CERTIFICATION CURRICULUM MANUAL

CHAPTER SIX

HAZARDOUS MATERIALS

NFPA 470, 2022 Edition

Effective January 1, 2025

Texas Commission on Fire Protection
P.O. Box 2286 Austin, Texas 78768-2286 (512) 936-3838

HAZARDOUS MATERIALS AWARENESS (NFPA 470 CH. 5)

REFERENCE LIST

HAZARDOUS MATERIALS AWARENESS CURRICULUM

This Reference List is provided as a general guide for both instructors and students to locate information pertaining to the specific objectives in the TCFP Curriculum. This list is **not** all-inclusive and does not in any way limit TCFP development and use of questions to test the objectives of the curriculum:

Required References

Certification Curriculum Manual. Texas Commission on Fire Protection. (Most current edition). Austin, TX: Texas Commission on Fire Protection.

Code of Federal Regulations, Title 29 Part 1910.120, Appendix A. United States. U.S. Department of Labor, Occupational Safety & Health Administration.

Emergency Response Guidebook. United States. (Most current edition). Washington, DC: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration.

Hazardous Materials: Awareness and Operations, 4th edition. (2022). JONES & BARTLETT Incorporated. ISBN: 9781284264074

Hazardous Materials for First Responders, 6th edition. International Fire Service Training Association. (2022). Stillwater, OK: Fire Protection Publications, Oklahoma State University. ISBN: 978-0-87939-757-9

*NFPA 470: Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents. (*2022 ed.). Quincy, MA: NFPA Publications. National Fire Protection Association.

Standards Manual for Fire Protection Personnel. Texas Commission on Fire Protection. (Current edition). Austin, TX: Texas Commission on Fire Protection.

Recommended References

DOT Chart: Hazardous Materials Marking, Labeling and Placarding Guide. (or current edition) United States**.** Washington, DC: U.S. Dept. of Transportation, Pipeline and Hazardous Materials Safety Administration.

CHAPTER 6
SECTION 601
HAZARDOUS MATERIALS AWARENESS CURRICULUM OUTLINE

SECTION	SUBJECT	RECOMMENDED HOURS
601-5.1	General - Introduction - Laws, Regulations, and National Consensus Standards	1
601-5.2	Recognition and Identification	5
601-5.3	Initiate Protective Actions	
601-5.4	Notification	2
	TOTAL RECOMMENDED HOURS	**8**

The recommended hours include time for skills evaluation and are based on 12 students. Hours needed depend on the actual number of students.

Course Instructor Information

Hazardous Materials Awareness

Overview

The Hazardous Materials curricula are designed to provide clear guidance that ensures adequate presentation of the information required to meet the Job Performance Requirements (JPRs) of National Fire Protection Association (NFPA) 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications*, 2022 edition.

The Hazardous Materials curricula is found in Chapter 5 of the TCFP Curriculum Manual.

Certification Level	TCFP Section Number	NFPA 470 Chapter
Awareness	601	**5**
Operations	602	7
Operations-Mission Specific Competencies (MSC)	603	9
*Technician	604	11
*Incident Commander	605	13

Layout

The NFPA numbering sequence is mirrored to allow easy correlation between this document and the NFPA Standard. For example, 601-5.1.2 identifies the section in Awareness that corresponds to NFPA section 5.1.2.

When a section references information from “Annex A Explanatory Material” in the NFPA Standard, it is identified by a boxed Instructor Note. For example, the boxed Instructor Note listed in 601-5.2.1 and that immediately follows the Requisite Knowledge section corresponds to the NFPA Annex A information for NFPA 470 section 5.2.1.

TCFP Standards Manual

It is critical that you review the chapters in the TCFP Standards Manual that apply to this curriculum. Of primary importance are the following two chapters: Chapter 423, which defines the course of study, documentation and medical requirements necessary for Awareness and Operations certification (required) and Chapter 453, which covers certification requirements for Technician and Incident Commander (voluntary). Additionally, instructors are expected to review the following chapters as they pertain to the instructional, examination, certification processes:

- Chapter 421, Standards for Certification

- Chapter 427, Training Facility Certification
- Chapter 435, Fire Fighter Safety
- Chapter 437, Fees
- Chapter 439, Examinations for Certification
- Chapter 441, Continuing Education

These chapters do not address every issue that could impact this curriculum; therefore, you are encouraged to become familiar with the TCFP Standards Manual.

Instructor Qualifications
Hazardous Materials courses must be taught by an instructor meeting the requirements described in Chapter 427.307 of the TCFP Standards Manual.

Supplemental Information
Instructors are expected to provide supplemental information if the main reference text does not provide adequate information to ensure successful completion of the Job Performance Requirements as listed in the curriculum.

Components of the Curricula
Each section of a curriculum identifies the NFPA Job Performance Requirement (JPR) and subdivides the requisite knowledge requirements into learning components. For example:

View within the Curriculum		Explanation
601-5.3.1	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.	**Section Number and NFPA JPR**
	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	**Requisite Knowledge Statement**

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.	
(1) Use of the ERG, SDS, shipping papers with emergency response information, or other approved reference sources to:	**First part of Requisite Knowledge**
a. identify initial isolation and protective action distances, b. identify initial emergency actions i. fire ii. spill or iii. leak and iv. first aid) c. identify initial PPE and d. identify recommended protective actions	**Associated learning components**
(2) the difference between the isolation distances on the orange-bordered guidebook pages and the protective action distances on the green-bordered ERG pages	**Second part of Requisite Knowledge**
(3) 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;	**Third part of Requisite Knowledge**
(4) policies and procedures for isolating the hazard area and denying entry	**Fourth part of Requisite Knowledge**
(5) and the purpose of and methods for isolating the hazard area and denying entry.	**Fifth part of Requisite Knowledge**
Requisite Skills: Recognizing precautions for protecting responders and the public; identifying isolation areas, denying entry, and avoiding or minimizing hazards.	**Requisite Skills Statement**

Instructor Note Recommended precautions found on numbered guides in the ERG include public safety issues; recommended protective clothing; evacuation; emergency response to fire, spill, and leak; and first aid sections. Examples of required knowledge include (1) precautions for providing emergency medical care to victims; typical ignition sources; ways hazardous materials/WMD are harmful to people, the environment, and property; general routes of entry for human exposure; emergency action (fire, spill, or leak; first aid); actions recommended not to be performed (e.g., closing of pipeline valves); protective actions (isolation of area and denial of entry, evacuation, shelter-in-place); size and shape of recommended initial isolation and protective action distances; difference between small and large spills; conditions that require the use of the ERG Table of Initial Isolation and Protective Action Distances and the isolation distances in the ERG numbered guide; techniques for isolating the hazard area and denying entry to unauthorized persons; how to recognize and protect evidence; and use of approved tools and equipment; (2) basic personal protective actions: staying clear of vapors, fumes, smoke, and spills; keeping vehicle at a safe distance from the scene; approaching from upwind, uphill, and upstream; and (3) types of protective actions and their purpose (e.g., isolate hazard area and deny entry, evacuation, and shelter-in- place); basic factors involved in the choice of protective actions (e.g., hazardous materials/WMD involved, population threatened, and weather conditions).	**Appendix A: Explanatory Material for 5.3.1**
601-5.2.1 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 and their hazards are identified. Given a hazardous materials/WMD incident, and approved reference sources, awareness level personnel shall recognize those situations where	**Additional reference to NFPA 470**

hazardous materials/WMD are present. (470-5.2.1)	

Unless otherwise specified, all curriculum references are to NFPA 470.

Skills
NFPA Requisite Skill requirements are addressed in the corresponding Skill Sheets in Chapter 6 of the TCFP Curriculum Skills Manual.

Definitions of Certification Levels
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. These personnel have met all the performance requirements of Chapter 5 of NFPA 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications*

Operations Level Personnel: Personnel 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. These personnel have met all the performance requirements of Chapter 7 of NFPA 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications*

Operations-Mission Specific Competencies (MSC) Level Personnel: Responders assigned mission-specific responsibilities at hazardous materials/WMD incidents are those operations level responders designated by the authority having jurisdiction (AHJ) to perform additional tasks to support the AHJ's response mission, expected tasks, equipment, and training in the following areas:

(1) 9.2 Personal protection equipment (PPE)
(2) 9.3 Mass decontamination
(3) 9.4 Technical decontamination
(4) 9.5 Evidence preservation and sampling
(5) 9.6 Product control
(6) 9.7 Detection, monitoring, and public safety sampling
(7) 9.8 Victim rescue and recovery
(8) 9.9 Response to Illicit laboratories incidents
(9) 9.10 Radiological Hazard-Specific

These personnel have met all the performance requirements of Chapter 5 of NFPA 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications* to which they are trained and credentialed to perform.

Note: Basic TCFP Structural Fire Fighter certification requires that Structure Fire Fighter personnel meet all performance requirements for:

- *Hazardous Materials Awareness*
- *Hazardous Materials Operations*
- *Hazardous Materials Operations - MSC – 9.2 Personal Protective Equipment*
- *Hazardous Materials Operations - MSC – 9.6 Product Control*

Technician Level Personnel: Persons who respond to hazardous materials/weapons of mass destruction (WMD) incidents using a risk-based response process by which they analyze a problem involving hazardous materials/WMD, plan a response to the problem, evaluate progress of the planned response, and assist in terminating the incident. These personnel have met all the performance requirements of Chapter 11 of NFPA 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications.*

Incident Commander Level Personnel: That person, designated by the AHJ, responsible for all incident activities/operations, including the development of strategies and tactics and the ordering and release of resources. These personnel have met all the performance requirements of Chapter 13 of NFPA 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications.*

SECTION 601

HAZARDOUS MATERIALS AWARENESS

Awareness Level Personnel are those who, in the course of their normal duties, may encounter an emergency incident involving hazardous materials/weapons of mass destruction (WMD) and who are expected to:

- Recognize the presence of the hazardous materials/weapons of mass destruction (WMD)
- Protect themselves
- Call for trained personnel
- Secure the scene

Response options for awareness level personnel are generally limited to nonintervention actions only.

