

CERTIFICATION CURRICULUM MANUAL

CHAPTER SIX

HAZARDOUS MATERIALS

NFPA 472, 2008 Edition

EFFECTIVE JUNE 1, 2010



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

CERTIFICATION CURRICULUM MANUAL – CHAPTER SIX

HAZARDOUS MATERIALS AWARENESS

REFERENCE LIST FOR THE 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

Texts

- 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
- Certification Curriculum Manual.* Texas Commission on Fire Protection. (Most current edition). Austin, TX: Texas Commission on Fire Protection.
- Emergency Response Guidebook.* United States. (Most current edition). Washington, DC: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration.
- Essentials of Fire Fighting and Fire Department Operations, 5th edition.* International Fire Service Training Association. (2008). Stillwater, OK: Fire Protection Publications, Oklahoma State University.
- Firefighter's Handbook: Essentials of Firefighting and Emergency Response, 3rd edition.* Delmar Publishers. (2008). Clifton Park, NY: Delmar, Cengage Learning.
- Fundamentals of Fire Fighter Skills, 2nd edition.* International Association of Fire Chiefs, & National Fire Protection Association. (2008). Sudbury, MA: Jones and Bartlett.
- Hazardous Materials Awareness and Operations.* Schnepf, R. (2010). Sudbury, MA: Jones & Bartlett.
- Hazardous Materials for First Responders, 3rd edition.* Adams, B., & Miller, L. A. (2004). Stillwater, OK: Fire Protection Publications, Oklahoma State University.
- Hazardous Materials Handbook: Awareness and Operations Levels.* Hawley, C., & Walter, A. (2008). Clifton Park, NY: Delmar, Cengage Learning.
- Hazardous Materials/Weapons of Mass Destruction Response Handbook, 5th edition.* Trebisacci, D. G. (2008). Quincy, MA: National Fire Protection Association.
- NFPA 472: Standard for Professional Competence of Responders to Hazardous Materials Incidents.* (2008 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

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

Texts

Hazardous Materials Field Guide, 2nd edition. Bevelacqua, A. S., & Stilp, R. H. (2007). Albany, NY: Delmar Publications.

Symbol Seeker: Hazard Identification Manual. Burns, P. P. (2002). Preston, England: Symbol Seeker.

Media

DOT Chart 13: Hazardous Materials Marking, Labeling and Placarding Guide. United States. (2007). Washington, DC: U.S. Dept. of Transportation, Pipeline and Hazardous Materials Safety Administration.

Emergency Response Guidebook 2008. [DVD]. United States. (2008). Washington, DC: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration.

Hazmat Awareness. Action Training Systems, Inc. (2008). [2 Disc DVD Set - Recognition & Identification]. Poulsbo, WA: Action Training Systems.

Hazardous Materials Awareness and Operations [DVD]. International Association of Fire Chiefs, & National Fire Protection Association. (2006). Sudbury, MA: Jones and Bartlett.

CHAPTER 6
SECTION 601
HAZARDOUS MATERIALS AWARENESS
CURRICULUM OUTLINE

SECTION	SUBJECT	RECOMMENDED HOURS
601-4.1	General - Introduction - Laws, Regulations, and National Consensus Standards	1
601-4.2	Analyzing the Incident	5
601-4.3	Planning the Response - Reserved - None Required at this Level	
601-4.4	Implementing the Planned Response	2
601-4.5	Evaluating Progress - Reserved - None Required at this Level	
601-4.6	Terminating the Incident - Reserved - None Required at this Level	
	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.

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

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, and
- Secure the scene

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

601-4.1 General

601-4.1.1 Introduction

601-4.1.1.1 Awareness level personnel shall be persons who, in the course of their normal duties, could encounter an emergency involving hazardous materials/weapons of mass destruction (WMD) and who are expected to recognize the presence of the hazardous materials/WMD, protect themselves, call for trained personnel, and secure the area.

601-4.1.1.2 Awareness level personnel shall be trained to meet all competencies of this chapter.

601-4.1.1.3 Awareness level personnel shall receive additional training to meet applicable governmental occupational health and safety regulations.

1. Occupational training requirements
 - a. Firefighter
 - b. Peace officer
 - c. Emergency medical services
 - d. Other
2. Safety regulations
 - a. OSHA
 - b. EPA
 - c. DOT
 - d. Other

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

601-4.1.2 **Goal**

601-4.1.2.1 The goal of the competencies at the awareness level shall be to provide personnel already on the scene of a hazardous materials/WMD incident with the knowledge and skills to perform the tasks in 4.1.2.2 safely and effectively.

601-4.1.2.2 When already on the scene of a hazardous materials/WMD incident, the awareness level personnel shall be able to perform the following tasks:

1. Analyze the incident to determine both the hazardous material/WMD present and the basic hazard and response information for each hazardous material/WMD agent by completing the following tasks:
 - a. Detect the presence of hazardous materials/WMD.
 - b. Survey a hazardous materials/WMD incident from a safe location to identify the name, UN/NA identification number, type of placard, or other distinctive marking applied for the hazardous materials/WMD involved.
 - c. Collect hazard information from the current edition of the DOT *Emergency Response Guidebook*.
2. Implement actions consistent with the emergency response plan, the standard operating procedures, and the current edition of the DOT *Emergency Response Guidebook* by completing the following tasks:
 - a. Initiate protective actions.
 - b. Initiate the notification process.

601-4.2 **Competencies — Analyzing the Incident**

601-4.2.1 **Detecting the Presence of Hazardous Materials/WMD**

Given examples of various situations, awareness level personnel shall identify those situations where hazardous materials/WMD are present and shall meet the following requirements:

1. Identify the definitions of both *hazardous material* (or *dangerous goods*, in Canada) and *WMD*.
 - a. Hazardous materials (or dangerous goods in Canada) – a substance (solid, liquid, gas or energy) that when released is capable of creating harm to people, the environment, and property, including weapons of mass destruction (WMD) as defined in 18 U.S. Code, Section 2332a, as well as any other criminal use of hazardous materials, such as illicit labs, environmental crimes, or industrial sabotage

