sampling options for both liquid and solid materials.
- (7) Given examples of different types of criminal hazardous materials/WMD incidents, Operations Mission-Specific Responders shall identify and describe the application, use, and limitations of the various types of field screening tools that can be utilized for assessing the following properties:
 - (a) Corrosivity
 - (b) Flammability
 - (c) Oxidation
 - (d) Ionizing radiation dose and contamination
 - (e) Volatile organic compounds (VOC)
 - (f) Fluorides

- (8) Describe the possible adverse impacts of consuming or destroying potential evidence during sampling and field screening techniques.
- (9) Describe the procedures for maintaining the evidentiary integrity of all items removed from the crime scene.
- (10) Describe circumstances when public safety samples can become evidence.

8.5.3.2 Selecting Personal Protective Equipment (PPE). Given examples of the PPE provided by the AHJ, the Operations Mission-Specific Responders assigned to perform evidence preservation and public safety sampling shall select the PPE required to support evidence preservation and public safety sampling at hazardous materials/WMD incidents based on the AHJ's procedures and the PPE selection matrix from NFPA 1891, Annex B. (*See Section 8.2.*)

8.5.4 Competencies — Implementing the Planned Response.

8.5.4.1 Implementing the Planned Response. Given examples of incident action plans for criminal incidents involving hazardous materials/WMD(s), Operations Mission-Specific Responders assigned to evidence preservation and public safety sampling shall implement selected response actions consistent with the emergency response plan or standard operating procedures by completing the following requirements:

- (1) Secure the scene.
- (2) Describe the procedure to notify the agency with investigative authority.
- (3) Describe the procedure to notify the Public Safety Bomb Technician.
- (4) Determine whether the Operations Level Responders are within their legal authority to perform evidence preservation and public safety sampling tasks.
- (5) Document responders and scene operations associated with the incident.
- (6) Identify and preserve potential evidence at the scene.
- (7) Identify substance/material to sample.
- (8) Identify the applicable public safety sampling equipment.
- (9) Protect public safety samples from contamination.
- (10) Complete public safety sampling documentation.
- (11) Collect public safety samples.
- (12) Perform field screening procedures.
- (13) Label and package public safety samples.
- (14) Decontaminate public safety sample packaging.
- (15) Package public safety samples for safe transportation.
- (16) Perform chain-of-custody procedures.

8.5.5 Competencies — Evaluating Progress. (Reserved)

8.5.6 Competencies — Terminating the Incident. Given examples of hazardous materials/WMD incidents involving evidence preservation and public safety sampling operations and AHJ policies and procedures, Operations Mission-Specific Responders assigned to perform evidence preservation and public safety sampling shall identify the reporting and documenting requirements for evidence preservation and public safety sampling operations as required by the AHJ.

8.6 Mission-Specific Competencies: Product Control.

8.6.1 General.

8.6.1.1 Introduction.

8.6.1.1.1 Operations Mission-Specific Responders assigned to perform product control with limited risk of personal exposure

shall be competent at the operations level (*see Chapter 6*) and assigned by the AHJ to confine and contain releases of hazardous materials/WMD and control flammable liquids and flammable gases.

8.6.1.1.2 Operations Mission-Specific Responders assigned to perform product control at hazardous materials/WMD incidents shall be trained to meet all competencies at the awareness level (*see Chapter 4*), all competencies at the operations level (*see Chapter 6*), all mission-specific competencies for PPE (*see Section 8.2*), and all competencies in this section.

8.6.1.1.3 Operations Mission-Specific Responders assigned to perform product control at hazardous materials/WMD incidents shall operate under the guidance of a Hazardous Materials Technician, an allied professional, an emergency response plan, or standard operating procedures.

8.6.1.1.4 Operations Mission-Specific Responders assigned to perform product control at hazardous materials/WMD incidents shall receive the additional training necessary to meet specific needs of the AHJ.

8.6.1.2 Goal.

8.6.1.2.1 The goal of the competencies in this section shall be to provide the Operations Mission-Specific Responders assigned to perform product control, including to confine or contain releases of hazardous materials/WMD and to control flammable liquid and flammable gas releases, with limited risk of personal exposure at hazardous materials/WMD incidents with the knowledge and skills to perform the tasks in 8.6.1.2.2 in a safe and effective manner.

8.6.1.2.2 Given examples of hazardous materials/WMD incidents with release of product; an assignment: the scope of the problem; policies and procedures; approved resources and PPE; and access to a Hazardous Materials Technician, an allied professional, an emergency response plan, or standard operating procedures, Operations Mission-Specific Responders assigned to perform product control shall be able to perform the following tasks:

- (1) Select techniques to control releases with limited risk of personal exposure at hazardous materials/WMD incidents within the capabilities and competencies of available responders, resources, and PPE, in accordance with the AHJ policies and procedures, by completing the following requirements:
 - (a) Describe control techniques to confine/contain released product with limited risk of personal exposure available to the Operations Level Responder.
 - (b) Describe the location and operation of remote control/emergency shutoff devices on cargo and intermodal tanks and containers at fixed facilities containing flammable liquids and gases.
 - (c) Describe the characteristics and applicability of available control agents and equipment available for controlling flammable liquid and flammable gas releases.
- (2) Implement selected techniques for controlling released product with limited risk of responders exposure at the incident following safety procedures, avoiding or minimizing hazards, and protecting exposures and responders.
- (3) Report and document product control operations.

8.6.2 Competencies — Analyzing the Incident. (Reserved)

8.6.3 Competencies — Planning the Response.

8.6.3.1 Selecting Product Control Techniques. Given examples of hazardous materials/WMD incidents, Operations Mission-Specific Responders assigned to perform product control with limited risk of personal exposure shall select techniques to confine or contain releases of hazardous materials/WMD and to control flammable liquid and flammable gas releases within the capabilities and competencies of available responders, tools and equipment, PPE, and resources in accordance with the AHJ's policies and procedures by completing the following requirements:

- (1) Explain the importance of working under the guidance of a Hazardous Materials Technician, an allied professional, an emergency response plan, or standard operating procedures.
- (2) Explain the difference between control, confinement, containment, and extinguishment.
- (3) Describe the product control techniques available to Operations Mission-Specific Responders.
- (4) Describe the application, necessary resources, and safety precautions associated with each of the following control techniques:
 - (a) Absorption
 - (b) Adsorption
 - (c) Damming
 - (d) Diking
 - (e) Dilution
 - (f) Diversion
 - (g) Remote valve shutoff
 - (h) Retention
 - (i) Vapor dispersion
 - (j) Vapor suppression
- (5) Identify and describe the use of resources provided by the AHJ for product control, including AHJ-provided foam application equipment, diking equipment, damming equipment, approved absorbent materials and products, shovels and other hand tools, piping, heavy equipment (such as backhoes), floats, and spill booms and control agents, including foam and dispersal agents.
- (6) Identify the characteristics and applicability of the following AHJ-provided foams:
 - (a) Aqueous film-forming foam (AFFF)
 - (b) Alcohol-resistant concentrates
 - (c) Fluoroprotein
 - (d) High-expansion foam
- (7) Identify the location and describe the operation of remote control/emergency shutoff devices to contain flammable liquid and flammable gas releases on cargo tanks on MC/DOT-306/406, MC/DOT-307/407, and MC-331 cargo tanks, intermodal tanks, and containers at fixed facilities.
- (8) Describe the safety precaution associated with each product control technique.