601-5.1 General

601-5.1.1 Introduction

601-5.1.1 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.

601-5.1.2 Awareness Level Personnel shall meet the job performance requirements defined in Sections 601-5.2 through 601-5.4.

Instructor Note

A.5.1.2 Awareness Level Personnel include public works employees, maintenance workers, and others who might see or encounter an incident involving hazardous materials/WMD occur while performing their regular assignment.

601-5.1.3 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. Role of awareness personnel at a hazardous materials/WMD incident

1. AHJ emergency response plan
2. Standard operating procedures for awareness personnel

601-5.1.4 General Skills Requirements (Reserved)

601-5.2 Recognition and Identification

Instructor Note

A.5.2
While the purpose of the JPR is to require the Emergency Response Guidebook (ERG) as the minimum reference at the awareness level, other reference sources can be provided as necessary, including an equivalent guide to the ERG; safety data sheets (SDS); manufacturer, shipper, and carrier (highway, rail, water, air, and pipeline) documents (shipping papers) and contacts; and the DOT Chart–16, Hazardous Materials Markings, Labeling and Placarding Guide. If provided, responders should be able to use these sources to accomplish the goals of the JPR.

In transportation, the name, placard applied, or identification number of the material provides access to information in the ERG or an equivalent document.

601-5.2.1 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 and their hazards 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.

A.5.2.1(A) The requisite knowledge in this section is derived from the competencies in Section 4.1.

Instructors should include indicators of terrorist attacks and other potentials, emphasizing that “if you can smell it, taste it, or feel it, you are now (or might be) part of the problem.”

While this is a minimum requirement, the AHJ has the option to select additional information from the operations chapter (Chapter 5) regarding container and hazard information as necessary, based on local conditions and circumstances.

Awareness Level Personnel should be able to match the hazard classes and divisions with the primary hazards and examples.

(1) Indicators of the presence of hazardous materials include occupancy and locations,

(2) including facilities and transportation; container shape (general shape of the container);

(3) container owner/operator signage;

(4) placards and labels;

(a) markings, including NFPA 704 markings,

(b) military markings,

(c) transportation markings such as identification number marks,

(d) marine pollutant marks,

(e) elevated temperature marks,

(f) commodity markings,

(g) inhalation hazard marks,

(h) and pipe and pipeline markings and colors;

(5) GHS markings;

(6) shipping papers and emergency response information and SDS;

(7) sensory clues (dead birds or fish, color of vapors, unusual odors, sheen, hissing noise, dead vegetation, etc.).

Other items, such as fume hood exhaust stacks and vents on the exterior of a building, could indicate hazardous materials and can be identified in advance through pre-incident survey activities.

SDS is a component of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) and replaces the term material safety data sheet (MSDS). GHS is an internationally agreed-upon system, created by the United Nations in 1992. It replaces the various classification and labeling standards used in different countries by using consistent criteria on a global level. It supersedes the relevant European Union (EU) system, which has implemented the GHS into EU law as the Classification, Labelling and Packaging (CLP) Regulation and United States Occupational Safety and Health Administration (OSHA) standards. The SDS requires more information than MSDS regulations and provides a standardized structure for presenting the required information.

(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.

1. Recognize indicators to the presence of hazardous materials/WMD;

2. Identifying hazardous materials/WMD by name,

   a. UN/NA identification number,

   b. marking/label/placard applied,

   c. or container shapes identified in the ERG;

3. 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.

601-5.3 *Initiate Protective Action*

Instructor Note

People not directly involved in emergency response operations should be kept away from the hazard area, and control should be established over the area of operations. Unprotected emergency responders should not be allowed to enter the isolation zone.

At the awareness level, approved reference sources include the current edition of the Emergency Response Guidebook (ERG), safety data sheets (SDS), shipping papers with emergency response information, and other approved reference sources.

601-5.3.1 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:

(1) initial isolation and protective action distances,

(2) identify initial emergency actions (fire, spill, or leak and first aid),

(3) identify initial PPE,

(4) identify recommended protective actions;

(5) the difference between the isolation distances on the orange-bordered guidebook pages and the protective action distances on the green-bordered ERG pages;

(6) 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;

(7) policies and procedures for isolating the hazard area and denying entry;

(8) and the purpose of and methods for isolating the hazard area and denying entry.

Instructor Note

A.5.3.1(A) The requisite knowledge in this section is derived from the competencies in Section 4.4.

Recommended precautions found on numbered guides in the ERG include public safety issues; recommended protective clothing; evacuation; emergency response to fire, spill, and leak; and first aid sections.

Examples of required knowledge include:

1. precautions for providing emergency medical care to victims;
    a. typical ignition sources;
    b. ways hazardous materials/WMD are harmful to people, the environment, and property;
    c. general routes of entry for human exposure;
    d. emergency action (fire, spill, or leak, first aid);
    e. actions recommended not to be performed (e.g., closing of pipeline valves);
    f. protective actions (isolation of area and denial of entry, evacuation, shelter-in-place);
    g. size and shape of recommended initial isolation and protective action distances;
    h. difference between small and large spills;
    i. conditions that require the use of the ERG Table of Initial Isolation and Protective Action Distances and the isolation distances in the ERG numbered guide;
    j. techniques for isolating the hazard area and denying entry to

unauthorized persons;

k. how to recognize and protect evidence;

l. and use of approved tools and equipment;

2. basic personal protective actions:

a. staying clear of vapors, fumes, smoke, and spills;

b. keeping vehicle at a safe distance from the scene; approaching from upwind, uphill, and upstream; and

3. types of protective actions and their purpose (e.g., isolate hazard area and deny entry, evacuation, and shelter-in-place); basic factors involved in the choice of protective actions (e.g., hazardous materials/WMD involved, population threatened, and weather conditions).

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

601-5.4 *Notification*

601-5.4.1 Initiate required notifications at a hazardous materials/WMD incident, given a hazardous materials/WMD incident, policies and procedures, and approved communications 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; types of approved communications equipment; and the operation of that equipment.

1. Policies and procedures (NFPA 470, 4.4.2)
   a. NFPA 470, 4.4.2
      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.

(B) Requisite Skills. Operating approved communications equipment and communicating in accordance with policies and procedure

HAZARDOUS MATERIALS OPERATIONS NFPA 470 CHAPTER 7

REFERENCE LIST

HAZARDOUS MATERIALS OPERATIONS

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NIOSH Pocket Guide to Chemical Hazards. Cincinnati National Institute for Occupational Safety and Health. (most current edition). OH: US Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health. http://www.cdc.gov/niosh/npg/

Standards Manual for Fire Protection Personnel. Texas Commission on Fire Protection. (Most current edition). Austin, TX: Texas Commission on Fire Protection.

Recommended References

DOT Chart: Hazardous Materials Marking, Labeling and Placarding Guide. (or current edition) United States. Washington, DC: U.S. Dept. of Transportation, Pipeline and Hazardous Materials Safety Administration.

CHAPTER 6
SECTION 602
HAZARDOUS MATERIALS OPERATIONS
CURRICULUM OUTLINE

SECTION	SUBJECT	RECOMMENDED HOURS
602-7.1	General - Introduction - Laws, Regulations, and National Consensus Standards	1
602-7.2	Identify Potential Hazards	14
602-7.3	Identify Action Options	9
602-7.4	Action Plan Implementation	6
602-7.5	Emergency Decontamination	2
602-7.6	Progress Evaluating and Reporting – Reserved – None required at this level	
603	Mission Specific Competencies	See (MSC) Curriculum Outline
	TOTAL RECOMMENDED HOURS	**32**

The recommended hours include time for skills evaluation and are based on 12 students. Hours needed depend on the actual number of students.

Note: In order to successfully complete the Texas Commission on Fire Protection's Basic Structure Firefighter curriculum, all the job performance requirements and knowledge skills and abilities must be mastered pertaining to:

- Awareness Level Personnel (Section 601),
- Operations Level Responder (Section 602),
- Operations Level Responder: Mission Specific Competencies of:
    - Using Personal Protective Equipment (Section 603-9.2),
    - Performing Product Control (Section 603-9.6)

COURSE INSTRUCTOR INFORMATION
HAZARDOUS MATERIALS OPERATIONS

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- Chapter 439, Examinations for Certification
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View within the Curriculum		Explanation
601-5.3.1	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.	**Section Number and NFPA JPR**
	(A) Requisite Knowledge: Use of the ERG, SDS, shipping papers with 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	**Requisite Knowledge Statement**

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.	
(1) Use of the ERG, SDS, shipping papers with emergency response information, or other approved reference sources to:	**First part of Requisite Knowledge**
a. identify initial isolation and protective action distances, b. identify initial emergency actions i. fire ii. spill or iii. leak and iv. first aid c. identify initial PPE and d. identify recommended protective actions	**Associated learning components**
(2) the difference between the isolation distances on the orange-bordered guidebook pages and the protective action distances on the green-bordered ERG pages	**Second part of Requisite Knowledge**
(3) 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;	**Third part of Requisite Knowledge**
(4) policies and procedures for isolating the hazard area and denying entry	**Fourth part of Requisite Knowledge**
(5) and the purpose of and methods for isolating the hazard area and denying entry.	**Fifth part of Requisite Knowledge**
(B) Requisite Skills: Recognizing precautions for protecting responders and the public; identifying isolation areas, denying entry, and avoiding or minimizing hazards.	**Requisite Skills Statement**
protect responders and the public; 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.	