- b. Weapons of Mass Destruction (WMD) - (1) Any destructive device, such as any explosive, incendiary, or poison gas bomb, grenade, rocket having a propellant charge of more than four ounces, missile having an explosive or incendiary charge of more than one quarter ounce (7 grams), mine, or device similar to the above; (2) any weapon involving toxic or poisonous chemicals; (3) any weapon involving a disease organism; or (4) any weapon that is designed to release radiation or radioactivity at a level dangerous to human life.
2. Identify the UN/DOT hazard classes and divisions of hazardous materials/WMD and identify common examples of materials in each hazard class or division.
 - a. Class 1 – Explosives
 - i. Division 1.1 Explosives with a mass explosion hazard. Examples of Division 1.1 explosives include black powder trinitrotoluene, dynamite, and trinitrotoluene (TNT).
 - ii. Division 1.2 Explosives with a projection hazard. Examples of Division 1.2 explosives include aerial flares, detonating cord, and power device cartridges.
 - iii. Division 1.3 Explosives with predominantly a fire hazard. Examples of Division 1.3 explosives include liquid-fueled rocket motors and propellant explosives.
 - iv. Division 1.4 Explosives with no significant blast hazard. Examples of Division 1.4 explosives include line-throwing rockets, practice ammunition, and signal cartridges.
 - v. Division 1.5 Very insensitive explosives with a mass explosion hazard. Examples of Division 1.5 explosives include piled ammonium nitrate fertilizer–fuel oil mixtures (blasting agents).
 - vi. Division 1.6 Extremely insensitive articles. An example of Division 1.6 includes wetted cellulose nitrate.
 - b. Class 2 - Gases
 - i. Division 2.1 Flammable gases. Examples of Division 2.1 gases include inhibited butadienes, methyl chloride, and propane.
 - ii. Division 2.2 Non-flammable, non-toxic gases. Examples of Division 2.2 gases include anhydrous ammonia, cryogenic argon, carbon dioxide, and compressed nitrogen.
 - iii. Division 2.3 Toxic gases. Examples of Division 2.3 gases include anhydrous hydrogen fluoride, arsine, chlorine, and methyl bromide.

- c. Class 3 - Flammable liquids (and Combustible liquids [U.S.])
Examples of Class 3 liquids include acetone, amyl acetate, gasoline, methyl alcohol, and toluene.
 - d. Class 4 - Flammable solids; Spontaneously combustible materials; and Dangerous when wet materials/Water-reactive substances
 - i. Division 4.1 Flammable solids. Examples of Division 4.1 materials include magnesium (pellets, turnings, or ribbons) and nitrocellulose.
 - ii. Division 4.2 Spontaneously combustible materials. Examples of Division 4.2 materials include aluminum alkyls, charcoal briquettes, magnesium alkyls, and phosphorus.
 - iii. Division 4.3 Water-reactive substances/Dangerous when wet materials. Examples of Division 4.3 materials include calcium carbide, magnesium powder, potassium metal alloys, and sodium hydride.
 - e. Class 5 - Oxidizing substances and Organic peroxides
 - i. Division 5.1 Oxidizing substances. Examples of Division 5.1 materials include ammonium nitrate, bromine trifluoride, and calcium hypochlorite.
 - ii. Division 5.2 Organic peroxides. Examples of Division 5.2 materials include dibenzoyl peroxide, methyl ethyl ketone peroxide, and peroxyacetic acid.
 - f. Class 6 - Toxic substances and Infectious substances
 - i. Division 6.1 Toxic substances. Examples of Division 6.1 materials include aniline, arsenic compounds, carbon tetrachloride, hydrocyanic acid, and tear gas.
 - ii. Division 6.2 Infectious substances. Examples of Division 6.2 materials include anthrax, botulism, rabies, and tetanus.
 - g. Class 7 - Radioactive materials. Examples of Class 7 materials include cobalt, uranium hexafluoride, and "yellow cake."
 - h. Class 8 - Corrosive substances. Examples of Class 8 materials include nitric acid, phosphorus trichloride, sodium hydroxide, and sulfuric acid.
 - i. Class 9 - Miscellaneous hazardous materials/Products, Substances or Organisms. Examples of Class 9 materials include adipic acid, hazardous substances (e.g., PCBs), and molten sulfur.
3. Identify the primary hazards associated with each UN/DOT hazard class and division.
- i. Class 1 — Explosives

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

An explosive is any substance or article, including a device, that is designed to function by explosion (i.e., an extremely rapid release of gas and heat) or that, by chemical reaction within itself, is able to function in a similar manner even if not designed to function by explosion. Explosives in Class 1 are divided into six divisions. Each division has a letter designation.

- i. Division 1.1 consists of explosives that have a mass explosion hazard. A mass explosion is one that affects almost the entire load instantaneously.
 - ii. Division 1.2 consists of explosives that have a projection hazard but not a mass explosion hazard.
 - iii. Division 1.3 consists of explosives that have a fire hazard and a minor blast hazard, a minor projection hazard, or both, but not a mass explosion hazard.
 - iv. Division 1.4 consists of explosive devices that present a minor explosion hazard. No device in the division can contain more than 0.9 oz (25 g) of a detonating material. The explosive effects are largely confined to the package, and no projection of fragments of appreciable size or range are expected. An external fire must not cause virtually instantaneous explosion of almost the entire contents of the package.
 - v. Division 1.5 consists of very insensitive explosives. This division comprises substances that have a mass explosion hazard but are so insensitive that there is very little probability of initiation or of transition from burning to detonation under normal conditions of transport.
 - vi. Division 1.6 consists of extremely insensitive articles that do not have a mass explosive hazard. This division comprises articles that contain only extremely insensitive detonating substances and that demonstrate a negligible probability of accidental initiation or propagation.
- ii. Class 2 — Gases
- i. Division 2.1 (flammable gas) consists of materials that are a gas at 68°F (20°C) or less and 14.7 psi (101.3 kPa) of pressure, have a boiling point of 68°F (20°C) or less at 14.7 psi (101.3 kPa), and have the following properties:
 - a) Are ignitable at 14.7 psi (101.3 kPa) when in a mixture of 13 percent or less by volume with air
 - b) Have a flammable range at 14.7 psi (101.3 kPa) with air of at least 12 percent regardless of the lower limit
 - ii. Division 2.2 (nonflammable, nonpoisonous compressed gas, including compressed gas, liquefied gas, pressurized cryogenic gas, and compressed gas in

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

solution, asphyxiant gas, and oxidizing gas) consists of materials (or mixtures) that exert in the packaging an absolute pressure of 41 psi (280 kPa) at 68°F (20°C). A cryogenic liquid is a refrigerated liquefied gas having a boiling point colder than -130°F (-90°C) at 14.7 psi (101.3 kPa).

- iii. Division 2.3 (gas poisonous by inhalation) consists of materials that are a gas at 68°F (20°C) or less and a pressure of 14.7 psi, or 1 atm (101.3 kPa), have a boiling point of 68°F (20°C) or less at 14.7 psi (101.3 kPa), and have the following properties:
 - a) Are known to be so toxic to humans as to pose a hazard to health during transportation
 - b) In the absence of adequate data on human toxicity, are presumed to be toxic to humans because, when tested on laboratory animals, they have an LC50 value of not more than 5000 ppm.
- iii. Class 3 — Flammable and Combustible Liquids
 - i. Flammable liquids are liquids having a flash point of not more than 140°F (60°C) or materials in a liquid phase with a flash point at or above 100°F (37.8°C) that are intentionally heated and offered for transportation or transported at or above their flash point in a bulk packaging. Examples of flammable liquids include gasoline, methyl ethyl ketone, and ethyl alcohol.
 - ii. Combustible liquids are liquids that do not meet the definition of any other hazard class and that have a flash point above 140°F (60°C) and below 200°F (93°C). Flammable liquids with a flash point above 100°F (38°C) can be reclassified as combustible liquids. Examples of combustible liquids include mineral oil, peanut oil, and No. 6 fuel oil.
- iv. Class 4 — Flammable Solids
 - i. Division 4.1 (flammable solids) comprised of the following three types of materials:
 - a) Desensitized explosives — explosives wetted with sufficient water, alcohol, or plasticizers to suppress explosive properties
 - b) Self-reactive materials — materials that are thermally unstable and that can undergo a strongly exothermic decomposition even with participation of oxygen (air)
 - c) Readily combustible solids — solids that can cause a fire through friction and any metal powders that can be ignited.