8.6.4 Competencies — Implementing the Planned Response.

8.6.4.1 Performing Product Control Techniques. Given examples of the product control techniques and the resources provided by the AHJ at hazardous materials/WMD incidents, Operations Mission-Specific Responders assigned to perform product control shall implement the product control techni-

que to confine/contain the release with limited risk of personal exposure by completing the following requirements:

- (1) Using resources provided by the AHJ, perform the product control techniques in 8.6.4.1(2) following safety procedures, protecting exposures and responders, and avoiding or minimizing hazards.
- (2) Operate remote control/emergency shutoff devices to reduce or stop the flow of hazardous material from MC-306/DOT-406, MC-407/DOT-407, and MC-331 cargo tanks, intermodal tanks, and containers at fixed facilities containing flammable liquids or gases.

8.6.4.2 Given the required resources provided by the AHJ, perform product control techniques following safety procedures, protecting exposures and responders, and avoiding or minimizing hazards with the following:

- (1) Using the equipment provided by the AHJ, control flammable liquid and flammable gas releases using techniques, including hose handling, nozzle patterns, and attack operations, found in NFPA 1001.
- (2) Using the foams or resources provided by the AHJ, control the spill or fire involving flammable liquids by application of foam(s) or agent(s).

8.6.5 Competencies — Evaluating Progress. (Reserved)

8.6.6 Competencies — Terminating the Incident.

8.6.6.1 Reporting and Documenting Product Control Operations. Given examples of a hazardous materials/WMD incidents involving product control, the Operations Mission-Specific Responders assigned to perform product control shall identify the documentation and reporting procedures for product control operations as required by the AHJ.

8.7 Mission-Specific Competencies: Detection, Monitoring, and Sampling.

8.7.1 General.

8.7.1.1 Introduction.

8.7.1.1.1 Operations Mission-Specific Responders assigned to perform detection, monitoring, and sampling shall be competent at the operations level (*see Chapter 6*) and shall be assigned by the AHJ to detect, monitor, and sample at hazardous materials/WMD incidents.

8.7.1.1.2 Operations Mission-Specific Responders assigned to perform detection, monitoring, and sampling at hazardous materials/WMD incidents shall be trained to meet all competencies at the awareness level (*see Chapter 4*), all competencies at the operations level (*see Chapter 6*), all mission-specific competencies for PPE (*see Section 8.2*), and all competencies in this section.

8.7.1.1.3 Operations Mission-Specific Responders assigned to perform detection, monitoring, and sampling at hazardous materials/WMD incidents shall operate under the guidance of a Hazardous Materials Technician, an allied professional, an emergency response plan, or standard operating procedures.

8.7.1.1.4 Operations Mission-Specific Responders assigned to perform air monitoring and sampling at hazardous materials/WMD incidents shall receive the additional training necessary to meet specific needs of the AHJ.

8.7.1.2 Goal.

8.7.1.2.1 The goal of the competencies in this section shall be to provide the Operations Mission-Specific Responders assigned to perform detecting, monitoring, and sampling at hazardous materials/WMD incidents with the knowledge and skills to perform the tasks in 8.7.1.2.2 safely and effectively.

8.7.1.2.2 Given examples of hazardous materials/WMD incidents; an assignment; the scope of the problem; policies and procedures; approved resources; detection, monitoring, and sampling equipment; PPE; and access to a Hazardous Materials Technician, an allied professional, an emergency response plan, or standard operating procedures, Operations Mission-Specific Responders assigned to perform detection, monitoring, and sampling shall be able to perform the following tasks:

- (1) Select equipment for detecting, monitoring, and sampling suitable for the hazardous materials/WMD present at the incidents within the capabilities and competencies of available responders; approved resources including detection, monitoring, and sampling equipment; and PPE in accordance with the AHJ policies and procedures.
- (2) Operate the selected equipment to detect, monitor, and sample hazardous materials/WMD present at the incidents following safety procedures, avoiding or minimizing hazards, and protecting exposures and responders.
- (3) Report and document detection, monitoring, and sampling operations.

8.7.2 Competencies — Analyzing the Incident. (Reserved)**8.7.3 Competencies — Planning the Response.**

8.7.3.1 Selecting Detection, Monitoring, and Sampling Equipment. Given examples of hazardous materials/WMD incidents and the detection, monitoring, and sampling equipment provided by the AHJ, Operations Mission-Specific Responders assigned to perform detection, monitoring, and sampling at hazardous materials/WMD incidents shall be able to perform the following:

- (1) Describe the importance of working under the guidance of a Hazardous Materials Technician, an allied professional, an emergency response plan, or standard operating procedures.
- (2) Describe detection, monitoring, and sampling methods and equipment available.
- (3) Describe the considerations for selecting detection, monitoring, and sampling equipment for an assigned task within the capabilities and competencies of available responders and approved detection, monitoring, sampling equipment, and PPE.
- (4) Given the detection, monitoring, and sampling equipment provided by the AHJ, describe the following for each piece of equipment:
 - (a) Application, capabilities, and limitations
 - (b) Procedures operating the equipment, including field testing, safety precautions, and action levels
 - (c) Procedures for reading, interpreting, documenting, and communicating results of detection, monitoring, and sampling operations
 - (d) Procedures for decontaminating detection, monitoring, and sampling equipment according to manufacturer's recommendations or AHJ policies and procedures

- (e) Procedures for maintaining detection, monitoring, and sampling equipment according to manufacturers' specifications or AHJ policies and procedures

8.7.4 Competencies — Implementing the Planned Response.

8.7.4.1 Operating Detection, Monitoring, and Sampling Equipment. Given examples of hazardous materials/WMD incidents, as assignment, and the selected detection, monitoring, and sampling equipment, Operations Mission-Specific Responders shall implement detection, monitoring, and sampling operations as necessary and shall be able to perform the following:

- (1) Field test the detection, monitoring, and sampling equipment to be used according to the manufacturers' specification and AHJ policies and procedures, including the following:
 - (a) Functional (i.e., bump) test
 - (b) Calibration
 - (c) Other required tests
- (2) Operate the equipment to detect, monitor, and sample the hazardous materials/WMD present following safety procedures, avoiding or minimizing hazards, and protecting exposures and responders.
- (3) Read, interpret, and document readings from the detection, monitoring, and sampling equipment.
- (4) Communicate results of detection, monitoring, and sampling operations.
- (5) Decontaminate the detection, monitoring, and sampling equipment.
- (6) Maintain detection, monitoring, and sampling equipment according to the manufacturers' specifications or AHJ policies and procedures.

8.7.5 Competencies — Evaluating Progress. (Reserved)**8.7.6 Competencies — Terminating the Incident.**

8.7.6.1 Reporting and Documenting Detection, Monitoring, and Sampling Operations. Given examples of hazardous materials/WMD incidents involving detection, monitoring, and sampling operations and AHJ policies and procedures, Operations Mission-Specific Responders assigned to perform detection, monitoring, and sampling shall identify the reporting and documentation requirements of the AHJ.

8.8 Mission-Specific Competencies: Victim Rescue and Recovery.**8.8.1 General.****8.8.1.1 Introduction.**

8.8.1.1.1 Operations Mission-Specific Responders assigned to perform victim rescue and recovery at hazardous materials/WMD incidents shall be competent at the operations level (*see Chapter 6*) and assigned to rescue and recover exposed and/or contaminated victims at hazardous materials/WMD incidents.