(1) Use of the ERG, SDS, shipping papers with emergency response information, and other approved reference sources to identify precautions to be taken to protect responders and the public	**First part of Requisite Knowledge**
Identify precautions to be taken to protect responders/the public using ERG, SDS, shipping papers with emergency response information, other approved reference sources Identify the hazard a. Isolate the hazard area b. Deny entry c. Call for trained personnel d. Secure the scene	**Associated learning components**
(2) Policies and procedures for isolating the hazard area and denying entry	**Second part of Requisite Knowledge**
Policies and procedures, per AHJ/SOP a. Isolating the hazard area b. Denying entry	**Associated learning components**
(3) And the purpose of and methods for isolating the hazard area and denying entry	**Third part of Requisite Knowledge**
Purpose/methods a. Isolating the hazard area i. Establish perimeter ii. Erect barriers b. Denying entry i. Restrict hazard area access to appropriately trained personnel only ii. Maintain perimeter	**Associated learning components**
Requisite Skills: Use of the ERG, SDS, shipping papers with emergency response	**Requisite Skills Statement**

601-5.2.1 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 and their hazards are identified. Given a hazardous materials/WMD incident, and approved reference sources, awareness level personnel shall recognize those situations where hazardous materials/WMD are present. (470-5.2.1)	

Instructor Note	
Recommended precautions found in numbered guides in the ERG include public safety issues, recommended protective clothing; evacuation; emergency response to fire, spill, or leak; and first aid sections.	**Additional reference to NFPA 470**
Examples of required knowledge include (1) precautions for providing emergency medical care to victims; typical ignition sources; ways hazardous materials/WMD are harmful to people, the environment, and property; general routes of entry for human exposure; emergency action (fire, spill, or leak; first aid); actions recommended not to be performed (e.g., closing of pipeline valves); protective actions (isolation of area and denial of entry, evacuation, shelter-in-place); size and shape of recommended initial isolation and protective action distances; difference between small and large spills; conditions that require the use of the ERG Table of Initial Isolation and Protective Action Distances and the isolation distances in the ERG numbered guide; techniques for isolating the hazard area and denying entry to unauthorized persons; how to recognize and protect evidence; and use of approved tools and equipment; (2) basic personal protective actions: staying clear of vapors, fumes, smoke, and spills; keeping vehicle at a safe distance from the scene; approaching from upwind, uphill, and upstream; and (3) types of protective actions and their purpose (e.g., isolate hazard area and deny entry, evacuation, and shelter-in- place); basic factors involved in the choice of protective actions (e.g., hazardous materials/WMD involved, population threatened, and weather conditions).	**Appendix A: Explanatory Material for 5.3.1**

Unless otherwise specified, all curriculum references are to NFPA 470.

Skills

NFPA Requisite Skill requirements are addressed in the corresponding Skill Sheets in Chapter 6 of the TCFP Curriculum Skills Manual.

Definitions of Certification Levels

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. These personnel have met all the performance requirements of Chapter 5 of NFPA 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications*

Operations Level Personnel: Personnel 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. These personnel have met all the performance requirements of Chapter 7 of NFPA 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications*

Operations-Mission Specific Competencies (MSC) Level Personnel: Responders assigned mission-specific responsibilities at hazardous materials/WMD incidents are
those operations level responders designated by the authority having jurisdiction (AHJ) to perform additional tasks to support the AHJ's response mission, expected tasks, equipment, and training in the following areas:

(1) 9.2 Personal protection equipment (PPE)
(2) 9.3 Mass decontamination
(3) 9.4 Technical decontamination
(4) 9.5 Evidence preservation and sampling
(5) 9.6 Product control
(6) 9.7 Detection, monitoring, and public safety sampling
(7) 9.8 Victim rescue and recovery
(8) 9.10 Illicit laboratories incidents

These personnel have met all the performance requirements of Chapter 7 of NFPA 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications* and have also met the performance requirements of the subchapter(s) of Chapter 9 of NFPA 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications,* to which they are trained and credentialed to perform.

Note: Basic TCFP Structural Fire Fighter certification requires that Structure Fire Fighter personnel meet all performance requirements for:

- *Hazardous Materials Awareness*
- *Hazardous Materials Operations*
- *Hazardous Materials Operations - MSC – 9.2 Personal Protective Equipment*
- *Hazardous Materials Operations - MSC – 9.6 Product Control*

Technician Level Personnel: Persons who respond to hazardous

materials/weapons of mass destruction (WMD) incidents using a risk-based response process by which they analyze a problem involving hazardous materials/WMD, plan a response to the problem, evaluate progress of the planned response, and assist in terminating the incident. These personnel have met all the performance requirements of Chapter 11 of NFPA 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications.*

Incident Commander Level Personnel: That person, designated by the AHJ, responsible for all incident activities/operations, including the development of strategies and tactics and the ordering and release of resources. These personnel have met all the performance requirements of Chapter 13 of NFPA 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications.*

SECTION 602

HAZARDOUS MATERIALS OPERATIONS

Hazardous Materials Operations Level Personnel are those 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.

Response options for operations level responders are generally limited to nonintervention or defensive actions.

The Hazardous Materials Operations Level Responder must first master all the job performance requirements and knowledge, skills and abilities pertaining to:

- Awareness Level Personnel, and
- The competencies of this chapter

Note: In order to successfully complete the Texas Commission on Fire Protection's Basic Structure Firefighter curriculum, all the job performance requirements and knowledge, skills and abilities must be mastered pertaining to:

- **Awareness Level Personnel,**
  - **Operations Level Responders, and**
  - **Hazardous Materials Operations Level – Mission Specific Competencies of:**
    - **Using Personal Protective Equipment, and**
    - **Performing Product Control.**

602-7.1 General

602-7.1.1 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.

602-7.1.2 Operations level responders shall meet the job performance requirements defined in Sections 601-5.2 through 601-5.4 – Hazardous Materials Awareness-level competencies.

602-7.1.3 Operations level responders shall meet the job performance requirements defined in Sections 602-7.2 through 602-7.6 – Hazardous Materials Operations-level competencies.

602-7.1.4 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.

Instructor Note

TCFP Basic Structural Firefighter certification requires Operations Level Responders have the following Hazardous Materials Operations Mission-Specific competencies:

1. 603-9.2 Hazardous Materials Operations: Mission Specific Competencies – Personal Protective Equipment

2. 603-9.6 Hazardous Materials Operations: Mission Specific Competencies – Product Control

602-7.1.5 General Knowledge Requirements (Reserved)

602-7.2 Identify Potential Hazards

Instructor Note

At the operations level, approved information sources should include a minimum of Emergency Response Guidebook (ERG), safety data sheets (SDS), shipping papers, including emergency response information, and other approved reference sources such as CHEMTREC, CANUTEC, and SETIQ; governmental authorities; and manufacturers, shippers, carriers (highway, rail, water, air, and pipeline), and contacts.

602-7.2.1 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.

Instructor Note

A.7.2.1(A) The requisite knowledge in this section is derived from the competencies in 6.2.1.

At the operations level, responders should be able to recognize the following containers and identify them by name:

(1) rail tank cars (pressure, nonpressure, and cryogenic tank cars);

(2) highway cargo tanks (compressed gas tube trailers, corrosive liquid tanks, cryogenic tanks, dry bulk cargo tanks, high-pressure tanks, low-pressure chemical tanks, and nonpressure liquid tanks);

(3) UN portable tanks/intermodal tanks (nonpressure, pressure, cryogenic, and tube modules);

(4) storage tanks (nonpressure, pressure, and cryogenic storage tanks); piping and pipelines;

(5) intermediate bulk containers (IBC) and ton containers; radioactive materials packages (excepted, industrial, Type A, and Type B packages);

(6) nonbulk containers (bags, carboys, cylinders, drums, and Dewar flasks for cryogenic liquids).

To ensure that Operations Level Responders also understand how to obtain information pertaining to a pipeline-involved incident, line markers or pipeline markers are added to supplement the list of information sources. In a pipeline

incident, the pipeline markers would be the source of information used since no shipping papers, placards, UN numbers, or other information would be available.

Hazardous materials incident survey information. This includes location, weather conditions, topography, populated buildings, bodies of water, other buildings, remedial actions taken, container/package, contents, release, container damage, time of day, and other factors that help determine the scope of the problem.

Physical and chemical properties. Predicting the behavior of hazardous materials/WMD relies on understanding certain characteristics of the material. Information identifying the following characteristics should be collected and interpreted: boiling point, chemical reactivity, corrosivity (pH), flammable (explosive) range [LFL (LEL) and UFL(UEL)], flash point, ignition (autoignition) temperature, particle size, persistence, physical state (solid, liquid, gas), radiation (ionizing and nonionizing), specific gravity, toxic products of combustion, vapor density, vapor pressure, and water solubility.

Identifying hazards. The process for predicting/identifying the behavior of a hazardous material/WMD and its container under emergency conditions is based on the simple concepts that containers of hazardous materials/WMD under stress can open up escaping contents, potentially exposing people, the environment, or property to physical and health hazards.

This overall concept for identifying the likely behavior of a container and its contents under emergency conditions is often referred to as a general behavior model. The general behavior model considers the type of stress on the container involved and the potential type of breach, release, dispersion pattern, length of contact, and the health and physical hazards associated with the material and its container, as follows:

(1) ***Stress***. The three types of stress that could cause a container to release its contents are thermal stress, mechanical stress, and chemical stress.

(2) ***Breach.*** The five ways in which containers can breach are disintegration, runaway cracking, closures opening up, punctures, and splits or tears.

(3) ***Release.*** The four ways in which containment systems can release their contents are detonation, violent rupture, rapid relief, and spill or leak.

(4) ***Dispersion.*** Seven dispersion patterns can be created upon release of agents: hemisphere, cloud, plume, cone, stream, pool, and irregular.

(5) ***Contact.*** The three general time frames for predicting the length of time that an exposure can be in contact with hazardous materials/WMD in an endangered area are short term (minutes and hours), medium term

(days, weeks, and months), and long term (years and generations).

(6) ***Hazards.*** The six primary health and physical hazards that could cause these types of harm in a hazardous materials/WMD incident include, but are not limited to, thermal, radiation, asphyxiation, chemical, biological, and mechanical.

Identifying outcomes. The process for identifying the potential harm and associated outcomes within an endangered area at a hazardous materials/WMD incident includes identifying the size and shape of the endangered area, the number of exposures (people, property, environment, and major systems) within the endangered area, and the physical, health, and safety hazards within the endangered area as determined from approved resources.

Resources for determining the size of an endangered area of a hazardous materials/WMD incident are the current edition of the ERG and plume dispersion modeling results from facility pre-incident plans.