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- ii. Division 4.2 (spontaneously combustible material) comprises the following materials:
 - a) Pyrophoric materials — liquids or solids that, even in small quantities and without an external ignition source, can ignite within 5 minutes after coming in contact with air
 - b) Self-heating materials — materials that, when in contact with air and without an energy supply, are liable to self-heat
- iii. Division 4.3 (dangerous-when-wet materials) comprises of materials that, by contact with water, are liable to become spontaneously flammable or to give off flammable or toxic gas at a rate greater than 1 L/kg of the material per hour.
- v. Class 5 — Oxidizers and Organic Peroxides
 - i. Division 5.1 (oxidizers) comprises materials that can, generally by yielding oxygen, cause or enhance the combustion of other materials.
 - ii. Division 5.2 (organic peroxides) comprises organic compounds that contain oxygen (O) in the bivalent -O-O- structure that can be considered a derivative of hydrogen peroxide, where one or more of the hydrogen atoms have been replaced by organic radicals.
- vi. Class 6 — Poisonous Materials
 - i. Division 6.1 (poisonous materials) comprises materials other than gases that either are known to be so toxic to humans as to afford a hazard to health during transportation or in the absence of adequate data on human toxicity are presumed to be toxic to humans, including materials that cause irritation.
 - ii. Division 6.2 (infectious substances) comprises materials known to contain or suspected of containing a pathogen. A pathogen is a micro-organism (including viruses, plasmids, and other genetic elements) or a proteinaceous infectious particle (prion) that has the potential to cause disease in humans or animals. The terms *infectious substance* and *etiologic agent* are synonymous.
- vii. Class 7 — Radioactive Materials

Radioactive material is any material containing radionuclides where both the activity concentration and the total activity in the consignment exceed specified values.
- viii. Class 8 — Corrosive Materials

Corrosive materials are liquids or solids that cause full-thickness destruction of skin at the site of contact within a specified period of

time. A liquid that has a severe corrosion rate on steel or aluminum is also a corrosive material.

- ix. Class 9 — Miscellaneous Hazardous Materials
Miscellaneous hazardous materials are materials that present a hazard during transport but that do not meet the definition of any other hazard class. Miscellaneous hazardous materials include the following:
- i. Any material that has an anesthetic, noxious, or other similar property that could cause extreme annoyance or discomfort to a flight crew member so as to prevent the correct performance of assigned duties
 - ii. Any material that is not included in any other hazard class but that is subject to DOT requirements (e.g. elevated-temperature material, hazardous substance, hazardous waste, marine pollutant).
4. Identify the difference between hazardous materials/WMD incidents and other emergencies.
- a. Size
 - b. Complexity
 - c. Intent
 - d. Crime scene management
 - e. Secondary devices/attacks and armed
5. Identify typical occupancies and locations in the community where hazardous materials/WMD are manufactured, transported, stored, used, or disposed of.
6. Identify typical container shapes that can indicate the presence of hazardous materials/WMD.
- a. Non-bulk containers
 - b. Bulk containers
 - c. Fixed facility storage systems
 - d. Pipelines
 - e. Ships & marine vessels
7. Identify facility and transportation markings and colors that indicate hazardous materials/WMD, including the following:
- a. Transportation markings, including UN/NA identification number marks, marine pollutant mark, elevated temperature (HOT) mark, commodity marking, and inhalation hazard mark
 - b. NFPA 704, *Standard System for the Identification of the Hazards of Materials for Emergency Response*, markings
 - c. Military hazardous materials/WMD markings

- d. Special hazard communication markings for each hazard class (i.e., Hazardous Material Identification System – HMIS)
 - e. Pipeline markings
 - f. Container markings
8. Given an NFPA 704 marking, describe the significance of the colors, numbers, and special symbols.
- a. Categories of hazards
 - i. Health – blue color
 - ii. Flammability – red color
 - iii. Reactivity – yellow color
 - iv. Special hazards (white color with symbol)
 - b. Five degrees of hazards (0 – 4)
9. Identify U.S. and Canadian placards and labels that indicate hazardous materials/WMD. (see ERG or DOT Chart)
10. Identify the following basic information on material safety data sheets (MSDS) and shipping papers for hazardous materials:
- a. Identify where to find MSDS.
 - b. Identify major sections of an MSDS.
 - i. Basic information that indicates hazardous materials
 - ii. Entries that indicate the presence of hazardous materials containers by their shape
 - c. Identify the entries on shipping papers that indicate the presence of hazardous materials.
 - d. Match the name of the shipping papers found in transportation (air, highway, rail, and water) with the mode of transportation.
 - i. Air – air bill
 - ii. Highway – Bill of Lading or freight bill
 - iii. Water – dangerous cargo manifest
 - iv. Rail – waybill and/or consist
 - e. Identify the person responsible for having the shipping papers in each mode of transportation.
 - f. Identify where the shipping papers are found in each mode of transportation.
 - g. Identify where the papers can be found in an emergency in each mode of transportation.
11. Identify examples of clues (other than occupancy/ location, container shape, markings/color, placards/ labels, MSDS, and shipping papers) the sight, sound, and odor of which indicate hazardous materials/WMD.
- a. Odors
 - b. Gas leak

- c. Fire
 - d. Vapor cloud
 - e. Corrosive actions
 - f. Visible chemical reactions
 - g. Pooled liquids
 - h. Sound of a pressure release
 - i. Condensation line on pressure tank
 - j. Injured persons or casualties
12. Describe the limitations of using the senses in determining the presence or absence of hazardous materials/WMD.
- a. Exposes responder to possible ill health effects; or
 - b. Death
13. Identify at least four types of locations that could be targets for criminal or terrorist activity using hazardous materials/WMD.
- a. Public assembly areas
 - b. Public building
 - c. Mass transit systems
 - d. Places with high economic impact
 - e. Telecommunications facilities
 - f. Places with historical or symbolic significance
 - g. Military installations
 - h. Airports
 - i. Industrial facilities
14. Describe the difference between a chemical and a biological incident.
- a. Chemical – characterized by rapid onset of symptoms
 - b. Biological – symptoms requires days or weeks to manifest
15. Identify at least four indicators of possible criminal or terrorist activity involving chemical agents.
- a. The presence of hazardous materials/WMD or laboratory equipment that is not relevant to the occupancy
 - b. Intentional release of hazardous materials/WMD
 - c. Unexplained patterns of sudden onset of similar, nontraumatic illnesses or deaths (patterns that might be geographic, by employer, or associated with agent dissemination methods)
 - d. Unexplained odors or tastes that are out of character with the surroundings
 - e. Multiple individuals exhibiting unexplained signs of skin, eye, or airway irritation
 - f. Unexplained bomb- or munitions-like material, especially if it contains a liquid
 - g. Unexplained vapor clouds, mists, and plumes