8.8.1.1.2 Operations Mission-Specific Responders assigned to perform victim rescue and recovery at hazardous materials/WMD incidents shall be trained to meet all competencies at the awareness level (*see Chapter 4*), all competencies at the operations level (*see Chapter 6*), all mission-specific competencies for PPE (*see Section 8.2*), and all competencies in this section.

8.8.1.1.3 Operations Mission-Specific Responders assigned to perform victim rescue and recovery at hazardous materials/WMD incidents shall operate under the guidance of a Hazardous Materials Technician, an allied professional, an emergency response plan, or standard operating procedures.

8.8.1.1.4* Operations Mission-Specific Responders assigned to perform victim rescue and recovery at hazardous materials/WMD incidents shall receive the additional training necessary to meet specific needs of the jurisdiction.

8.8.1.2 Goal.

8.8.1.2.1 The goal of the competencies in this section shall be to provide the Operations Level Responder assigned to rescue and/or recover exposed and/or contaminated victims at hazardous materials/WMD incidents with the knowledge and skills to perform the tasks in 8.8.1.2.2 in a safe and effective manner.

8.8.1.2.2 Given examples of hazardous materials/WMD incidents involving exposed and/or contaminated victims; an assignment; the scope of the problem; policies and procedures; approved resources, including special rescue equipment, and PPE; and access to a Hazardous Materials Technician, an allied professional, an emergency response plan, or standard operating procedures, Operations Mission-Specific Responders assigned to perform victim rescue and recovery shall be able to perform the following tasks:

- (1) Select rescue and/or recovery options for victims at the incident within the capabilities of available responders and approved tools, equipment, special rescue equipment, and PPE in accordance with the AHJ's policies and procedures by completing the following requirements:
 - (a) Identify the status of potential victims
 - (b) Select rescue and/or recovery options based on the status of potential victims
- (2) Search for, rescue, and recover victims following safety procedures, avoiding or minimizing hazards, and protecting exposures and responders
- (3) Report and document victim rescue and/or recovery operations

8.8.2 Competencies — Analyzing the Incident. (Reserved)

8.8.3 Competencies — Planning the Response.

8.8.3.1 Selecting Rescue and Recovery Options. Given examples of hazardous materials/WMD incidents involving exposed and/or contaminated victims; an assignment; the scope of the problem; policies and procedures; approved resources, including special rescue equipment, and PPE; and access to a Hazardous Materials Technician, an allied professional, an emergency response plan, or standard operating procedures, Operations Level Responder assigned to rescue and recover victims shall select the victim rescue and recovery option(s) for the assignment and be able to perform the following tasks:

- (1) Describe the importance of working under the guidance of a Hazardous Materials Technician, an allied professional, an emergency response plan, or standard operating procedures.
- (2) Choose whether the task is victim rescue, victim recovery, or both.
 - (a) Describe the difference between victim rescue and victim recovery operations.

- (b) Describe considerations for determining the feasibility of conducting rescue or recovery operations in each of the following situations:
 - i. Line-of-sight with ambulatory victims
 - ii. Line-of-sight with nonambulatory victims
 - iii. Non-line-of-sight with ambulatory victims
 - iv. Non-line-of-sight with nonambulatory victims
 - v. Victim rescue operations versus victim recovery operations

- (3) Select the rescue and recovery options within the capabilities of available responders, approved tools, equipment, special rescue equipment, and PPE for the situation at hand.
- (4) Describe both rescue and recovery options for each of the following situations:
 - (a) Line-of-sight with ambulatory victims
 - (b) Line-of-sight with nonambulatory victims
 - (c) Non-line-of-sight with ambulatory victims
 - (d) Non-line-of-sight with nonambulatory victims
- (5) Describe the procedures for implementing victim rescue and recovery operations within the incident command system.
- (6) Select the victim rescue or recovery option(s) and equipment for the assigned situation within the capabilities of available responders, approved tools, equipment, special rescue equipment, and PPE.
- (7) Identify the equipment options required to protect victims during rescue and recovery operations.

8.8.4 Competencies — Implementing the Planned Response.

8.8.4.1 Victim Rescue and Recovery. Given examples of hazardous materials/WMD incidents and the recommended victim rescue and recovery option(s) for the incident, Operations Mission-Specific Responders assigned to rescue and recover victims shall implement the selected victim rescue and recovery options by completing the following requirements:

- (1) Identify the different victim and recovery team positions, roles, and responsibilities.
- (2) Select and use specialized rescue equipment and procedures provided by the AHJ to support victim rescue and recovery.
- (3) Search for, rescue, and recover victims following safety procedures, avoiding or minimizing hazards, and protecting exposures and responders.
- (4) Select required PPE for rescuers and equipment to protect victims.
- (5) Triage and transfer victims to the decontamination group, casualty collection point, or area of safe refuge or emergency medical care in accordance with the IAP.
- (6) Follow the AHJ's procedures for the decontamination of rescue/recovery responders and their equipment.

8.8.5 Competencies — Evaluating Progress. (Reserved)

8.8.6 Competencies — Terminating the Incident.

8.8.6.1 Reporting and Documenting Victim Rescue and Recovery Operations. Given examples of a hazardous materials/WMD incidents involving victim rescue and recovery operations and AHJ policies and procedures, the Operations Level Responder shall identify the reporting and documentation requirements of the AHJ pertaining to victim rescue and recovery operations.

8.9 Mission-Specific Competencies: Response to Illicit Laboratory Incidents.

8.9.1 General.

8.9.1.1 Introduction.

8.9.1.1.1 The Operations Mission-Specific Responders assigned to secure the scene, identify the laboratory or process, and preserve evidence at hazardous materials/WMD incidents involving illicit laboratories with potential violations of criminal statutes specific to the illegal manufacture of drugs or WMD shall be competent at the operations level.

8.9.1.1.2 Operations Mission-Specific Responders who respond to illicit laboratory incidents shall be trained to meet all competencies at the awareness level (*see Chapter 4*), all competencies at the operations level (*see Chapter 6*), all mission-specific competencies for PPE (*see Section 8.2*), and all competencies in this section.

8.9.1.1.3 Operations Mission-Specific Responders who respond to illicit laboratory incidents shall operate under the guidance of a Hazardous Materials Technician, an allied professional, or standard operating procedures.

8.9.1.1.4* Operations Mission-Specific Responders who respond to illicit laboratory incidents shall receive the additional training necessary to meet specific needs of the jurisdiction.

8.9.1.2 Goal.

8.9.1.2.1 The goal of the competencies in this section shall be to provide the Operations Mission-Specific Responders assigned to respond to illicit laboratory incidents with the knowledge and skills to perform the tasks in 8.9.1.2.2 in a safe and effective manner.

8.9.1.2.2 Given examples of hazardous materials/WMD incidents involving an illicit laboratory with potential violations of criminal statutes specific to the illegal manufacture of drugs or WMD; an assignment in an IAP; scope of the problem; policies and procedures; approved tools, equipment, and PPE; and access to a Hazardous Materials Technician, an allied professional, an emergency response plan, or standard operating procedures, Operations Mission-Specific Responders shall be able to perform the following tasks:

- (1) Analyze a hazardous materials/WMD incident to determine the complexity of the problem, potential outcomes, and whether the incident has the potential to be a criminal illicit laboratory operation.
- (2) Plan a response for a hazardous materials/WMD incident involving potential illicit laboratory operations in compliance with evidence preservation operations within the capabilities and competencies of available responders, PPE, and response equipment after notifying the responsible law enforcement agencies of the problem.
- (3) Implement the planned response to a hazardous materials/WMD incident involving potential illicit laboratory operations utilizing applicable evidence preservation guidelines.
- (4) Report and document illicit laboratory response operations.