The factors for determining the extent of physical, health, and safety hazards within an endangered area at a hazardous materials/WMD incident are victim presentation (including nonclinical indicators or clues of a material's presence), surrounding conditions, indication of the behavior of the hazardous material and its container, and the degree of hazard.

(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 information; communicating with pipeline operators or carrier representatives; describing the likely behavior of the hazardous materials or WMD and its container; and describing the potential hazards, harm, and outcomes associated with that behavior and the surrounding conditions.

602-7.3 Identify Tactics

Instructor Note

At the operations level, approved information sources should include a minimum of ERG; SDS; CHEMTREC, CANUTEC, or SETIQ; local, state, and governmental authorities; and manufacturers', shippers', and carriers' documents (shipping papers) and contacts.

602-7.3.1 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) **(see Instructor Notes)**; 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.

Instructors Notes

Terms

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:

(1) Contamination and secondary contamination

(2) Exposure and contamination

(3) Exposure and hazard

(4) Infectious and contagious

(5) Acute effects and chronic effects

(6) Acute exposures and chronic exposures

Instructors Notes

A.7.3.1(A) The requisite knowledge in this section is derived from the

competencies in Section 9.3 Modes of operation are offensive, defensive, and nonintervention and include the following: (1) Common strategies, for example, product control; fire control; protection of people, the environment, and property; identification and isolation; evidence protection; rescue; recovery; and termination (2) Common tactics, for example, spill control, leak control, foam, control exposures, evacuation, isolation, shelter-in-place, and establishment of product control zones (3) Contamination types: primary, secondary, and tertiary

(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.

602-7.4 Action Plan Implementation

602-7.4.1 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.

Instructor Notes

A.7.4.1(A) The requisite knowledge in this section is derived from the competencies in Section 9.4.

Evidence preservation. Preservation of evidence is essential to the integrity and credibility of an incident investigation. Preservation techniques must be acceptable to the law enforcement agency having jurisdiction; therefore, it is important to get that agency's input ahead of time on the techniques specified in the AHJ emergency response plan or the organization's standard operating procedures.

General procedures for preserving evidence include the following:

(1) Secure and isolate any incident area where evidence is located. This can include discarded personal protection equipment, specialized packaging (shipping or workplace labels and

(2) placards), biohazard containers, glass or metal fragments, containers (e.g., plastic, pipes, cylinders, bottles, fuel containers), and other materials that appear relevant to the occurrence, such as roadway flares, electrical components, fluids, and chemicals.

(3) Leave fatalities and body parts in place and secure the area in which they are located.

(4) Isolate any apparent source location of the event (e.g., blast area, spill release point).

Leave in place any explosive components or housing materials.

(5) Place light-colored tarpaulins on the ground of access and exit corridors, decontamination zones, treatment areas, and rehabilitation sectors to allow possible evidence that might drop during decontamination and doffing of clothes to be spotted and collected.

Secure and isolate all food vending locations in the immediate area. Contaminated food products will qualify as primary or secondary evidence

in the event of a chemical or biological incident.

The collection (as opposed to preservation) of evidence is usually conducted by law enforcement personnel, unless other protocols are in place. If law enforcement personnel are not equipped or trained to enter the hot zone, Hazardous Materials Technicians should be trained to collect samples in such a manner as to maintain the integrity of the samples for evidentiary purposes and to document the chain of evidence.

Safety precautions. Safety precautions should include buddy systems, backup systems, accountability systems, safety briefing, and evacuation/escape procedures. The following items should be considered in a safety briefing prior to allowing personnel to work at hazardous materials/WMD incidents:

(1) Preliminary evaluation

(2) Hazard identification

(3) Description of the site

(4) Task(s) to be performed

(5) Length of time for task(s)

(6) Required PPE

(7) Monitoring requirements

(8) Notification of identified risk

(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.

Instructor Notes

A.7.4.1(B) The Operations Level Responder should implement 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/or standard operating procedures.

(2) Identify the levels of hazardous materials/WMD incidents as defined in the emergency response plan.

(3) Identify the purpose, need, 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

602-7.5 Emergency Decontamination

602-7.5.1 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.

Instructor Notes

A.7.5.1(A)

The requisite knowledge in this section is derived from the competencies in 10.3.5.

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:

(1) Contamination and secondary contamination

(2) Exposure and contamination

(3) Exposure and hazard

(4) Infectious and contagious

(5) Acute effects and chronic effects

(6) Acute exposures and chronic exposures

(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.

602-7.6 Progress Evaluation and Reporting

Instructor Notes

A.7.6 All responders should understand why their efforts must be evaluated. If they are not making progress, the plan must be re-evaluated to determine why. The evaluation should include what changes have occurred with the circumstances of the incident (behavior of container or its contents).

To decide whether the actions being taken at an incident are effective and the incident objectives are being achieved, the responder must determine whether the incident is stabilizing or increasing in intensity. Factors to be considered include reduction of potential impact to persons or the environment and status of resources available to manage the incident. The evaluation should take place upon initiation of the IAP, and the IC/unified command and general staff should constantly monitor the status of the incident. The actions taken should be leading to a desirable outcome, with minimal loss of life and property. Changes in the status of the incident should influence the development of the IAP for the next operational period.

602-7.6.1 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.

Instructor Notes

A.7.6.1(A) The requisite knowledge in this section is derived from the competencies in Section 6.5.

Remaining in the immediate vicinity of an incident when nothing can be done to mitigate it and the situation is about to deteriorate is pointless. If flames are impinging on an LP-Gas vessel, for example, and providing the necessary volume of water to cool it is impossible, it would be prudent to withdraw to a safe distance. ICs should always evaluate the benefit of operations against the risk. Refer to the ERG or other references to determine appropriate action to be taken under the circumstances.

(B) Requisite Skills. Determining incident status; determining whether the response objectives are being accomplished; using approved communications tools and equipment; and communicating the status of assigned tasks.

Instructor Notes

A.7.6.1(B) The proper methods for communicating the status of the planned response lie within the guidelines of the ICS and are dictated by the incident-specific IAP. The ICS identifies two types of communication at an incident, formal and informal. Formal communication should be used for all policy-related communication, using the ICS principles of unity of command and chain of command, while maintaining span of control. Ideally, all critical information should be communicated face-to-face.

The format for communications within the ICS must be established by the IC/unified command with input from the general staff.

A procedure should be established to allow responders to notify the IC immediately when conditions become critical and personnel are threatened. For example, the notification could take the form of a pre-established emergency radio message or tone that signifies danger, or it

might be repeated blasts on an air horn. The message should not be delayed while responders try to locate a specific person in the chain of command.

CERTIFICATION CURRICULUM MANUAL – CHAPTER SIX

HAZARDOUS MATERIALS OPERATIONS

(Mission Specific Competencies)

(NFPA 470 CH. 9)

REFERENCE LIST

HAZARDOUS MATERIALS OPERATIONS - MISSION SPECIFIC COMPETENCIES

This Reference List is provided as a general guide for both instructors and students to locate information pertaining to the specific objectives in the TCFP Curriculum. This list is **not** all- inclusive and does not in any way limit TCFP development and use of questions to test the objectives of the curriculum:

Required References

Certification Curriculum Manual. Texas Commission on Fire Protection. (Most current edition). Austin, TX: Texas Commission on Fire Protection.

Code of Federal Regulations, Title 29 Part 1910.120, Appendix A. United States. U.S. Department of Labor, Occupational Safety & Health Administration. http://edocket.access.gpo.gov/cfr_2007/julqtr/pdf/29cfr1910.120.pdf

Emergency Response Guidebook. United States. (Most current edition). Washington, DC: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration.

Hazardous Materials Awareness and Operations, 4th *Edition*. Schnepp (2022). Sudbury, MA: Jones & Bartlett. ISBN: 9781284264074

Hazardous Materials for First Responders, 6th edition. International Fire Service Training Association. (2022). Stillwater, OK: Fire Protection Publications, Oklahoma State University. *ISBN: 978-0-87939-757-9*

NFPA 470: Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents. (2022 ed.). Quincy, MA: NFPA Publications. National Fire Protection Association.

NIOSH Pocket Guide to Chemical Hazards. National Institute for Occupational Safety and Health. (Most current edition). Cincinnati, OH: US Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health. http://www.cdc.gov/niosh/npg/

Standards Manual for Fire Protection Personnel. Texas Commission on Fire Protection. (Most current edition). Austin, TX: Texas Commission on Fire Protection.

Recommended References

The most current edition of the following publications and media are recommended (not required) supplemental material for program use.

Bretherick's Handbook of Reactive Chemical Hazards. Urben, P. G., Pitt, M. J., & Bretherick, L. (2017). Amsterdam: Elsevier.

Emergency Care for Hazardous Materials Exposure. Currance, P., Bronstein, A. C., & Clements, B. (2007). St. Louis, MO: Mosby.

Field Guide to Tank Cars. Bureau of Explosives. 4TH edition. (2022). Pueblo, Colorado: Association of American Railroads.

Fire Protection Guide to Hazardous Materials. 2010 edition. National Fire Protection Association. Quincy, MA: National Fire Protection Association.

Hawley's Condensed Chemical Dictionary. 16th edition. Lewis, R. J. (2016). West Sussex: Wiley.

Hazardous Materials: Managing the Incident Field Operations Guide. 2nd edition. Bevelacqua, A. S., (2014). Jones and Bartlett.

CHAPTER 6

SECTION 603

HAZARDOUS MATERIALS OPERATIONS - MISSION SPECIFIC COMPETENCIES CURRICULUM OUTLINE

*Sections 603-9.2 Mission Specific Competencies: Personal Protective Equipment and 603-9.6 Mission Specific Competencies: Product Control are required for TCFP Basic Structure Fire Fighter curriculum training. All other Hazardous Materials Operations-Mission Specific Competencies are provided for optional training use by the AHJ.