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- h. Multiple individuals exhibiting unexplained health problems such as nausea, vomiting, twitching, tightness in chest, sweating, pinpoint pupils (miosis), runny nose (rhinorrhea), disorientation, difficulty breathing, convulsions, or death
 - i. Trees, shrubs, bushes, food crops, and/or lawns that are dead, discolored, abnormal in appearance, or withered (not due to a current drought and not just a patch of dead weeds)
 - j. Surfaces exhibiting oily droplets/films and unexplained oily film on water surfaces
 - k. An abnormal number of sick or dead birds, animals, or fish
 - l. Unusual security, locks, bars on windows, covered windows, or barbed wire
16. Identify at least four indicators of possible criminal or terrorist activity involving biological agents.
- a. Unusual number of sick or dying people or animals (any number of symptoms; time before symptoms are observed dependent on the agent used but usually days to weeks)
 - b. Healthcare facilities reporting multiple casualties with similar signs or symptoms
 - c. Unscheduled or unusual spray being disseminated, especially if outdoors during period of darkness
 - d. Abandoned spray devices (devices with no distinct odors)
17. Identify at least four indicators of possible criminal or terrorist activity involving radiological agents.
- a. Radiation Symbols
 - b. Unusual metal debris
 - c. Heat-emitting material
 - d. Glowing material
 - e. Sick people/animals
18. Identify at least four indicators of possible criminal or terrorist activity involving illicit laboratories (e.g., clandestine laboratories, weapons lab, ricin lab).
- a. Structures with unusual or multiple vents
 - b. Buildings with heavy security
 - c. Obscured windows
 - d. Odd or unusual odors
 - e. May include mobile facilities, i.e. mobile meth labs
19. Identify at least four indicators of possible criminal or terrorist activity involving explosives
- a. Prior warning or threat of attack
 - b. Unknown explosions

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- c. Multiple fires or explosions
- d. Unattended packages, backpacks and other objects left in high traffic public areas
- e. Fragmentation damage or injuries
- f. Craters
- g. Small metal objects, i.e. nuts, bolts, nails used as shrapnel

20. Identify at least four indicators of secondary devices

- a. Containers with unknown liquids or materials
- b. Unusual devices or containers with electronic components such as wires, circuit boards, cellular phones, antennas and other items attached or exposed
- c. Devices containing quantities of fuses, fireworks, match heads, black powder, incendiary materials or other unusual materials
- d. Materials attached to or surrounding an item such as nails, bolts, drill bits that could be used for shrapnel
- e. Ordnance such as blasting caps, detcord, explosives, grenades, etc.

601-4.2.2 **Surveying Hazardous Materials/WMD Incidents**

Given examples of hazardous materials/WMD incidents, awareness level personnel shall, from a safe location, identify the hazardous material(s)/WMD involved in each situation by name, UN/NA identification number, or type placard applied and shall meet the following requirements:

1. Identify difficulties encountered in determining the specific names of hazardous materials/WMD at facilities and in transportation.
2. Identify sources for obtaining the names of, UN/NA identification numbers for, or types of placard associated with hazardous materials/WMD in transportation.
 - a. Shipping documents
 - b. Labels
 - c. Placards
 - d. DOT *Emergency Response Guidebook* (ERG)
3. Identify sources for obtaining the names of hazardous materials/WMD at a facility.
 - a. Shipping documents
 - b. Labels
 - c. Placards
 - d. ERG
 - e. Material Safety Data Sheets (MSDS)
 - f. Facility documents

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- g. Facility pre-plans

601-4.2.3 **Collecting Hazard Information**

Given the identity of various hazardous materials/WMD (name, UN/NA identification number, or type placard), awareness level personnel shall identify the fire, explosion, and health hazard information for each material by using the current edition of the DOT *Emergency Response Guidebook* and shall meet the following requirements:

1. Identify the three methods for determining the guidebook page for a hazardous material/WMD.
 - a. Locate UN number in the yellow-bordered pages
 - b. Locate name of material in the alphabetic listing in the blue-bordered pages
 - c. Locate a matching placard or container shape and consult the appropriate guide number
2. Identify the two general types of hazards found on each guidebook page.
 - a. Fire/explosive
 - b. Health

601-4.3 **Competencies — Planning the Response. (Reserved)**

601-4.4 **Competencies — Implementing the Planned Response**

601-4.4.1 **Initiating Protective Actions**

Given examples of hazardous materials/WMD incidents, the emergency response plan, the standard operating procedures, and the current edition of the DOT *Emergency Response Guidebook*, awareness level personnel shall be able to identify the actions to be taken to protect themselves and others and to control access to the scene and shall meet the following requirements:

1. Identify the location of both the emergency response plan and/or standard operating procedures.
2. Identify the role of the awareness level personnel during hazardous materials/WMD incidents.
 - a. Recognize the presence of hazardous materials/WMD.
 - b. Protect themselves
 - c. Call for trained personnel
 - d. Secure the area

3. Identify the following basic precautions to be taken to protect themselves and others in hazardous materials/WMD incidents:
 - a. Identify the precautions necessary when providing emergency medical care to victims of hazardous materials/WMD incidents.
 - i. Responder safety/appropriate PPE
 - ii. Isolate the victim
 - iii. Identify the product (by appropriately trained personnel)
 - iv. Decontaminate the patient (by appropriately trained personnel)
 - b. Identify typical ignition sources found at the scene of hazardous materials/WMD incidents.
 - c. Identify the ways hazardous materials/WMD are harmful to people, the environment, and property.
 - i. Thermal
 - ii. Radiation
 - iii. Asphyxiation
 - iv. Chemical (i.e., poisons, corrosives)
 - v. Etiologic
 - vi. Mechanical
 - vii. Psychological/psychogenic
 - d. Identify the general routes of entry for human exposure to hazardous materials/WMD.
 - i. Contact
 - ii. Absorption
 - iii. Inhalation
 - iv. Ingestion
4. Given examples of hazardous materials/WMD and the identity of each hazardous material/WMD (name, UN/NA identification number, or type placard), identify the following response information:
 - a. Emergency action (fire, spill, or leak and first aid)
 - b. Personal protective equipment necessary
 - c. Initial isolation and protective action distances
5. Given the name of a hazardous material, identify the recommended personal protective equipment from the following list:
 - a. Street clothing and work uniforms
 - b. Structural fire-fighting protective clothing
 - c. Positive pressure self-contained breathing apparatus
 - d. Chemical-protective clothing and equipment
6. Identify the definitions for each of the following protective actions:
 - a. Isolation of the hazard area and denial of entry
 - b. Evacuation
 - c. Sheltering in-place