8.9.2 Competencies — Analyzing the Incident.

8.9.2.1 Determining If a Hazardous Materials/WMD Incident Is an Illicit Laboratory Operation. Given examples of hazard-

ous materials/WMD incidents involving illicit laboratories, Operations Mission-Specific Responders shall identify the potential drugs and hazardous materials/WMD being manufactured by completing the following related requirements:

- (1) Given examples of illicit drug manufacturing methods, describe the operational considerations, hazards, and products involved in the illicit process.
- (2) Given examples of illicit chemical WMD methods, describe the operational considerations, hazards, and products involved in the illicit process.
- (3) Given examples of illicit biological WMD methods, describe the operational considerations, hazards, and products involved in the illicit process.
- (4) Given examples of illicit laboratory operations, describe the booby traps that have been encountered by response responders.
- (5) Given examples of illicit laboratory operations, describe the agencies that have investigative authority and operational responsibility to support the response.

8.9.3 Competencies — Planning the Response.

8.9.3.1 Determining the Tactics. Given examples of an analysis of hazardous materials/WMD incidents involving illicit laboratories, Operations Mission-Specific Responders shall identify possible tactics.

8.9.3.2 Identifying Unique Aspects of Criminal Hazardous Materials/WMD Incidents.

8.9.3.2.1 Operations Mission-Specific Responders assigned to respond to illicit laboratory incidents shall identify the unique operational aspects associated with illicit drug manufacturing and illicit WMD manufacturing.

8.9.3.2.2 Given examples of illicit drug manufacturing or illicit WMD manufacturing, Operations Mission-Specific Responders assigned to illicit laboratory incidents shall describe the following tasks:

- (1) Securing and preserving the scene
- (2) Joint hazardous materials and Public Safety Bomb Technician site reconnaissance and hazard identification
- (3) Determining atmospheric hazards through air monitoring and detection
- (4) Mitigation of immediate hazards while preserving evidence
- (5) Coordinated crime scene operation with the agency having investigative authority
- (6) Documenting responders and scene operations associated with the incident

8.9.3.3 Identifying the Agency That Has Investigative Jurisdiction. Operations Mission-Specific Responders assigned to respond to illicit laboratory incidents shall identify the AHJ with investigative authority for the following:

- (1) Illicit drug manufacturing
- (2) Illicit WMD manufacturing
- (3) Environmental crimes resulting from illicit laboratory operations
- (4) Improvised explosive devices, improvised WMD dispersal devices, and improvised explosives laboratories

8.9.3.4 Identifying Unique Tasks and Operations at Sites Involving Illicit Laboratories.

8.9.3.4.1 Operations Mission-Specific Responders assigned to respond to illicit laboratory incidents shall identify and

describe the unique tasks and operations that can be encountered.

8.9.3.4.2 Given examples of illicit drug manufacturing or illicit WMD manufacturing incidents, describe the following:

- (1) Hazards, safety procedures, and tactical guidelines for this type of emergency
- (2) Factors to be evaluated in selection of the proper PPE for each type of tactical operation
- (3) Factors to be considered in selection of appropriate decontamination procedures
- (4) Factors to be evaluated in the selection of detection devices
- (5) Factors to be considered in the development of a remediation plan

8.9.4 Competencies — Implementing the Planned Response.

8.9.4.1 Implementing the Planned Response. Given examples of illicit drug/WMD laboratory operations involving hazardous materials/WMD, Operations Mission-Specific Responders assigned to respond to illicit laboratory incidents shall implement or oversee the implementation of the selected tactics in a safe and effective manner.

8.9.4.1.1 Given examples of simulated illicit drug/WMD laboratory incidents and an assignment, Operations Mission-Specific Responders shall be able to perform the following tasks:

- (1) Describe safe and effective methods to secure the scene
- (2) Demonstrate decontamination procedures for tactical animals
- (3) Demonstrate decontamination procedures for potential suspects
- (4) Describe methods to identify and avoid hazards found at illicit laboratories such as booby traps and releases of hazardous materials
- (5) Describe procedures for conducting joint hazardous materials/hazardous devices assessment operations

8.9.4.1.2 Given examples of illicit drug/WMD laboratory entry operations and an assignment, Operations Mission-Specific Responders shall describe methods for identifying the following during reconnaissance operations:

- (1) Manufacture of illicit drugs
- (2) Manufacture of illicit WMD materials
- (3) Environmental crimes associated with the manufacture of illicit drugs/WMD materials
- (4) Improvised explosive devices, improvised WMD dispersal devices, and improvised explosives laboratories

8.9.4.1.3 Given examples of illicit drug/WMD laboratory incidents and an assignment, Operations Mission-Specific Responders shall describe joint agency crime scene operations, including support to forensic crime scene processing teams.

8.9.4.1.4 Given examples of illicit drug/WMD laboratory incidents and an assignment, Operations Mission-Specific Responders shall describe the policy and procedures for post-crime scene processing and site remediation operations.

8.9.4.1.5 Operations Mission-Specific Responders assigned to respond to illicit laboratory incidents shall describe local procedures for performing decontamination upon completion of the illicit laboratory mission.

8.9.5 Competencies — Evaluating Progress. (Reserved)

8.9.6 Competencies — Terminating the Incident.

8.9.6.1 Reporting and Documenting Illicit Laboratory Response Operations. Given examples of hazardous materials/WMD incidents involving illicit laboratories, an assignment, and AHJ policies and procedures, Operations Mission-Specific Responders shall identify the reporting and documentation requirements of the AHJ.

8.10 Mission-Specific Competencies: Radiological Hazard-Specific Tasks.

8.10.1 General.

8.10.1.1 Introduction.

8.10.1.1.1 Operations Mission-Specific Responders assigned to perform radiological hazard-specific tasks shall be competent at the operations level (*see Chapter 6*) and assigned to support the Hazardous Materials Technician and other responders, provide strategic and tactical recommendations to incident command, serve as a technical advisor to provide technical oversight for operations, and act as a liaison between the Hazardous Materials Technician, response responders, and outside resources regarding radiological issues.

8.10.1.1.2 Operations Mission-Specific Responders assigned to perform radiological hazard-specific tasks at hazardous materials/WMD incidents shall be trained to meet all competencies at the awareness level (*see Chapter 4*), all competencies at the operations level (*see Chapter 6*), all mission-specific competencies for PPE (*see Section 8.2*), and all competencies in this section.

8.10.1.1.3 Operations Mission-Specific Responders assigned to perform radiological hazard-specific tasks at hazardous materials/WMD incidents shall operate under the guidance of a Hazardous Materials Technician, an allied professional, an emergency response plan, or standard operating procedures.

8.10.1.1.4 Operations Mission-Specific Responders assigned to perform radiological hazard-specific tasks at hazardous materials/WMD incidents shall receive the additional training necessary to meet specific needs of the jurisdiction.

8.10.1.2 Goal.

8.10.1.2.1 The goal of the competencies in this section shall be to provide Operations Mission-Specific Responders assigned radiological hazard-specific tasks at hazardous materials/WMD incidents with the knowledge and skills to perform the tasks in 8.10.1.2.2 in a safe and effective manner.