SECTION	SUBJECT	RECOMMENDED HOURS
603-9.1	General - Introduction - Laws, Regulations, and National Consensus Standards	**1**
603-9.2*	Mission Specific Competencies: Personal Protective Equipment*	**8**
603-9.3	Mission Specific Competencies: Mass Decontamination	Reserved
603-9.4	Mission Specific Competencies: Technical Decontamination	Reserved
603-9.5	Mission Specific Competencies: Evidence Preservation and Public Safety Sampling	Reserved
603-9.6*	Mission Specific Competencies: Product Control*	8
603-9.7	Mission Specific Competencies: Detection, Monitoring and Sampling	Reserved
603-9.8	Mission Specific Competencies: Victim Rescue and Recovery	Reserved
603-9.9	Mission Specific Competencies: Response to Illicit Laboratories	Reserved
603-9.10	Mission Specific Competencies: Radiological Hazard-Specific	Reserved
	TOTAL RECOMMENDED HOURS	**17**

Mission Specific - Personal Protective Equipment*		
SECTION	**SUBJECT**	**RECOMMENDED HOURS**
603-9.2	Mission Specific Competencies: Personal Protective Equipment	
603-9.2.1	General - Introduction - Laws, Regulations, and National Consensus Standards	8
	TOTAL RECOMMENDED HOURS	**8**

Mission Specific – Product Control*		
SECTION	**SUBJECT**	**RECOMMENDED HOURS**
603-9.6	Mission Specific Competencies: Product Control	
603-9.6.1	General - Introduction - Laws, Regulations, and National Consensus Standards	8
	TOTAL RECOMMENDED HOURS	**8**

The recommended hours include time for skills evaluation and are based on 12 students. Hours needed depend on the actual number of students.

Course Instructor Information

Hazardous Materials
Operations - Mission Specific Competencies (MSC)

Overview

The Hazardous Materials curricula are designed to provide clear guidance that ensures adequate presentation of the information required to meet the Job Performance Requirements (JPRs) of National Fire Protection Association (NFPA) 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications*, 2017 edition.

The Hazardous Materials curricula is found in Chapter 6 of the TCFP Curriculum Manual.

Certification Level	TCFP Section Number	NFPA 470 Chapter
Awareness	601	5
Operations	602	7
Operations-Mission Specific Competencies (MSC)	603	**9**
*Technician	604	11
*Incident Commander	605	13

Layout

The NFPA numbering sequence is mirrored to allow easy correlation between this document and the NFPA Standard. For example, 601-5.1.2 identifies the section in Awareness that corresponds to NFPA section 5.1.2.

When a section references information from “Annex A Explanatory Material” in the NFPA Standard, it is identified by a boxed Instructor Note. For example, the boxed Instructor Note listed in 601-5.2.1 and that immediately follows the Requisite Knowledge section corresponds to the NFPA Annex A information for NFPA 470 section 5.2.1.

* Asterisks by Technician and Incident Commander above indicate that both are voluntary (non-mandatory) certifications. Therefore, **a formal “curriculum outline” is not provided**. Please use chapters 7 and 8, respectively, of NFPA 470 as a guide when creating your own course curricula or selecting a prepared instructional curriculum package from a publisher/vendor for Technician and Incident Commander.

TCFP Standards Manual

It is critical that you review the chapters in the TCFP Standards Manual that apply to this curriculum. Of primary importance are the following two chapters: Chapter 423, which defines the course of study, documentation and medical requirements necessary for Awareness and Operations certification (required) and Chapter 453, which covers certification requirements for Technician and Incident Commander (voluntary).

Additionally, instructors are expected to review the following chapters as they pertain to the instructional, examination, certification processes:

- Chapter 421, Standards for Certification
- Chapter 427, Training Facility Certification
- Chapter 435, Fire Fighter Safety
- Chapter 437, Fees
- Chapter 439, Examinations for Certification
- Chapter 441, Continuing Education

These chapters do not address every issue that could impact this curriculum; therefore, you are encouraged to become familiar with the TCFP Standards Manual.

Instructor Qualifications

Hazardous Materials courses must be taught by an instructor meeting the requirements described in Chapter 427.307 of the TCFP Standards Manual.

Supplemental Information

Instructors are expected to provide supplemental information if the main reference text does not provide adequate information to ensure successful completion of the Job Performance Requirements as listed in the curriculum.

Components of the Curricula

Each section of a curriculum identifies the NFPA Job Performance Requirement (JPR) and subdivides the requisite knowledge requirements into learning components. For example:

View within the Curriculum		Explanation
601-5.3.1	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.	**Section Number and NFPA JPR**
	Requisite Knowledge: Use of the ERG, SDS, shipping papers with 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.	**Requisite Knowledge Statement**
	(1) Use of the ERG, SDS, shipping papers with emergency response information, or other approved reference sources to:	**First part of Requisite Knowledge**
	a. identify initial isolation and protective action distances, b. identify initial emergency actions i. fire ii. spill or iii. leak and iv. first aid) c. identify initial PPE and d. identify recommended protective actions	**Associated learning components**
	(2) Policies and procedures for isolating the hazard area and denying entry	**Second part of Requisite Knowledge**

	(3) And the purpose of and methods for isolating the hazard area and denying entry	**Third part of Requisite Knowledge**
	(4) policies and procedures for isolating the hazard area and denying entry	**Fourth part of Requisite Knowledge**
	(5) and the purpose of and methods for isolating the hazard area and denying entry.	**Fifth part of Requisite Knowledge**
	Requisite Skills: Use of the ERG, SDS, shipping papers with emergency response	**Requisite Skills Statement**
	Instructor Note Recommended precautions found on numbered guides in the ERG include public safety issues; recommended protective clothing; evacuation; emergency response to fire, spill, and leak; and first aid sections Examples of required knowledge include (1) precautions for providing emergency medical care to victims; typical ignition sources; ways hazardous materials/WMD are harmful to people, the environment, and property; general routes of entry for human exposure; emergency action (fire, spill, or leak; first aid); actions recommended not to be performed (e.g., closing of pipeline valves); protective actions (isolation of area and denial of entry, evacuation, shelter-in-place); size and shape of recommended initial isolation and protective action distances; difference between small and large spills; conditions that require the use of the ERG Table of Initial Isolation and Protective Action Distances and the isolation distances in the ERG numbered guide; techniques for isolating the hazard area and denying entry to unauthorized persons; how to recognize and protect evidence; and use of approved tools and equipment; (2) basic personal protective actions: staying clear of vapors, fumes, smoke, and spills; keeping vehicle at a safe distance from the scene; approaching from upwind, uphill, and upstream; and (3) types of protective actions and their purpose (e.g., isolate hazard area and deny entry, evacuation, and shelter-in- place); basic factors involved in the choice of protective	**Appendix A: Explanatory Material for 5.3.1**

	actions (e.g., hazardous materials/WMD involved, population threatened, and weather conditions).	
601-5.2.1	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 and their hazards are identified. Given a hazardous materials/WMD incident, and approved reference sources, awareness level personnel shall recognize those situations where hazardous materials/WMD are present. (470-5.2.1)	**Additional reference to NFPA 470**

Unless otherwise specified, all curriculum references are to NFPA 470.

Skills

NFPA Requisite Skill requirements are addressed in the corresponding Skill Sheets in Chapter 9 of the TCFP Curriculum Skills Manual.

Definitions of Certification Levels

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. These personnel have met all the performance requirements of Chapter 5 of NFPA 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications.*

Operations Level Personnel: Personnel 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. These personnel have met all the performance requirements of Chapter 7 of NFPA 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications.*

Operations-Mission Specific Competencies (MSC) Level Personnel: Responders assigned mission-specific responsibilities at hazardous materials/WMD incidents are those operations level responders designated by the authority having jurisdiction (AHJ) to perform additional tasks to support the AHJ's response mission, expected tasks, equipment, and training in the following areas:

(1) 9.2 Personal protection equipment (PPE)
(2) 9.3 Mass decontamination
(3) 9.4 Technical decontamination
(4) 9.5 Evidence Preservation and Public Safety Sampling.
(5) 9.6 Product control
(6) 9.7 Detection, monitoring, and public safety sampling
(7) 9.8 Victim rescue and recovery
(8) 9.9 Response to Illicit Laboratory Incidents.
(9) 9.10 Radiological Hazard-Specific.

These personnel have met all the performance requirements of Chapter 7 of NFPA 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications* and have also met the performance requirements of the subchapter(s) of Chapter 9 of NFPA 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications,* to which they are trained and credentialed to perform.

Note: Basic TCFP Structural Fire Fighter certification requires that Structure Fire Fighter personnel meet all performance requirements for:

- *Hazardous Materials Awareness*
- *Hazardous Materials Operations*
- *Hazardous Materials Operations - MSC – 9.2 Personal Protective Equipment*
- *Hazardous Materials Operations - MSC – 9.6 Product Control*

Technician Level Personnel: Persons who respond to hazardous materials/weapons of mass destruction (WMD) incidents using a risk-based response process by which they analyze a problem involving hazardous materials/WMD, plan a response to the problem, evaluate progress of the planned response, and assist in terminating the incident. These personnel have met all the performance requirements of Chapter 11 of NFPA 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications.*

Incident Commander Level Personnel: That person, designated by the AHJ, responsible for all incident activities/operations, including the development of strategies and tactics and the ordering and release of resources. These personnel have met all the performance requirements of Chapter 13 of NFPA 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications.*

SECTION 603

HAZARDOUS MATERIALS OPERATIONS MISSION SPECIFIC COMPETENCIES

Hazardous Materials Operations – Mission Specific Competencies are <u>optional</u> job performance requirements (JPRs) which <u>may</u> be adopted by the authority having jurisdiction (AHJ). These JPRs <u>may</u> be adopted in whole or in part for the Operations Level Responders to perform.

Hazardous Materials Operations Level Responders trained to perform Mission Specific Competencies must first master all the job performance requirements and knowledge, skills and abilities pertaining to:

- Awareness Level Personnel, and
- Operations Level Responders.

The Operations Level Responder may be required to perform any combination of the following Operations level mission specific tasks by the authority having jurisdiction (AHJ):

(1) Use personal protective equipment, as provided by the AHJ
(2) Perform mass decontamination
(3) Perform technical decontamination
(4) Perform Evidence Preservation and Public Safety Sampling actions
(5) Perform product control
(6) Perform detection, monitoring, and sampling operations
(7) Reformed victim rescue and recovery operations
(8) Respond to illicit laboratory incidents

Operations level mission specific tasks must be performed under the supervision and guidance of a hazardous materials technician, allied professional or established standard operating procedure.