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

7. Identify the size and shape of recommended initial isolation and protective action zones.
 - a. initial isolation zones
 - b. protective action zones
8. Describe the difference between small and large spills as found in the Table of Initial Isolation and Protective Action Distances in the DOT *Emergency Response Guidebook*.
 - a. large spill/release
 - b. small spill/release
9. Identify the circumstances under which the following distances are used at a hazardous materials /WMD incidents:
 - a. Table of Initial Isolation and Protective Action Distances (green-bordered pages)
 - b. Isolation distances in the numbered guides (orange-bordered pages)
10. Describe the difference between the isolation distances on the orange-bordered guidebook pages and the protective action distances on the green-bordered ERG (*Emergency Response Guidebook*) pages.
11. Identify the techniques used to isolate the hazard area and deny entry to unauthorized persons at hazardous materials/WMD incidents.
12. Identify at least four specific actions necessary when an incident is suspected to involve criminal or terrorist activity.
 - a. Take the appropriate actions to protect yourself and other personnel
 - b. Communicate the suspicion during the notification process
 - c. Isolate potentially exposed people or animals
 - d. Document the initial observation
 - e. Be alert for booby traps and explosive devices

601-4.4.2 **Initiating the Notification Process**

Given scenarios involving hazardous materials/WMD incidents, awareness level personnel shall identify the initial notifications to be made and how to make them, consistent with the emergency response plan and/or standard operating procedures.

601-4.5 **Competencies — Evaluating Progress**
No competencies required at this level.

601-4.6 **Competencies — Terminating the Incident**

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

No competencies required at this level.

CERTIFICATION CURRICULUM MANUAL – CHAPTER SIX

HAZARDOUS MATERIALS OPERATIONS

REFERENCE LIST FOR THE HAZARDOUS MATERIALS OPERATIONS 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

Texts

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.

Essentials of Fire Fighting, 5th edition. International Fire Service Training Association. (2008). Stillwater, OK: Fire Protection Publications, Oklahoma State University.

Firefighter's Handbook: Essentials of Firefighting and Emergency Response, 3rd edition. Delmar Publishers. (2008). Clifton Park, NY: Delmar, Cengage Learning.

Fundamentals of Fire Fighter Skills, 2nd edition. International Association of Fire Chiefs, & National Fire Protection Association. (2008). Sudbury, MA: Jones and Bartlett.

Hazardous Materials Awareness and Operations. Schnepf, R. (2010). Sudbury, MA: Jones & Bartlett.

Hazardous Materials for First Responders, 3rd edition. Adams, B., & Miller, L. A. (2004). Stillwater, OK: Fire Protection Publications, Oklahoma State University.

Hazardous Materials Handbook: Awareness and Operations Levels. Hawley, C., & Walter, A. (2008). Clifton Park, NY: Delmar, Cengage Learning.

Hazardous Materials/Weapons of Mass Destruction Response Handbook, 5th edition. Trebisacci, D. G. (2008). Quincy, MA: National Fire Protection Association.

NFPA 472: Standard for Professional Competence of Responders to Hazardous Materials Incidents. (2008). Quincy, MA: NFPA Publications. National Fire Protection Association

NIOSH Pocket Guide to Chemical Hazards. Cincinnati National Institute for Occupational Safety and Health. (2005 or 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.

Texts

DOT Chart 13: Hazardous Materials Marking, Labeling and Placarding Guide. United States. (2007). Washington, DC: U.S. Dept. of Transportation, Pipeline and Hazardous Materials Safety Administration.

Hazardous Materials Field Guide, 2nd edition. Bevelacqua, A. S., & Stilp, R. H. (2007). Albany, NY: Delmar Publications.

Symbol Seeker: Hazard Identification Manual. Burns, P. P. (2002). Preston, England: Symbol Seeker.

Media

Emergency Response Guidebook 2008. United States. (2008). [DVD]. Washington, DC: U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration.

Hazardous Materials Awareness and Operations. International Association of Fire Chiefs, & National Fire Protection Association. (2006). [DVD Set]. Sudbury, MA: Jones and Bartlett.

Hazmat Decontamination. Action Training Systems, Inc. (2008). [4 Disc DVD Set]. Poulsbo, WA: Action Training Systems.

Hazmat Operations. Detrick Lawrence Corporation, Pye, S., & Lamont, J. B. (2006). [8 Disk DVD Set]. Edgartown, MA: Emergency Film Group.

**CHAPTER 6
 SECTION 602
 HAZARDOUS MATERIALS OPERATIONS
 CURRICULUM OUTLINE**

SECTION	SUBJECT	RECOMMENDED HOURS
602-5.1	General - Introduction - Laws, Regulations, and National Consensus Standards	1
602-5.2	Analyzing the Incident	14
602-5.3	Planning the Response	9
602-5.4	Implementing the Planned Response	6
602-5.5	Evaluating Progress	2
602-5.6	Terminating the Incident - Reserved - None required at this level	
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 603-6.2),
 - Performing Product Control (Section 603-6.6)

This is in accordance with the competency requirements of *NFPA 1001: Standard for Fire Fighter Professional Qualifications* 2008 ed., the *TCFP Standards Manual*, and the *TCFP Certification Curriculum Manual*.

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

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.**

This is in accordance with the competency requirements of *NFPA 1001: Standard for Fire Fighter Professional Qualifications 2008 Ed.*, the *TCFP Standards Manual* and the *TCFP Curriculum Manual*.

602-5.1 General

602-5.1.1 Introduction

602-5.1.1.1 The operations level responder shall be that person who responds to hazardous materials/weapons of mass destruction (WMD) incidents for the purpose of protecting nearby persons, the environment, or property from the effects of the release.

602-5.1.1.2 The operations level responder shall be trained to meet all competencies at the awareness level (Chapter 6, Section 601) and the competencies of this chapter.

602-5.1.1.3 The operations level responder shall receive additional training to meet applicable governmental occupational health and safety regulations.

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

602-5.1.2 **Goal**

602-5.1.2.1 The goal of the competencies at this level shall be to provide operations level responders with the knowledge and skills to perform the core competencies in 5.1.2.2 safely.