8.10.1.2.2 When responding to hazardous materials/WMD incidents involving radiological hazards, Operations Mission-Specific Responders assigned to perform radiological hazard-specific tasks shall be able to perform the following tasks:

- (1) Analyze hazardous materials/WMD incidents involving radiological hazards to determine the complexity of the problem and potential outcomes by completing the following tasks:
 - (a) Understand types of radiation and potential harm of each type at an incident.
 - (b) Predict the direct exposure pathways, including inhalation, ingestion, injection, and absorption.
- (2) Plan a response for a hazardous materials/WMD incident involving a radiological hazard within the capabilities and

competencies of available responders, PPE, and response equipment.

- (3) Implement the planned response to a hazardous materials/WMD incident involving a radiological hazard.
- (4) Report and document radiological response operations.

8.10.2 Competencies — Analyzing the Incident.

8.10.2.1 Determining if the Incident Involves a Radiological Hazard. Given examples of hazardous materials/WMD incidents involving a radiological hazards, Operations Mission-Specific Responders assigned radiological hazard-specific tasks shall be able to perform the following tasks.

- (1) Define the following terms:
 - (a) Dose/Dose rate
 - (b) Exposure/Exposure rate
 - (c) Fissile
 - (d) Half-life
 - (e) Improvised nuclear device (IND)
 - (f) Ionizing radiation
 - (g) Non-ionizing radiation
 - (h) Radiation dispersal device (RDD)
 - (i) Radiation exposure device (RED)
 - (j) Radioactive material
 - i. Manmade
 - ii. Naturally occurring
 - (k) Radioactivity
 - (l) Special nuclear material
 - (m) Units of measure for radiation
 - i. Roentgen
 - ii. Rad/gray
 - iii. Rem/Sievert
 - (n) Units of measure for radioactivity
 - i. Becquerel
 - ii. Curie
- (2) Identify the following potential locations where radiological hazards could be encountered:
 - (a) Medical facilities
 - (b) Research laboratories
 - (c) Nuclear power plants
 - (d) Industrial/commercial facilities
 - (e) Government facilities
 - (f) Radioactive material/waste shipments
 - (g) Industrial applications
 - (h) Transportation
- (3) Identify the following types of radiation and the potential harm associated with each:
 - (a) Alpha radiation
 - (b) Beta radiation
 - (c) Gamma, X-ray radiation
 - (d) Neutron radiation
- (4) Identify the following terms related to a nuclear detonation:
 - (a) Blast and thermal effects
 - (b) Electromagnetic radiation, pulse
 - (c) Fallout and ground shine
 - (d) Prompt radiation effects
- (5) Identify the following potential routes of internal exposure to radioactive material and the potential harm associated with each:
 - (a) Absorption
 - (b) Ingestion

- (c) Inhalation
- (d) Injection

8.10.3 Competencies — Planning the Response.

8.10.3.1 Given examples of analysis incidents involving a radiological hazards, Operations Mission-Specific Responders assigned radiological hazard-specific tasks shall be able to determine tactics for the incident.

8.10.3.2 Operations Mission-Specific Responders assigned radiological hazard-specific tasks shall be able to perform the following tasks:

- (1) Given examples of the concealment of radiation sources in a public areas, describe the considerations for the following:
 - (a) Identification of the source
 - (b) Determination of exposure rate and isolation distance
 - (c) Estimation of responders exposure from the source
- (2) Given examples of releases of a radioactive materials, describe the considerations for establishing a hot zone for the following scenarios:
 - (a) Radioactive material release from a dissemination device or system
 - (b) Radioactive material release from a package
 - (c) Radioactive material release or spill of a liquid agent
 - (d) Radiological dispersal device (RDD)
 - (e) Improvised nuclear device (IND)
- (3) Describe the factors to be evaluated in selecting PPE for use at an incident involving a radiological hazard.
- (4) Given examples of the following scenarios, describe the considerations for selecting personal protective clothing:
 - (a) Radioactive material release from a package
 - (b) Radioactive material release or spill of a liquid agent
 - (c) Radiation dispersal device (RDD)
 - (d) Radiation exposure device (RED)
 - (e) Improvised nuclear device (IND)
- (5) Describe the factors to be considered for selecting decontamination procedures for use at an incident involving radioactive material.
- (6) Given the following scenarios, describe the considerations for selecting decontamination procedures:
 - (a) Victim with localized external contamination (e.g., hands or feet)
 - (b) Victim with significant or whole-body external contamination
 - (c) Victim with internal contamination
 - (d) Hard surfaces (e.g., floors and tables) contaminated with radioactive material
 - (e) Porous surfaces or equipment with inaccessible areas contaminated with radioactive material
- (7) Describe the factors to be considered in the identification and quantification of radioactive material, including the following:
 - (a) Sampling techniques for radioactive contamination
 - (b) Field test limitations, accuracy, and interpretation of results
 - (c) Field screening and overpacking consistent with local protocols
 - (d) Methods available for isotopic identification

- (e) Preservation of material for laboratory testing
- (f) Preservation of forensic evidence
- (8) Identify the local, state, and federal resources available to assist the Operations Level Responder to identify a radiological hazard and manage the incident.

8.10.4 Determining Detection and Monitoring Requirements.

Given examples of the classes of radiation detection systems, Operations Mission-Specific Responders shall identify factors to be evaluated as part of the use of these systems, including mission objectives, system validation, capability, limitations, detection levels, operator training, and interpretation of results for the following:

- (1) Personal radiation detectors (PRDs)
- (2) Radiation exposure rate survey meters
- (3) Contamination survey meters
- (4) Radioisotope identification detectors (RIIDs)
- (5) Portal monitor systems
- (6) Dosimetry devices

8.10.5 Competencies — Implementing the Planned Response.

8.10.5.1 Given examples analysis of incidents involving radiological hazards, Operations Mission-Specific Responders assigned radiological hazard-specific tasks shall implement or oversee the implementation of the selected tactics safely and effectively.

8.10.5.2 Operations Mission-Specific Responders assigned radiological agent-specific tasks shall be able to complete the following tasks:

- (1) Given a simulated incident involving an RED or the concealment of a radioactive material source in a public area, describe the procedures for the following:
 - (a) Locating the source
 - (b) Identifying initial isolation zone
 - (c) Identifying the source [i.e., isotope(s) involved]
 - (d) Determining source exposure rate
 - (e) Dose estimation for affected responders
- (2) Given examples of simulated incidents involving a release of radioactive materials from a dissemination or dispersion devices, describe the procedures for the following:
 - (a) Managing exposed and/or contaminated victims
 - (b) Sampling and identification of the material involved
 - (c) Decontamination
 - (d) Field screening and packaging the material involved
 - (e) Laboratory analysis of the material involved
- (3) Given examples of simulated incidents involving a release of radioactive materials from a packages, describe the procedures for the following:
 - (a) Managing exposed and/or contaminated victims
 - (b) Decontamination
 - (c) Sampling and identification of the material involved
 - (d) Field screening and packaging the material involved
 - (e) Laboratory analysis of the material involved
- (4) Given examples of incidents involving release of radioactive materials from spills, describe the procedures for the following:
 - (a) Managing exposed and/or contaminated victims
 - (b) Decontamination
 - (c) Sampling and identification of the material involved
 - (d) Field screening and packaging the material involved
 - (e) Laboratory analysis of the material involved

- (5) Given examples of incidents involving releases of radioactive materials from the detonations of IND, describe the procedures for the following:

- (a) Managing exposed and contaminated victims
- (b) Decontamination
- (c) Sampling and identification of the material involved
- (d) Field screening and packaging the material involved
- (e) Laboratory analysis of the material involved

8.10.6 Competencies — Evaluating Progress. (Reserved)

8.10.7 Competencies — Terminating the Incident. (Reserved)

8.11 Mission-Specific Competencies: Disablement/Disruption of Improvised Explosive Devices (IEDs), Improvised WMD Dispersal Devices, and Operations at Improvised Explosives Laboratories.