In order to successfully complete the Texas Commission on Fire Protection's Basic Structure Firefighter curriculum, all the job performance requirements and knowledge, skills and abilities must be mastered pertaining to:

- Awareness Level Personnel
- Operations Level Responders, and
- Hazardous Materials Operations Level – Mission Specific Competencies of:
  - Personal Protective Equipment
  - Product Control

<u>603-9.1</u> ***<u>General</u>***

603-9.1.1 Operations Level Responders assigned mission-specific responsibilities at hazardous materials/weapons of mass destruction (WMD) incidents are those Operations Level Responders designated by the authority having jurisdiction (AHJ) to perform additional tasks to support the AHJ's response mission, expected tasks, equipment, and training in the following areas:

(1) Personal protection equipment (PPE) (see Section 9.2)

(2) Mass decontamination (see Section 9.3)

(3) Technical decontamination (see Section 9.4)

(4) Evidence preservation and public safety sampling (see Section 9.5)

(5) Product control (see Section 9.6)

(6) Detection, monitoring, and sampling (see Section 9.7)

(7) Victim rescue and recovery (see Section 9.8)

(8) Illicit laboratory incidents (see Section 9.9)

(9) Radiological hazard-specific (see Section 9.10)

603-9.1.2 Operations level responders assigned mission-specific responsibilities at hazardous materials/weapons of mass destruction (WMD) incidents shall meet the job performance requirements defined in Sections 5.2 through 5.4.

603-9.1.3 Operations level responders assigned mission-specific responsibilities at hazardous materials/WMD incidents shall meet the job performance requirements defined in Sections 7.2 through 7.6.

603-9.1.4 Operations level responders assigned mission-specific responsibilities at hazardous materials/WMD incidents shall meet the JPRs defined in Section 9.2.

603-9.1.5 Qualification for operations level responders assigned mission-specific responsibilities at hazardous materials/WMD incidents shall have additional competencies that are specific to their response mission, expected tasks, equipment, and training as determined by the AHJ.

603-9.1.6 Qualification for Operations Level Responders assigned mission-specific responsibilities at hazardous materials/WMD incidents is

specific to a mission area. For qualification, Operations Mission-Specific Responders shall perform all the JPRs listed in at least one level of a specialty area Sections 9.2 through 9.9. Operations Mission-Specific Responders will be identified by their specialty.

Instructor Note

A.9.1.6 Operations Level Responders need only be trained to meet the competencies in Chapter 5. All the competencies listed in Chapter 6 (mission-specific competencies) are not required for qualification as Operations Level Responders and should be viewed as optional at the discretion of the AHJ, based on an assessment of local risks. The purpose of Chapter 6 is to provide a more effective and efficient process so that the AHJ can match the expected tasks and duties of its personnel with the required competencies to perform those tasks.

603-9.1.7 General Knowledge Requirements (Reserved)

Operations Level Responders assigned mission-specific responsibilities 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.

Instructors Notes

A.9.1.7 Although some of the mission-specific JPRs in this chapter are taken from Chapter 8 of NFPA 470, the technical committee wants to clearly state that Operations Mission-Specific Responders are not replacements for or qualified as Hazardous Materials Technicians. Operations Mission-Specific Responders can perform some technician skills, but they do not have the broader skills and competencies required of a Hazardous Materials Technician, particularly regarding risk assessment and the selection of control options. The following two options are examples of how guidance can be provided to ensure that Operations Mission-Specific Responders do not go beyond their level of training and equipment:

Direct guidance. Operations Mission-Specific Responders are working under the control of a Hazardous Materials Technician or an allied professional who has the ability to (1) continuously assess and/or observe their actions and (2) provide immediate feedback. Guidance by a Hazardous Materials Technician or an allied professional can be provided

through direct visual observation or through assessment reports communicated by the Operations Mission-Specific Responders to them.

Written guidance. Written standard operating procedures or similar guidance should clearly state the rules of engagement for Operations Mission-Specific Responders' competency. Emphasis should be placed on the following:

(1) Tasks expected of Operations Level Responders

(2) Tasks beyond the capability of Operations Level Responders

(3) Required PPE and equipment to perform the expected tasks

(4) Procedures for ensuring coordination within the AHJ ICS

603-9.1.8 General Knowledge Requirements (Reserved)

603-9.1.9 General Skills Requirements (Reserved)

603-9.2 Personal Protective Equipment

Instructor Note

A.9.2 At this level, PPE refers to personal protective equipment that would be used in situations where contact with hazardous materials/WMD is possible or expected. Such equipment can include chemical-protective clothing, bomb suits, respirators, or other equipment that typically would not be worn by Operations Level Responders. Specialized PPE also refers to Operations Level Responders' PPE that requires changes to donning, doffing, and usage procedures — for example, taping gaps in firefighter protective clothing, doffing in a decontamination corridor, or working in the hot zone as a member of a buddy system. Personnel should be able to describe the types of PPE available and the options for thermal hazards, radiological hazards, asphyxiation hazards, chemical hazards, biological hazards, and mechanical hazards. (*See also A.9.1.7.*)

603-9.2.1 Select, don, work in, and doff approved PPE at a hazardous materials/WMD incident, given a hazardous materials/WMD incident; a mission-specific assignment in an IAP that requires use of PPE; the scope of the problem; strategies and tactics for the incident; access to a Hazardous Materials Technician, an allied professional, an emergency response plan, or standard operating procedures; approved PPE; and policies and procedures, so that under the guidance of a Hazardous Materials Technician, an allied professional, an emergency response plan,

or standard operating procedures, approved PPE is selected, inspected, donned, worked in, decontaminated, and doffed; exposures and personnel are protected; safety procedures are followed; hazards are avoided or minimized; PPE is maintained and stored consistent with AHJ policies and procedures and NFPA 1891; and all reports and documentation pertaining to PPE use are completed.

Instructor Notes

A.9.2.1 NFPA 1891 is the selection, care, and maintenance standard for chemical protective clothing. It covers the selection, inspection, testing, cleaning, decontamination, service, repair, storage, retirement, documentation, and records necessary for a chemical protective clothing program.

(A) Requisite Knowledge. Policies and procedures for PPE selection and use; importance of working under the guidance of a hazardous materials technician, an allied professional, an emergency response plan, or standard operating procedures when selecting and using PPE; the purpose, capabilities and limitations of and specialized donning, doffing, and usage procedures for approved PPE; components of an incident action plan (IAP); procedures for decontamination, inspection, maintenance, and storage of approved PPE; process for being decontaminated while wearing PPE; and procedures for reporting and documenting the use of PPE.

Instructor Notes

A.9.2.1(A) The requisite knowledge in this section is derived from the competencies in Section 8.2.

Limitations of PPE include permeation, penetration, and degradation of protective clothing and limitations of respiratory protective equipment, such as air-purifying respirators.

Requisite knowledge includes the ability to describe the types of PPE that are available for response based on NFPA standards and the PPE options for thermal hazards, radiological hazards, asphyxiating hazards, chemical hazards, biological hazards, and mechanical hazards.

(B) Requisite Skills. Selecting PPE for the assignment; inspecting, maintaining, storing, donning, working in, and doffing PPE; going through decontamination (emergency and technical) while wearing the PPE; and

reporting and documenting the use of PPE.

Instructor Notes

A.9.2.1(B)

See Table A.9.2.1(B) for a comparison of NFPA standards and OSHA/EPA levels for respiratory protection.

603-9.6 Product Control

Instructor Notes

A.9.6

See A.9.1.7.

For the purposes of this section, the intent is to focus on confining or containing the release with limited risk of personal exposure. The applicable techniques include absorption, adsorption, damming, diking, dilution, diversion, remote valve shutoff, retention, vapor dispersion, and vapor suppression.

Product control also includes techniques for controlling flammable liquid incidents and flammable gas incidents.

Tools and equipment include such items as Class B 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.

Control agents can include Class B foam, dispersal agents, and so on.

603-9.6.1 Perform product control techniques with a limited risk of personal exposure at a hazardous materials/WMD incident, given a hazardous materials/WMD incident with release of product; an assignment in an IAP; scope of the problem; policies and procedures; approved tools, equipment, control agents, and PPE; and access to a Hazardous Materials Technician, an allied professional, an emergency response plan, or standard operating procedures, so that under the guidance of a Hazardous Materials Technician, an allied professional, an emergency response plan, or standard operating procedures, approved PPE is selected and used; exposures and personnel are protected; safety procedures are followed; hazards are avoided or minimized; a product control technique is selected and implemented; the product is controlled; victims, personnel, tools, and equipment are decontaminated; and product

control operations are reported and documented.

(A) Requisite Knowledge. Types of PPE and the hazards for which they are used; importance of working under the guidance of a hazardous materials technician, an allied professional, an emergency response plan, or standard operating procedures; definitions of control, confinement, containment, and extinguishment; policies and procedures; product control methods for controlling a release with limited risk of personal exposure; safety precautions associated with each product control method; location and operation of remote/emergency shutoff devices in cargo tanks and intermodal tanks in transportation and containers at facilities, that contain flammable liquids and flammable gases; characteristics and applicability of approved product control agents; use of approved tools and equipment; and requirements for reporting and documenting product control operations.

Instructor Notes

A.9.6.1(A) The requisite knowledge in this section is derived from the competencies in Section 8.6.

Product control techniques that focus on confining/containing the release with limited risk of personal exposure include absorption, adsorption, damming, diking, dilution, diversion, remote valve shutoff, retention, vapor dispersion, and vapor suppression. Product control also includes techniques for controlling flammable liquid incidents and flammable gas incidents.

Remote/emergency shutoff devices include those for MC-306/DOT-406, MC-407/DOT-407, MC-331 cargo tanks, and intermodal tanks.

(B) Requisite Skills. Selecting and using PPE; selecting and performing product control techniques to confine/contain the release with limited risk of personal exposure; using approved control agents and equipment on a release involving hazardous materials/WMD; using remote control valves and emergency shutoff devices on cargo tanks and intermodal tanks in transportation and containers at fixed facilities; and performing product control techniques.