602-5.1.2.2 When responding to hazardous materials/WMD incidents, operations level responders shall be able to perform the following tasks:

1. Analyze a hazardous materials/WMD incident to determine the scope of the problem and potential outcomes by completing the following tasks:
 - a. Survey a hazardous materials/WMD incident to identify the containers and materials involved, determine whether hazardous materials/WMD have been released, and evaluate the surrounding conditions.
 - b. Collect hazard and response information from MSDS; CHEMTREC/CANUTEC/SETIQ; local, state, and federal authorities; and shipper/manufacturer contacts.
 - c. Predict the likely behavior of a hazardous material/WMD and its container.
 - d. Estimate the potential harm at a hazardous materials/WMD incident.
 - i. Thermal
 - ii. Radiation
 - iii. Asphyxiant
 - iv. Chemical
 - v. Etiologic
 - vi. Mechanical
 - vii. Psychological/psychogenic
2. Plan an initial response to a hazardous materials/WMD incident within the capabilities and competencies of available personnel and personal protective equipment by completing the following tasks:
 - a. Describe the response objectives for the hazardous materials/WMD incident.
 - i. Evacuation
 - ii. Search and Rescue
 - iii. Exposure Protection/Isolate the Area
 - iv. Defensive Control Techniques
 - v. Crime scene management and evidence preservation
 - vi. Recovery and termination
 - b. Describe the response options available for each objective.
 - i. Evacuation
 - a) Public protection actions
 - 1) Full scale evacuation
 - 2) Shelter-in-place
 - 3) Combination

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- ii. Search and Rescue
 - a) Based on training and equipment
 - b) Risk-benefit analysis (i.e., risk a lot/save a lot, risk a little/save a little)
 - iii. Exposure Protection/Isolate the Area
 - a) Establish initial isolation distance
 - b) Establish protective action distance
 - c) Establish control zones
 - iv. Defensive Control Techniques
 - a) Damming
 - 1) Overflow
 - 2) Underflow
 - b) Diking
 - c) Retention
 - d) Dispersion
 - e) Absorption
 - f) Adsorption
 - g) Dilution
 - h) Dissolution
 - i) Diversion
 - j) Vapor dispersion
 - k) Vapor suppression
 - l) Ventilation
 - m) Remote valve shutoff
 - v. Crime scene management and evidence preservation
 - a) Maintain scene control
 - b) Limit access
 - c) Maintain chain of custody
 - d) Coordinate with AHJ
 - vi. Recovery and termination
 - a) Short-term recovery
 - b) Long-term recovery
 - c) Termination activities
 - 1) Debriefing
 - 2) Critique
 - 3) Post-incident Analysis
 - d) Demobilization
 - c. Determine whether the personal protective equipment provided is appropriate for implementing each option.
 - d. Describe emergency decontamination procedures.
 - e. Develop a plan of action, including safety considerations.
3. Implement the planned response for a hazardous materials/WMD incident to favorably change the outcomes consistent with the emergency response plan and/or standard operating procedures by completing the following tasks:

- a. Establish and enforce scene control procedures, including control zones, emergency decontamination, and communications.
 - b. Where criminal or terrorist acts are suspected, establish means of evidence preservation.
 - c. Initiate an incident command system (ICS) for hazardous materials/WMD incidents.
 - d. Perform tasks assigned as identified in the incident action plan.
 - e. Demonstrate emergency decontamination.
4. Evaluate the progress of the actions taken at a hazardous materials/WMD incident to ensure that the response objectives are being met safely, effectively, and efficiently by completing the following tasks:
- a. Evaluate the status of the actions taken in accomplishing the response objectives.
 - b. Communicate the status of the planned response.

602-5.2 **Core Competencies — Analyzing the Incident**

602-5.2.1 **Surveying Hazardous Materials/WMD Incidents**

Given scenarios involving hazardous materials/WMD incidents, the operations level responder shall survey the incident to identify the containers and materials involved, determine whether hazardous materials/WMD have been released, and evaluate the surrounding conditions and shall meet the requirements of 5.2.1.1 through 5.2.1.6.

602-5.2.1.1 Given three examples each of liquid, gas, and solid hazardous material or WMD, including various hazard classes, operations level personnel shall identify the general shapes of containers in which the hazardous materials/WMD are typically found.

602-5.2.1.1.1 Given examples of the following tank cars, the operations level responder shall identify each tank car by type, as follows:

1. Cryogenic liquid tank cars
2. Nonpressure tank cars (general service or low pressure cars)
3. Pressure tank cars

602-5.2.1.1.2 Given examples of the following intermodal tanks, the operations level responder shall identify each intermodal tank by type, as follows:

1. Nonpressure intermodal tanks
 - a. IM-101 (IMO Type 1)
 - b. IM-102 (IMO Type 2)

2. Pressure intermodal tanks (Spec 51/IMO Type 5)
3. Specialized intermodal tanks, including the following:
 - a. Cryogenic intermodal tanks (IMO Type 7)
 - b. Tube modules

602-5.2.1.1.3 Given examples of the following cargo tanks, the operations level responder shall identify each cargo tank by type, as follows: (NOTE: CGA=Compressed Gas Association, MC= Motor Carrier, TC=Transport Canada, DOT=Dept. of Transportation, SCT=Secretariat of Communications and Transportation [Mexico])

1. Compressed gas tube trailers
2. Corrosive liquid tanks
 - DOT 412, TC 412, SCT 312, MC 312, TC 312
3. Cryogenic liquid tanks
 - MC 338, TC 338, SCT 338, TC 341, CGA 341
4. Dry bulk cargo tanks
5. High pressure tanks
 - MC 331, TC 331, SCT 331
6. Low pressure chemical tanks
 - DOT 407, TC 407, SCT 307, MC 307, TC 307
7. Non-pressure liquid tanks
 - DOT 406, TC 406, SCT 306, MC 306, TC 306

602-5.2.1.1.4 Given examples of the following storage tanks, the operations level responder shall identify each tank by type, as follows:

1. Cryogenic liquid tank
 - a. Refrigerated storage tanks=less than 15 psi
 - b. High pressure cryogenic tanks=greater than 15psi
2. Non-pressure tank (Atmospheric pressure=0-0.5 psi)
 - a. Horizontal tank
 - b. Cone roof tank
 - c. Floating roof tank
 - d. Covered floating roof tank
 - e. Floating roof with geodesic dome
 - f. Lifter roof tank
 - g. Vapor dome roof tank
 - h. Underground storage tanks
3. Pressure tank

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- a. Low Pressure (0.5-15 psi)
 - i. Vertical dome roof tanks
- b. High pressure (greater than 15 psi)
 - i. Horizontal pressure vessel
 - ii. Spherical pressure vessel
 - iii. Noded spheroid
 - iv. Underground high pressure

602-5.2.1.1.5 Given examples of the following non-bulk packaging, the operations level responder shall identify each package by type, as follows:

1. Bags
2. Carboys and Jerricans
3. Cylinders
4. Drums
 - a. Types
 - i. Open head
 - ii. Closed head
 - b. Construction Materials
 - i. Metal
 - ii. Plastic
 - iii. Fiberboard
 - iv. Other suitable materials
 - c. Fittings
 - i. Bungs
 - ii. Chime ring
5. Dewar flask (cryogenic liquids)

602-5.2.1.1.6 Given examples of the following radioactive material packages, the operations level responder shall identify the characteristics of each container or package by type, as follows:

1. Excepted
2. Industrial
3. Type A
4. Type B
5. Type C

602-5.2.1.2 Given examples of containers, the operations level responder shall identify the markings that differentiate one container from another.