8.11.1 General.

8.11.1.1 Introduction.

8.11.1.1.1 Operations Mission-Specific Responders assigned to perform disablement/disruption of IEDs, improvised WMD dispersal devices, and operations at improvised explosives laboratories shall be competent at the operations level (*see Chapter 6*) and assigned to interrupt the functioning of an IED or an improvised WMD dispersal device or conduct operations at improvised explosives laboratories.

8.11.1.1.2 Operations Mission-Specific Responders assigned to perform disablement/disruption of IEDs, improvised WMD dispersal devices, and operations at improvised explosives laboratories shall possess current certification as a hazardous device technician from the FBI Hazardous Devices School, Department of Defense, or equivalent certifying agency as determined by the AHJ and be functioning as a member of a bomb squad or recognized military unit.

8.11.1.1.3 Operations Mission-Specific Responders assigned to perform disablement/disruption of IEDs, improvised WMD dispersal devices, and operations at improvised explosives laboratories shall be trained to meet all competencies at the awareness level (*see Chapter 4*), all competencies at the operations level (*see Chapter 6*), all mission-specific competencies for PPE (*see Section 8.2*), mission-specific competencies for response to illicit laboratories (*see Section 8.9*), and all competencies in this section.

8.11.1.1.4 Operations Mission-Specific Responders assigned to perform disablement/disruption of IEDs, improvised WMD dispersal devices, and operations at improvised explosives laboratories shall operate under the guidance of an allied professional or standard operating procedures.

8.11.1.1.5 Operations Mission-Specific Responders assigned to perform disablement/disruption of IEDs, improvised WMD dispersal devices, and operations at improvised explosives laboratories shall receive the additional training necessary to meet the specific needs of the AHJ.

8.11.1.2 Goal.

8.11.1.2.1 The goal of the competencies in this section shall be to provide Operations Mission-Specific Responders assigned to perform disablement/disruption of IEDs, improvised WMD dispersal devices, and operations at improvised explosives laboratories with the knowledge and skills to perform the tasks in 8.11.1.2.2 and 8.11.1.2.3 in a safe and effective manner.

8.11.1.2.2 When responding to hazardous materials/WMD incidents involving a potential IED or improvised WMD dispersal device, Operations Mission-Specific Responders assigned to perform disablement/disruption of IEDs, improvised WMD dispersal devices, and operations at improvised explosives laboratories shall be able to perform the following tasks:

- (1) Analyze a hazardous materials/WMD incident involving an improvised WMD dispersal device to determine the complexity of the problem and potential outcomes by completing the following tasks:
 - (a) Determine if an IED or WMD dispersal device is present.
 - (b) Categorize the device by its delivery method.
- (2) Plan a response for a hazardous materials/WMD incident where there is a potential improvised WMD dispersal device within the capabilities and competencies of available responders, PPE, and response equipment by completing the following tasks:
 - (a) Determine if tactics can be employed to conduct a disablement/disruption of the device.
 - (b) Describe the actions to be taken and the resources to be requested if the incident exceeds the available capabilities.
- (3)* Implement the planned response to a hazardous materials/WMD incident involving an IED or WMD dispersal device by employing disablement/disruption techniques, established protocol of military units, or the AHJ under the guidance of the Senior Public Safety Bomb Technician present.
- (4) Report and document potential IED or improvised WMD dispersal device operations.

8.11.1.2.3 When responding to hazardous materials/WMD incidents involving potential improvised explosives laboratories, Operations Mission-Specific Responders assigned to perform disablement/disruption of IEDs, improvised WMD dispersal devices, and operations at improvised explosives laboratories shall be able to perform the following tasks:

- (1) Analyze a hazardous materials/WMD incident involving a potential improvised explosives laboratory to determine the complexity of the problem and potential outcomes and whether the incident has the potential for being an improvised explosives laboratory operation.
- (2) Plan a response to a hazardous materials/WMD incident involving a potential improvised explosives laboratory in compliance with mitigation techniques and evidence recovery within the capabilities and competencies of available responders, PPE, and control equipment, after notifying the responsible investigative agencies of the problem.
- (3) Implement the planned response to a hazardous materials/WMD incident involving a potential improvised explosives laboratory utilizing applicable standard operating procedures and/or technical advice from qualified allied professionals.
- (4) Report and document potential improvised explosives laboratories operations.

8.11.2 Competencies — Analyzing the Incident.

8.11.2.1 Determining If the Incident Involves the Potential Presence of an Improvised WMD Dispersal Device. Given examples of hazardous materials/WMD incidents involving an IED or improvised WMD dispersal device, Operations Mission-

Specific Responders assigned to perform disablement/disruption of IEDs, improvised WMD dispersal devices, and operations at improvised explosives laboratories shall identify and/or categorize the hazard by completing the following and describe products that might be encountered in the incident associated with each situation:

- (1) Letter/package-based improvised dispersal device
- (2) Briefcase/backpack-based improvised dispersal device
- (3) Transportation-borne WMD dispersal device
- (4) Fixed location hazards where an IED has been placed to cause the deliberate release of a material

8.11.2.2 Determining If the Hazardous Materials/WMD Incident Involves an Improvised Explosives Laboratory Operation.

Given examples of hazardous materials/WMD incidents involving improvised explosives laboratories, Operations Mission-Specific Responders assigned to perform disablement/disruption of IEDs, improvised WMD dispersal devices, and operations at improvised explosives laboratories shall identify the potential explosives/WMD being manufactured by completing the following related requirements:

- (1) Given examples of improvised explosives manufacturing methods, describe the operational considerations, hazards, and products involved in the process.
- (2) Given examples of improvised explosives laboratory operations, describe the booby traps that have been encountered by response responders.
- (3) Given examples of improvised explosives laboratory operations, describe the agencies that have investigative authority and operational responsibility to support the response.

8.11.3 Competencies — Planning the Response.

8.11.3.1 Identifying Unique Aspects of Improvised WMD Dispersal Device Related Hazardous Materials/WMD Incidents.

When responding to hazardous materials/WMD incidents, Operations Mission-Specific Responders assigned to perform disablement/disruption of IEDs, improvised WMD dispersal devices, and operations at improvised explosives laboratory incidents shall be capable of identifying the unique aspects associated with such incidents by completing the following requirements:

- (1) Given an incident involving a non-vehicle-based WMD dispersal device, be able to perform the following tasks:
 - (a) Describe the hazards, safety procedures, and tactical guidelines for this type of incident.
 - (b)* Describe the factors to be evaluated in selecting the PPE.
 - (c) Describe the procedure for identifying and obtaining the appropriate emergency response elements to support disablement/disruption operations.
- (2) Given an incident involving a vehicle-borne WMD dispersal device, be able to perform the following tasks:
 - (a) Describe the hazards, safety procedures, and tactical guidelines for this type of incident.
 - (b) Describe the factors to be evaluated in selecting the PPE [see A.8.11.3.1(1)(b)].
 - (c) Describe the procedure for identifying and obtaining the appropriate emergency response elements to support disablement/disruption operations.
- (3) Given examples of different types of incidents involving an improvised WMD dispersal device, identify and describe the application, use, and limitations of various

types of field screening tools that can be utilized for determining the presence of the following materials:

- (a) Gamma/X-ray and neutron radiation
- (b) Explosive materials [commercial and homemade explosives (HME)]

8.11.3.2 Identifying Unique Aspects of Improvised Explosives Laboratory-Related Hazardous Materials/WMD Incidents.

When responding to conduct mitigation procedures on energetic materials at an improvised explosives laboratory, Operations Mission-Specific Responders assigned to perform disablement/disruption of IEDs, improvised WMD dispersal devices, and operations at improvised explosives laboratories shall be capable of identifying the unique aspects associated with such incidents by completing the following requirements given a scenario involving an improvised explosives laboratory and detection devices provided by the AHJ:

- (1) Describe the hazards, safety procedures, and tactical guidelines for this type of incident.
- (2) Describe the factors to be evaluated in selecting the PPE [see A.8.11.3.1(1)(b)].
- (3) Describe the application, use, and limitations of various types of field screening tools that can be utilized for determining the presence of the following materials:
 - (a) Radioactive materials that emit alpha, beta, gamma, or neutron radiation, including radionuclide identification of gamma emitting radioactive materials
 - (b) Explosive materials (commercial and HME)
- (4) Demonstrate the field test and operation of each detection device and interpret the readings based on local procedures.
- (5) Describe local procedures for decontamination of themselves and their detection devices upon completion of the material detection mission.
- (6) Describe the procedure for identifying and obtaining the appropriate emergency response elements to support disablement/disruption or mitigation operations.

8.11.3.3 Identifying Potential Tactics.

8.11.3.3.1 Given examples of incidents involving a potential IED or improvised WMD materials dispersal device, Operations Mission-Specific Responders assigned to perform disablement/disruption of IEDs, improvised WMD dispersal devices, and operations at improvised explosives laboratories shall identify possible tactics.

8.11.3.3.2 Given examples of incidents involving potential improvised explosives laboratories, Operations Mission-Specific Responders assigned to perform disablement/disruption of IEDs, improvised WMD dispersal devices, and operations at improvised explosives laboratories shall identify possible tactics.

8.11.3.4* Selecting Personal Protective Equipment. Given examples of the PPE provided by the AHJ, Operations Mission-Specific Responders assigned to perform disablement/disruption of IEDs, improvised WMD dispersal devices, and operations at an incident with improvised explosives laboratories shall select the PPE required to support such operations at hazardous materials/WMD incidents.

8.11.4 Competencies — Implementing the Planned Response.

8.11.4.1 Given examples of incidents involving a potential IED or improvised WMD dispersal device, Operations Mission-Specific Responders assigned to perform disablement/disruption of IEDs, improvised WMD dispersal devices, and operations at improvised explosives laboratories shall be able to complete the following tasks:

tion of IEDs, improvised WMD dispersal devices, and operations at an improvised explosives laboratory shall be able to complete the following tasks:

- (1) Using detection and monitoring devices provided by the AHJ, demonstrate the field test and operation of each device and interpret the readings based on AHJ procedures.
- (2) Perform diagnostics based on procedures instructed by a nationally accredited hazardous devices school or program.
- (3)* Perform disablement/disruption techniques in accordance with established military or AHJ protocols.
- (4) Assist in planning the air monitoring and sampling operations within the capabilities and competencies of available responders, PPE, and response equipment and, in accordance with the AHJ, describe the air monitoring and sampling options available.
- (5) Given the air monitoring and sampling equipment provided by the AHJ, complete the following:
 - (a) Select the detection or monitoring equipment suitable for detecting or monitoring of the IED or improvised WMD dispersal device.
 - (b) Describe the operation, capabilities, limitations, local monitoring procedures, field-testing, and maintenance procedures associated with each device provided by the AHJ.
 - (c) Describe local procedures for decontamination of the detection and monitoring devices upon completion of the mission.

8.11.4.2 Given examples of improvised explosives laboratory incidents, Operations Mission-Specific Responders assigned to perform disablement/disruption of IEDs and improvised WMD dispersal devices shall be able to perform the following tasks:

- (1) Describe the safe and effective methods for law enforcement to secure the scene.
- (2) Demonstrate methods to identify and avoid safety hazards at improvised explosives laboratories such as booby traps, releases of hazardous materials, and initiating components.
- (3) Using detection and monitoring devices provided by the AHJ, demonstrate the field test and operation of each device and interpret the readings based on local or agency procedures.
- (4) Describe the methods that could be utilized to mitigate the hazards identified.

8.11.4.3 Operations Mission-Specific Responders assigned to perform disablement/disruption of IEDs, improvised WMD dispersal devices, and operations at improvised explosives laboratories shall demonstrate the ability to wear an appropriate combination of chemical protective clothing, respiratory protection, and ballistic protection for the hazards identified in 8.11.2.1 and 8.11.2.2.

8.11.4.4 Operations Mission-Specific Responders assigned to perform disablement/disruption of IEDs, improvised WMD dispersal devices, and operations at improvised explosives laboratories shall describe the local procedures for the technical decontamination process.

8.11.5 Competencies — Evaluating Progress. (Reserved)

8.11.6 Competencies — Terminating the Incident. (Reserved)

8.12 Diving in Contaminated Water Environments.

8.12.1 General.

8.12.1.1 Introduction.

8.12.1.1.1 Operations Mission-Specific Responders assigned to perform diving in contaminated water environments shall be competent at the operations level (*see Chapter 6*) and assigned to perform either dive or dive surface support operations in water suspected to be contaminated with hazardous materials during emergency response operations, defined as “no notice” dive operations for the purposes of immediate protection of lives or property.

8.12.1.1.2 Operations Mission-Specific Responders assigned to perform contaminated water diving during emergency response operations shall possess current certification per the policies of the AHJ to perform diving operations, to include the use of self-contained underwater breathing apparatus (SCUBA) (which could include rebreather diving apparatus), and/or surface supplied diving apparatus.

8.12.1.1.3 Operations Mission-Specific Responders assigned to perform contaminated water surface support operations during emergency response shall be certified per the policies of the AHJ to perform all surface support operations tasks assigned by the AHJ such as dive tender, air console operator, dive supervisor, or other related task.

8.12.1.1.4 Operations Mission-Specific Responders assigned to perform contaminated water diving or dive surface support operations during emergency response shall be trained to meet all competencies at the awareness level (*see Chapter 4*), all competencies at the operations level (*see Chapter 6*), all mission-specific competencies for PPE (*see Section 8.2*), and all competencies in this section.

8.12.1.1.5 Operations Mission-Specific Responders assigned to perform contaminated water diving or dive surface support operations during emergency response shall operate under the guidance of a Hazardous Materials Technician, allied professional, or standard operating procedures.

8.12.1.1.6 Operations Mission-Specific Responders assigned to perform contaminated water diving or dive surface support operations during emergency response shall receive the additional training necessary to meet the specific needs of the AHJ.

8.12.1.2 Goal.

8.12.1.2.1 The goal of the competencies in this section shall be to provide Operations Mission-Specific Responders assigned to perform contaminated water diving or dive surface support operations with the knowledge and skills to perform the tasks in 8.12.1.2.2 in a safe and effective manner.