Instructor Notes

A.9.6.1(B) Product control techniques that focus on confining/containing the release with limited risk of personal exposure include absorption,

adsorption, damming, diking, dilution, diversion, remote valve shutoff, retention, vapor dispersion, and vapor suppression. Techniques for controlling flammable liquid incidents and flammable gas incidents (e.g., hose handling, nozzle patterns, and attack operations) can be found in NFPA 1001.

CERTIFICATION CURRICULUM MANUAL – CHAPTER SIX

HAZARDOUS MATERIALS TECHNICIAN

(NFPA 470 CH. 11)

REFERENCE LIST

HAZARDOUS MATERIALS TECHNICIAN

This Reference List is provided as a general guide for both instructors and students to locate information pertaining to the specific objectives in the TCFP Curriculum. This list is **not** all-inclusive and does not in any way limit TCFP development and use of questions to test the objectives of the curriculum:

Required References

Certification Curriculum Manual. Texas Commission on Fire Protection. (Most current edition). Austin, TX: Texas Commission on Fire Protection.

Code of Federal Regulations, Title 29 Part 1910.120, Appendix A. United States. U.S. Department of Labor, Occupational Safety & Health Administration. http://edocket.access.gpo.gov/cfr_2007/julqtr/pdf/29cfr1910.120.pdf

Emergency Response Guidebook. United States. (Most current edition). Washington, DC: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration.

Hazardous Materials: Managing the Incident, 5th edition. Noll, G.G., Hildebrand, M. S., Schnepp, R. & Rudner, G.D. (2022). Burlington, MA: Jones and Bartlett. ISBN: 1284255670.

Hazardous Materials Technician, 3rd edition. (2023) Stillwater, OK: International Fire Service Training Association. ISBN: 978-0-87939-752-4

NFPA 470: Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents. (2022 ed.). Quincy, MA: NFPA Publications. National Fire Protection Association.

NIOSH Pocket Guide to Chemical Hazards. National Institute for Occupational Safety and Health. (Most current edition). Cincinnati, OH: US Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health.

Standards Manual for Fire Protection Personnel. Texas Commission on Fire Protection. (Most current edition). Austin, TX: Texas Commission on Fire Protection.

Recommended References

The most current edition of the following publications and media are recommended (not required) supplemental material for program use.

Bretherick's Handbook of Reactive Chemical Hazards. Urben, P. G., Pitt, M. J., & Bretherick, L. (2017). Amsterdam: Elsevier.

Field Guide to Tank Cars. Bureau of Explosives. 4th edition. (2022). Pueblo, Colorado: Association of American Railroads.

Fire Protection Guide to Hazardous Materials. National Fire Protection Association. (2010 edition). Quincy, MA: National Fire Protection Association.

Hawley's Condensed Chemical Dictionary. 16th edtion.Lewis, R. J., & Hawley, G. G. (2016). West Sussex, England: Wiley.

Hazardous Materials: Managing the Incident: Field Operations Guide. Bevelacqua, A. 2nd Edition (2014). MD: Jones and Bartlett Publishing

CHAPTER 6
SECTION 604
HAZARDOUS MATERIALS TECHNICIAN
CURRICULUM OUTLINE

SECTION	SUBJECT	RECOMMENDED HOURS
604-11.1	General - Introduction - Laws, Regulations, and National Consensus Standards	4
604-11.2	Analyze the Incident	24
604-11.3	Response Planning	24
604-11.4	Action Plan Implementation	16
604-11.5	Evaluating and Reporting	6
604-11.6	Terminating the Incident	6
	TOTAL RECOMMENDED HOURS	**80**

The recommended hours include time for skills evaluation and are based on 12 students. Hours needed depend on the actual number of students.

Course Instructor Information
Hazardous Materials Technician

Overview

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Operations-Mission Specific Competencies (MSC)	603	9
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Supplemental Information

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	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.	**Requisite Knowledge Statement**
	(1) Use of the ERG, SDS, shipping papers with emergency response information, or other approved reference sources to:	**First part of Requisite Knowledge**
	a. identify initial isolation and protective action distances, b. identify initial emergency actions i. fire ii. spill or iii. leak and iv. first aid) c. identify initial PPE and d. identify recommended protective actions	**Associated learning components**

(2) the difference between the isolation distances on the orange-bordered guidebook pages and the protective action distances on the green-bordered ERG pages	**Second part of Requisite Knowledge**
(3) 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;	**Third part of Requisite Knowledge**
(4) policies and procedures for isolating the hazard area and denying entry	**Fourth part of Requisite Knowledge**
(5) and the purpose of and methods for isolating the hazard area and denying entry.	**Fifth part of Requisite Knowledge**
Requisite Skills: Recognizing precautions for protecting responders and the public; identifying isolation areas, denying entry, and avoiding or minimizing hazards.	**Requisite Skills Statement**
Instructor Note Recommended precautions found on numbered guides in the ERG include public safety issues; recommended protective clothing; evacuation; emergency response to fire, spill, and leak; and first aid sections. Examples of required knowledge include (1) precautions for providing emergency medical care to victims; typical ignition sources; ways hazardous materials/WMD are harmful to people, the environment, and property; general routes of entry for human exposure; emergency action (fire, spill, or leak; first aid); actions recommended not to be performed (e.g., closing of pipeline valves); protective actions (isolation of area and denial of entry, evacuation, shelter-in-place); size and shape of recommended initial isolation and protective action distances; difference between small and large spills; conditions that require the use of the ERG Table of Initial Isolation and Protective Action Distances and the isolation distances in the ERG numbered guide; techniques for isolating the hazard area and denying entry to unauthorized persons; how to recognize and protect evidence; and use of approved tools and equipment; (2) basic personal protective actions: staying clear of vapors, fumes, smoke, and spills; keeping vehicle at a safe distance from the scene; approaching from upwind, uphill, and upstream; and (3) types of protective actions and their purpose (e.g., isolate hazard area	**Appendix A: Explanatory Material for 5.3.1**

and deny entry, evacuation, and shelter-in- place); basic factors involved in the choice of protective actions (e.g., hazardous materials/WMD involved, population threatened, and weather conditions).	

Unless otherwise specified, all curriculum references are to NFPA 470 . In some cases, (see, for example, 601-4.2.1), reference is also made under the section number and JPR to similar material in NFPA 470.

601-5.2.1	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 and their hazards are identified. Given a hazardous materials/WMD incident, and approved reference sources, awareness level personnel shall recognize those situations where hazardous materials/WMD are present. (470-4.2.1)	**Additional reference to NFPA 470**

Skills

NFPA Requisite Skill requirements are addressed in the corresponding Skill Sheets in Chapter 6 of the TCFP Curriculum Skills Manual.

Definitions of Certification Levels

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. These personnel have met all the performance requirements of Chapter 4 of NFPA 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications*

Operations Level Personnel: Personnel 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. These personnel have met all the performance requirements of Chapter 5 of NFPA 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications*

Operations-Mission Specific Competencies (MSC) Level Personnel: Responders assigned mission-specific responsibilities at hazardous materials/WMD incidents are those operations level responders designated by the authority having jurisdiction (AHJ) to perform additional tasks to support the AHJ's response mission, expected tasks, equipment, and training in the following areas:

(1) 9.2 Personal protection equipment (PPE)

(2) 9.3 Mass decontamination

(3) 9.4 Technical decontamination

(4) 9.5 Evidence preservation and sampling

(5) 9.6 Product control

(6) 9.7 Detection, monitoring, and public safety sampling

(7) 9.8 Victim rescue and recovery

(8) 9.9 Response to Illicit laboratories incidents

(9) 9.10 Radiological Hazard-Specific

These personnel have met all the performance requirements of Chapter 5 of NFPA 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications* and have also met the performance requirements of the subchapter(s) of Chapter 7 of NFPA 470 , *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications,* to which they are trained and credentialed to perform.

Note: Basic TCFP Structural Fire Fighter certification requires that Structure Fire Fighter personnel meet all performance requirements for:

- *Hazardous Materials Awareness*
- *Hazardous Materials Operations*
- *Hazardous Materials Operations - MSC – 9.2 Personal Protective Equipment*
- *Hazardous Materials Operations - MSC – 9.6 Product Control*

Technician Level Personnel: Persons who respond to hazardous materials/weapons of mass destruction (WMD) incidents using a risk-based response process by which

they analyze a problem involving hazardous materials/WMD, plan a response to the problem, evaluate progress of the planned response, and assist in terminating the incident. These personnel have met all the performance requirements of Chapter 11 of NFPA 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications.*

Incident Commander Level Personnel: That person, designated by the AHJ, responsible for all incident activities/operations, including the development of strategies and tactics and the ordering and release of resources. These personnel have met all the performance requirements of Chapter 13 of NFPA 470 , *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications.*

CERTIFICATION CURRICULUM MANUAL – CHAPTER SIX

HAZARDOUS MATERIALS INCIDENT COMMANDER

(NFPA 470 CH. 13)

REFERENCE LIST

HAZARDOUS MATERIALS INCIDENT COMMANDER

This Reference List is provided as a general guide for both instructors and students to locate information pertaining to the specific objectives in the TCFP Curriculum. This list is **not** all-inclusive and does not in any way limit TCFP development and use of questions to test the objectives of the curriculum:

Required References

Certification Curriculum Manual. Texas Commission on Fire Protection. (Most current edition). Austin, TX: Texas Commission on Fire Protection.

Code of Federal Regulations, Title 29 Part 1910.120, Appendix A. United States. U.S. Department of Labor, Occupational Safety & Health Administration. http://edocket.access.gpo.gov/cfr_2007/julqtr/pdf/29cfr1910.120.pdf

Emergency Response Guidebook. United States. (Most current edition). Washington, DC: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration.

Hazardous Materials: Managing the Incident, 5th edition. Noll, G.G., Hildebrand, M. S., Schnepp, R. & Rudner, G.D. (2022). Burlington, MA: Jones and Bartlett. ISBN: 1284255670.

Hazardous Materials Technician, 3rd edition. (2023) Stillwater, OK: International Fire Service Training Association. ISBN: 978-0-87939-752-4

NFPA 470: Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents. (2022 ed.). Quincy, MA: NFPA Publications. National Fire Protection Association.

NIOSH Pocket Guide to Chemical Hazards. Cincinnati National Institute for Occupational Safety and Health. (Most current edition). OH: US Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health. http://www.cdc.gov/niosh/npg/

Standards Manual for Fire Protection Personnel. Texas Commission on Fire Protection. (Most current edition). Austin, TX: Texas Commission on Fire Protection.

Recommended References

The most current edition of the following publications and media are recommended (not required) supplemental material for program use.

Bretherick's Handbook of Reactive Chemical Hazards. Urben, P. G., Pitt, M. J., & Bretherick, L. (2017). Amsterdam: Elsevier.

DOT Chart: Hazardous Materials Marking, Labeling and Placarding Guide. (or current edition) United States. Washington, DC: U.S. Dept. of Transportation, Pipeline and Hazardous Materials Safety Administration.

Emergency Care for Hazardous Materials Exposure. Currance, P., Bronstein, A. C., & Clements, B. (2007). St. Louis, MO: Mosby.

Fire Protection Guide to Hazardous Materials. National Fire Protection Association. (2001). Quincy, MA: National Fire Protection Association.

Hazardous Materials: Managing the Incident: Field Operations Guide. Chester Bevelacqua, 2nd edition. A. S., Hildebrand, M. S., & Noll, G. G. (2014). MD: Red Hat Publishing, Inc.

Hawley's Condensed Chemical Dictionary. 16TH edition. Lewis, R. J., & Hawley, G. G. (2016). West Sussex, England: Wiley.

CHAPTER 6
SECTION 605
HAZARDOUS MATERIALS INCIDENT COMMANDER

CURRICULUM OUTLINE

SECTION	SUBJECT	RECOMMENDED HOURS
605-8.1	General - Introduction - Laws, Regulations, and National Consensus Standards	1
605-8.2	Analyze the Incident	4
605-8.3	Plan the Response	9
605-8.4	Implement the Incident Action Plan (IAP)	4
605-8.5	Evaluate Progress and Adjust IAP	2
605-8.6	Termination	4
	TOTAL RECOMMENDED HOURS	**24**

The recommended hours include time for skills evaluation and are based on 12 students. Hours needed depend on the actual number of students.

Course Instructor Information

Hazardous Materials Incident Commander

Overview

The Hazardous Materials curricula are designed to provide clear guidance that ensures adequate presentation of the information required to meet the Job Performance Requirements (JPRs) of National Fire Protection Association (NFPA) 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications*, 2022 edition.

The Hazardous Materials curricula is found in Chapter 5 of the TCFP Curriculum Manual.

Certification Level	TCFP Section Number	NFPA 470 Chapter
Awareness	601	5
Operations	602	7
Operations-Mission Specific Competencies (MSC)	603	9
*Technician	604	11
***Incident Commander**	**605**	**13**

Layout

The NFPA numbering sequence is mirrored to allow easy correlation between this document and the NFPA Standard. For example, 601-5.1.2 identifies the section in Awareness that corresponds to NFPA section 5.1.2.

When a section references information from "Annex A Explanatory Material" in the NFPA Standard, it is identified by a boxed Instructor Note. For example, the boxed Instructor Note listed in 601-5.2.1 and that immediately follows the Requisite Knowledge section corresponds to the NFPA Annex A information for NFPA 470 section 5.2.1.

* Asterisks by Technician and Incident Commander above indicate that both are voluntary (non-mandatory) certifications. Therefore, **a formal "curriculum outline" is not provided**. Please use chapters 11 and 13, respectively, of NFPA 470 as a guide when creating your own course curricula or selecting a prepared instructional curriculum package from a publisher/vendor for Technician and Incident Commander.

TCFP Standards Manual

It is critical that you review the chapters in the TCFP Standards Manual that apply to this curriculum. Of primary importance are the following two chapters: Chapter 423, which defines the course of study, documentation and medical requirements necessary for Awareness and Operations certification (required) and Chapter 453, which covers certification requirements for Technician and Incident Commander (voluntary).

Additionally, instructors are expected to review the following chapters as they pertain to the instructional, examination, certification processes:

- Chapter 421, Standards for Certification
- Chapter 427, Training Facility Certification
- Chapter 435, Fire Fighter Safety
- Chapter 437, Fees
- Chapter 439, Examinations for Certification
- Chapter 441, Continuing Education

These chapters do not address every issue that could impact this curriculum; therefore, you are encouraged to become familiar with the TCFP Standards Manual.

Instructor Qualifications
Hazardous Materials courses must be taught by an instructor meeting the requirements described in Chapter 427.307 of the TCFP Standards Manual.

Supplemental Information
Instructors are expected to provide supplemental information if the main reference text does not provide adequate information to ensure successful completion of the Job Performance Requirements as listed in the curriculum.

Components of the Curricula
Each section of a curriculum identifies the NFPA Job Performance Requirement (JPR) and subdivides the requisite knowledge requirements into learning components. For example:

View within the Curriculum		Explanation
601-5.3.1	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.	**Section Number and NFPA JPR**
	Requisite Knowledge: Use of the ERG, SDS, shipping papers with 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	**Requisite Knowledge Statement**

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.	
(1) Use of the ERG, SDS, shipping papers with emergency response information, or other approved reference sources to:	**First part of Requisite Knowledge**
a. identify initial isolation and protective action distances, b. identify initial emergency actions i. fire ii. spill or iii. leak and iv. first aid) c. identify initial PPE and d. identify recommended protective actions	**Associated learning components**
(2) the difference between the isolation distances on the orange-bordered guidebook pages and the protective action distances on the green-bordered ERG pages	**Second part of Requisite Knowledge**
(3) 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;	**Third part of Requisite Knowledge**
(4) policies and procedures for isolating the hazard area and denying entry	**Fourth part of Requisite Knowledge**
(5) and the purpose of and methods for isolating the hazard area and denying entry.	**Fifth part of Requisite Knowledge**
Requisite Skills: Recognizing precautions for protecting responders and the public; identifying isolation areas, denying entry, and avoiding or minimizing hazards.	**Requisite Skills Statement**

Instructor Note Recommended precautions found on numbered guides in the ERG	**Appendix A: Explanatory**

include public safety issues; recommended protective clothing; evacuation; emergency response to fire, spill, and leak; and first aid sections. Examples of required knowledge include (1) precautions for providing emergency medical care to victims; typical ignition sources; ways hazardous materials/WMD are harmful to people, the environment, and property; general routes of entry for human exposure; emergency action (fire, spill, or leak; first aid); actions recommended not to be performed (e.g., closing of pipeline valves); protective actions (isolation of area and denial of entry, evacuation, shelter-in-place); size and shape of recommended initial isolation and protective action distances; difference between small and large spills; conditions that require the use of the ERG Table of Initial Isolation and Protective Action Distances and the isolation distances in the ERG numbered guide; techniques for isolating the hazard area and denying entry to unauthorized persons; how to recognize and protect evidence; and use of approved tools and equipment; (2) basic personal protective actions: staying clear of vapors, fumes, smoke, and spills; keeping vehicle at a safe distance from the scene; approaching from upwind, uphill, and upstream; and (3) types of protective actions and their purpose (e.g., isolate hazard area and deny entry, evacuation, and shelter-in- place); basic factors involved in the choice of protective actions (e.g., hazardous materials/WMD involved, population threatened, and weather conditions).	**Material for 5.3.1**

Unless otherwise specified, all curriculum references are to NFPA 470.

601-5.2.1	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 and their hazards are identified. Given a hazardous materials/WMD incident, and approved reference sources, awareness level personnel shall recognize those situations where hazardous materials/WMD are present. (470-5.2.1)	**Additional reference to NFPA 470**

Skills

NFPA Requisite Skill requirements are addressed in the corresponding Skill Sheets in Chapter 6 of the TCFP Curriculum Skills Manual.

Definitions of Certification Levels

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. These personnel have met all the performance requirements of Chapter 5 of NFPA 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications*

Operations Level Personnel: Personnel 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. These personnel have met all the performance requirements of Chapter 7 of NFPA 470 , *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications.*

Operations-Mission Specific Competencies (MSC) Level Personnel: Responders assigned mission-specific responsibilities at hazardous materials/WMD incidents are those operations level responders designated by the authority having jurisdiction (AHJ) to perform additional tasks to support the AHJ's response mission, expected tasks, equipment, and training in the following areas:

(1) 9.2 Personal protection equipment (PPE)
(2) 9.3 Mass decontamination
(3) 9.4 Technical decontamination
(4) 9.5 Evidence preservation and sampling
(5) 9.6 Product control
(6) 9.7 Detection, monitoring, and public safety sampling
(7) 9.8 Victim rescue and recovery
(8) 9.10 Illicit laboratories incidents

These personnel have met all the performance requirements of Chapter 5 of NFPA 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications* to which they are trained and credentialed to perform.

Note: Basic TCFP Structural Fire Fighter certification requires that Structure Fire Fighter personnel meet all performance requirements for:

- *Hazardous Materials Awareness*
- *Hazardous Materials Operations*
- *Hazardous Materials Operations - MSC – 9.2 Personal Protective Equipment*

- *Hazardous Materials Operations - MSC – 9.6 Product Control*

Technician Level Personnel: Persons who respond to hazardous materials/weapons of mass destruction (WMD) incidents using a risk-based response process by which they analyze a problem involving hazardous materials/WMD, plan a response to the problem, evaluate progress of the planned response, and assist in terminating the incident. These personnel have met all the performance requirements of Chapter 11 of NFPA 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications.*

Incident Commander Level Personnel: That person, designated by the AHJ, responsible for all incident activities/operations, including the development of strategies and tactics and the ordering and release of resources. These personnel have met all the performance requirements of Chapter 13 of NFPA 470, *Standard for Hazardous Materials/Weapons of Mass Destruction Emergency Response Personnel Professional Qualifications.*