8.12.1.2.2 When responding to emergency incidents involving water potentially contaminated with hazardous materials, Operations Mission-Specific Responders assigned to perform contaminated water diving or dive surface support operations during emergency response shall be able to perform the following tasks:

- (1) Analyze an emergency incident involving water potentially contaminated with hazardous materials to determine the complexity of the problem and potential outcomes by completing the following tasks:
 - (a) Determine if hazardous materials are present.

- (b) Categorize the hazards to the dive responder by performance of a hazard risk assessment.
- (2) Plan a response for an emergency incident where there is a potential to dive in water contaminated with hazardous materials within the capabilities and competencies of available responders, PPE, and control equipment by completing the following tasks:
 - (a) Determine if tactics can be employed effectively to conduct a safe diving operation.
 - (b) Describe the actions to be taken and the resources to be requested if the incident exceeds the available capabilities.
- (3) Implement the planned response to a contaminated water diving operation by employing diving operations in accordance with the policies of the AHJ under the guidance of a Hazardous Materials Technician, allied professional, or standard operating procedures.
- (4) Evaluate the response to a contaminated water diving operation by determining the effectiveness of protective equipment and efficiency of decontamination.
- (5) Terminate the response to a contaminated water diving operation by documenting the incident and determining the levels of contamination on diving equipment.

8.12.2 Competencies — Analyzing the Incident.

8.12.2.1 Performing a Pre-Dive Assessment of the Dive Location. Given examples of dive locations with contaminated water diving or dive surface support incidents and an assignment, Operations Mission-Specific Responders shall perform a risk assessment and be able to describe the hazards that might be associated with each of the following situations:

- (1)* Hazards associated with dive locations documented in available environmental reports and reference materials
- (2) Historical releases of hazardous materials near or upstream from the dive location
- (3) Knowledge of hazardous materials containers or vessels near or upstream from the dive location

8.12.2.2 Determining If the Incident Involves Potential Contamination of the Water. Given examples of hazardous materials/WMD incidents involving the potential contamination of water and an assignment, Operations Mission-Specific Responders shall describe the hazards that might be encountered from the incident associated with each of the following situations:

- (1) Chemicals floating on the surface of the water
- (2) Chemicals stratified in the water column or infiltrated in bottom sediment
- (3) Pathogenic biological materials in the water
- (4) Radiological particulates or radioactive sources in the water
- (5) Hazmat containers floating on the surface of the water
- (6) Hazmat containers below the surface of the water

8.12.2.3 Determining the Risk from Hazards at the Dive Location. Given examples of hazardous materials/WMD at dive locations and an assignment, Operations Mission-Specific Responders shall identify the potential risk to divers and dive surface support responders by completing the following requirements:

- (1) Given examples of hazardous materials/WMD identified at dive locations, describe the hazards to divers and dive surface support responders and the operational considerations associated with each hazard:

- (a) Flammable or combustible materials
- (b) Flammable solid/dangerous when wet materials
- (c) Organic peroxides and oxidizers
- (d) Poisons and toxins
- (e) Radioactive materials
- (f) Pathogenic biologic materials
- (g) Corrosive materials
- (2) Given examples of hazardous materials/WMD containers identified at dive locations, describe the secondary hazards, including mechanical hazards, to divers and dive surface support responders and the operational considerations associated with each hazard:
 - (a) Drums, cargo tanks, or other low-pressure containers floating on the surface
 - (b) Drums, cargo tanks, or other low-pressure containers resting on the bottom
 - (c) Compressed gas cylinders, containers, cargo tanks, or other pressure vessels floating on the surface
 - (d) Compressed gas cylinders, containers, cargo tanks, or other pressure vessels resting on the bottom

8.12.3 Competencies — Planning the Response.

8.12.3.1 Identifying Unique Aspects of Dive-Related Hazardous Materials/WMD Incidents. When responding to hazardous materials/WMD incidents, Operations Mission-Specific Responders assigned to perform contaminated water diving or dive surface support operations shall be capable of identifying the unique aspects associated with such incidents by completing the following requirements:

- (1) Given examples of incidents involving contaminated water diving emergency response operations, perform the following:
 - (a) Describe the safety procedures and guidelines required by the AHJ for this type of incident.
 - (b) Describe the factors to be evaluated in selecting the PPE for surface support responders.
 - (c) Describe the factors to be evaluated in selecting dive suit types.
 - (d) Describe the factors to be evaluated in selecting dive suit materials.
 - (e) Describe the factors to be evaluated in selecting diver breathing air supply systems.
 - (f) Describe the factors to be evaluated in selecting the detection and monitoring used by surface support responders.
 - (g) Describe the factors to be evaluated in selecting decontamination procedures and solutions.
 - (h) Describe the factors to be evaluated by medical responders in support of contaminated dive operations.
 - (i) Describe the procedures for evaluating the diver's readiness to dive as required by the AHJ.
 - (j) Describe techniques for contamination avoidance, including buoyancy techniques when applicable.
 - (k) Describe the factors to be evaluated in selecting water quality sampling equipment in support of the operation, as required by the AHJ.
 - (l) Describe the factors to be evaluated in selecting sediment sampling equipment in support of the operation, as required by the AHJ.
- (2) Given an incident involving a contaminated water diving emergency response operation, perform the following support functions:

- (a) Describe the application, use, and limitations of various types of detection and monitoring equipment utilized by the AHJ to include the following:
 - i. Combustible gas indicators
 - ii. Oxygen monitors
 - iii. Toxic gas detectors
 - iv. pH indicators
 - v. Radiation monitors
 - vi. Volatile organic compound (VOC) detectors
- (b) Describe the field test and operation of each detection device provided by the AHJ, and interpret the readings based on local procedures.
- (c) Describe AHJ procedures for decontamination of responders and equipment upon completion of dive operations.
- (d) Describe the AHJ procedure for identifying and obtaining the appropriate emergency response elements to support dive and dive surface support operations.

8.12.3.2 Identifying Potential Tactics.

8.12.3.2.1 Given examples of contaminated water dive emergency response incidents and an assignment, Operations Mission-Specific Responders assigned shall identify possible tactics.

8.12.3.2.2 Given examples of PPE provided by the AHJ, Operations Mission-Specific Responders assigned to perform contaminated water diving or dive surface support operations during emergency response shall select the PPE required to perform operations during contaminated water diving and dive surface support operations.

8.12.4 Competencies — Implementing the Planned Response.

8.12.4.1 Given examples of contaminated water dive incidents and an assignment, Operations Mission-Specific Responders shall be able to complete the following tasks:

- (1) Using the detection and monitoring devices provided by the AHJ for use during surface operations, demonstrate the field test and operation of each device and interpret the readings based on AHJ procedures.
- (2) Demonstrate the establishment of the technical decontamination corridor in anticipation of diver egress from contaminated water in accordance with AHJ procedures.
- (3) Demonstrate the ability to collect dive site water quality samples for analysis post-dive, to assist with the evaluation of dive equipment contamination as required by the AHJ.

8.12.4.2 Given examples of contaminated water dive incidents, Operations Mission-Specific Responders certified by the AHJ to perform contaminated water diving during emergency response shall be able to complete the following tasks:

- (1) Demonstrate the ability to use diving dry suits provided by the AHJ.
- (2) Demonstrate the ability to use full facemask regulators provided by the AHJ.
- (3) Demonstrate the ability to use diving helmets provided by the AHJ.
- (4) Demonstrate the ability to relay pertinent hazard identification information from submerged containers or vessels as possible, given visibility conditions.