1. DOT Placarding and Labeling System
2. UN Numbers
3. NFPA 704 Marking System
4. Hazardous Materials Identification System (HMIS)
5. Hazard Identification Codes (Intermodal Containers)
 - a. Also known as “hazard identification numbers,” or;
 - b. Kemler code

602-5.2.1.2.1 Given examples of the following marked transport vehicles and their corresponding shipping papers, the operations level responder shall identify the following vehicle or tank identification marking:

1. Highway transport vehicles, including cargo tanks
 - a. Company names and logos
 - b. Vehicle identification numbers
 - c. Manufacturer’s specification plate
2. Intermodal equipment, including tank containers
 - a. Reporting marks
 - b. Tank number
 - c. Specification markings
3. Rail transport vehicles, including tank cars
 - a. Standard transportation commodity code (STCC)
 - b. Commodity stencil
 - c. Reporting marks
 - d. Capacity stencil
 - e. Specification markings

602-5.2.1.2.2 Given examples of facility containers, the operations level responder shall identify the markings indicating container size, product contained, and/or site identification numbers.

1. NFPA 704 Marking System
2. Hazardous Materials Identification System (HMIS)
3. Facility specification markings
4. Manufacturer’s specification plate

602-5.2.1.3 Given examples of hazardous materials incidents, the operations level responder shall identify the name(s) of the hazardous material(s) in 5.2.1.3.1 through 5.2.1.3.3.

- 602-5.2.1.3.1** The operations level responder shall identify the following information on a pipeline marker:
1. Emergency telephone number
 2. Owner
 3. Product
- 602-5.2.1.3.1** Given a pesticide label, the operations level responder shall identify each of the following pieces of information, then match the piece of information to its significance in surveying hazardous materials incidents:
1. Active ingredient
 2. Hazard statement
 3. Name of pesticide
 4. EPA Registration Number (Pest Control Product (PCP) number in Canada)
 5. Precautionary statement
 6. Signal word
 - a. Poison/Danger
 - b. Warning
 - c. Caution
- 602-5.2.1.3.3** Given a label for a radioactive material, the operations level responder shall identify the type or category of label, contents, activity, transport index, and criticality safety index as applicable.
1. Radioactive White-I Label
 2. Radioactive Yellow-II Label
 3. Radioactive Yellow-III Label
- 602-5.2.1.3** The operations level responder shall identify and list the surrounding conditions that should be noted when a hazardous materials/WMD incident is surveyed.
1. Topography
 2. Land use
 3. Accessibility

4. Weather conditions
5. Bodies of water
6. Public exposure potential
7. Overhead and underground wires and pipelines
8. Storms and sewer drains
9. Possible ignition sources
10. Adjacent land use
11. Nature and extent of injuries
12. Building information
13. Ventilation ducts
14. Air returns

602-5.2.1.5 The operations level responder shall give examples of ways to verify information obtained from the survey of a hazardous materials/WMD incident.

1. CHEMTREC
2. MSDS
3. Emergency Response Guides
4. Shipping Papers
5. Online or computer-based data/programs

602-5.2.1.6 The operations level responder shall identify at least three additional hazards that could be associated with an incident involving terrorist or criminal activities.

1. Secondary events/devices intended to incapacitate or delay emergency responders
2. Armed resistance
3. Use of weapons
4. Booby traps
5. Secondary contamination from handling patients

602-5.2.2

Collecting Hazard and Response Information

Given scenarios involving known hazardous materials/WMD, the operations level responder shall collect hazard and response information using MSDS, CHEMTREC/CANUTEC/SETIQ, governmental authorities, and shippers and manufacturers and shall meet the following requirements:

1. Match the definitions associated with the UN/DOT hazard classes and divisions of hazardous materials/WMD, including refrigerated liquefied gases and cryogenic liquids, with the class or division.
2. Identify two ways to obtain an MSDS in an emergency.
 - a. Shipper
 - b. Manufacturer
 - c. CHEMTREC
 - d. Websites
3. Using an MSDS for a specified material, identify the following hazard and response information:
 - a. Physical and chemical characteristics
 - b. Physical hazards of the material
 - c. Health hazards of the material
 - d. Signs and symptoms of exposure
 - e. Routes of entry
 - f. Permissible exposure limits
 - g. Responsible party contact
 - h. Precautions for safe handling (including hygiene practices, protective measures, and procedures for cleanup of spills and leaks)
 - i. Applicable control measures, including personal protective equipment
 - j. Emergency and first-aid procedures
4. Identify the following:
 - a. Type of assistance provided by CHEMTREC/CANUTEC/SETIQ and governmental authorities
 - i. Immediate advice and shipper contact information
 - ii. Hazard information warnings and guidance
 - b. Procedure for contacting CHEMTREC/CANUTEC/SETIQ and governmental authorities
 - c. Information to be furnished to CHEMTREC/CANUTEC/SETIQ and governmental authorities
 - i. Responder organization name
 - ii. Location and nature of problem (spill, fire, etc.)
 - iii. Name and identification number of materials(s) involved
 - iv. Shipper/consignee/point of origin
 - v. Carrier name, rail car or truck number
 - vi. Container type and size
 - vii. Quantity of materials transported/released

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- viii. Local conditions (weather, terrain, proximity to schools, hospitals, waterways, etc.)
 - ix. Injuries and exposures
 - x. Local emergency service that have been notified
5. Identify two methods of contacting the manufacturer or shipper to obtain hazard and response information.
 - a. Shipping paper contact information
 - b. MSDS contact information
 - c. CHEMTREC
6. Identify the type of assistance provided by governmental authorities with respect to criminal or terrorist activities involving the release or potential release of hazardous materials/WMD.
 - a. Federal
 - i. DHS - Homeland Security Issues
 - ii. FBI - Crisis Management
 - iii. FEMA - Consequence Management
 - iv. EPA - Environmental Management
 - v. US Coast Guard - Navigable Waterway Management & Port Security
 - vi. DOD - Explosives, Munitions, Military Shipments Technical Assistance/Response
 - vii. ATF - Explosives Technical Assistance
 - b. State
 - i. DPS - District Disaster Chair (DDC)
 - ii. TDEM - Emergency Management
 - iii. TCEQ - Environmental Management
 - iv. TGLO - Water Quality
 - v. TRRC - Pipelines and Propane Storage
 - c. Local
 - i. Local emergency management
 - ii. Local fire department
 - iii. Local police department
 - iv. EMS providers
7. Identify the procedure for contacting local, state, and federal authorities as specified in the emergency response plan and/or standard operating procedures.
8. Describe the properties and characteristics of the following:
 - a. Alpha radiation
 - b. Beta radiation
 - c. Gamma radiation
 - d. Neutron radiation

602-5.2.3

Predicting the Likely Behavior of a Material and Its Container

Given scenarios involving hazardous materials/WMD incidents, each with a single hazardous material/WMD, the operations level responder shall predict

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

the likely behavior of the material or agent and its container and shall meet the following requirements:

1. Interpret the hazard and response information obtained from the current edition of the DOT *Emergency Response Guidebook*, MSDS, CHEMTREC/CANUTEC/SETIQ, governmental authorities, and shipper and manufacturer contacts, as follows:
 - a. Match the following chemical and physical properties with their significance and impact on the behavior of the container and its contents:
 - i. Boiling point
 - ii. Chemical reactivity
 - iii. Corrosivity (pH)
 - iv. Flammable (explosive) range
 - a) Lower Explosive Limit (LEL)
 - b) Upper Explosive Limit (UEL)
 - v. Flash point
 - vi. Ignition (autoignition) temperature
 - vii. Particle size
 - viii. Persistence
 - ix. Physical state (solid, liquid, gas)
 - x. Radiation (ionizing and non-ionizing)
 - xi. Specific gravity
 - xii. Toxic products of combustion
 - xiii. Vapor density
 - xiv. Vapor pressure
 - xv. Water solubility
 - b. Identify the differences between the following terms:
 - i. Contamination and secondary contamination
 - ii. Exposure and contamination
 - iii. Exposure and hazard
 - iv. Infectious and contagious
 - v. Acute effects and chronic effects
 - vi. Acute exposures and chronic exposures
2. Identify three types of stress that can cause a container system to release its contents.
 - a. Thermal
 - b. Mechanical
 - c. Chemical
3. Identify five ways in which containers can breach.
 - a. Disintegration
 - b. Runaway cracking
 - c. Closures opening up
 - d. Punctures
 - e. Tears or spills
4. Identify four ways in which containers can release their contents.

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- a. Detonation
 - b. Violent rupture
 - c. Rapid relief
 - d. Spill or leak
5. Identify at least four dispersion patterns that can be created upon release of a hazardous material.
- a. Hemisphere
 - b. Cloud
 - c. Plume
 - d. Cone
 - e. Stream
 - f. Pool
 - g. Irregular
6. Identify the time frames for estimating the duration that hazardous materials/WMD will present an exposure risk.
- a. Short term – minutes and hours
 - b. Medium term – days, weeks, months
 - c. Long term – years and generations
7. Identify the health and physical hazards that could cause harm.
- a. Thermal
 - b. Radiation
 - c. Asphyxiation
 - d. Chemical (i.e., poisons, corrosives)
 - e. Etiologic
 - f. Mechanical
 - g. Psychological/psychogenic
8. Identify the health hazards associated with the following terms:
- a. Alpha, beta, gamma, and neutron radiation
 - b. Asphyxiant
 - i. Simple
 - ii. Chemical
 - c. Carcinogen
 - d. Convulsant
 - e. Corrosive
 - f. Highly toxic
 - g. Irritant
 - h. Sensitizer, allergen
 - i. Target organ effects
 - i. Hepatotoxins
 - ii. Nephrotoxins
 - iii. Neurotoxins
 - iv. Mutagens
 - v. Teratogens
 - vi. Hematoxins
 - vii. Pneumotoxins

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- viii. Cutaneous hazards
 - ix. Eye hazards
 - j. Toxic
9. Given the following, identify the corresponding UN/DOT hazard class and division:
- a. Blood agents
 - b. Biological agents and biological toxins
 - c. Choking agents
 - d. Irritants (riot control agents)
 - e. Nerve agents
 - f. Radiological materials
 - g. Vesicants (blister agents)

602-5.2.4

Estimating Potential Harm

Given scenarios involving hazardous materials/WMD incidents, the operations level responder shall estimate the potential harm within the endangered area at each incident and shall meet the following requirements:

1. Identify a resource for determining the size of an endangered area of a hazardous materials/WMD incident.
2. Given the dimensions of the endangered area and the surrounding conditions at a hazardous materials/WMD incident, estimate the number and type of exposures within that endangered area.
3. Identify resources available for determining the concentrations of a released hazardous material/WMD within an endangered area.
4. Given the concentrations of the released material, identify the factors for determining the extent of physical, health, and safety hazards within the endangered area of a hazardous materials/WMD incident.
5. Describe the impact that time, distance, and shielding have on exposure to radioactive materials specific to the expected dose rate.

602-5.3

Core Competencies — Planning the Response

602-5.3.1

Describing Response Objectives

Given at least two scenarios involving hazardous materials/WMD incidents, the operations level responder shall describe the response objectives for each example and shall meet the following requirements:

1. Given an analysis of a hazardous materials/WMD incident and the exposures, determine the number of exposures that could be saved with the resources provided by the AHJ.
2. Given an analysis of a hazardous materials/WMD incident, describe the steps for determining response objectives.

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- a. Analyze the incident
 - b. Hazard analysis and risk assessment
 - c. Identify incident priorities
 - i. Life safety
 - ii. Incident stabilization
 - iii. Property preservation/environmental conservation
 - d. Develop Incident Objectives (SMART)
 - i. **S**pecific
 - ii. **M**easurable
 - iii. **A**ttainable
 - iv. **R**ealistic
 - v. **T**imely
 - e. Periodically reassess
3. Describe how to assess the risk to a responder for each hazard class in rescuing injured persons at a hazardous materials/WMD incident.
NOTE: the following classes are assessed using the TRACEM-P acronym
- a. Class 1-thermal, radiological, asphyxiation, chemical, etiological, mechanical
 - b. Class 2-thermal, asphyxiation, chemical, etiological, mechanical
 - c. Class 3-thermal, chemical, mechanical
 - d. Class 4-thermal, chemical, mechanical
 - e. Class 5-thermal, chemical, mechanical
 - f. Class 6-thermal, asphyxiation, chemical, etiological
 - g. Class 7-radiological, chemical
 - h. Class 8-thermal, chemical, mechanical
 - i. Class 9-thermal, radiological, asphyxiation, chemical, etiological, mechanical
4. Assess the potential for secondary attacks and devices at criminal or terrorist events.
- a. Human threats
 - b. Secondary devices
 - c. Multiple agency response
 - i. Fire
 - ii. Hazardous materials
 - iii. EMS
 - iv. Law Enforcement

602-5.3.2

Identifying Action Options

Given examples of hazardous materials/WMD incidents (facility and transportation), the operations level responder shall identify the options for each response objective and shall meet the following requirements:

1. Identify the options to accomplish a given response objective.
 - a. Evacuation
 - b. Recognition, identification, notification, isolation

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

2. Describe the prioritization of emergency medical care and removal of victims from the hazard area relative to exposure and contamination concerns.
 - a. Per AHJ
 - b. Per Medical Protocol

602-5.3.3

Determining Suitability of Personal Protective Equipment

Given examples of hazardous materials/WMD incidents, including the name of the hazardous material/WMD involved and the anticipated type of exposure, the operations level responder shall determine whether available personal protective equipment is applicable to performing assigned tasks and shall meet the following requirements:

1. Identify the respiratory protection required for a given response option and the following:
 - a. Describe the advantages, limitations, uses, and operational components of the following types of respiratory protection at hazardous materials/WMD incidents:
 - i. Positive pressure self-contained breathing apparatus (SCBA)
 - ii. Positive pressure air-line respirator with required escape unit
 - iii. Closed-circuit SCBA
 - iv. Powered air-purifying respirator (PAPR)
 - v. Air-purifying respirator (APR)
 - vi. Particulate respirator
 - b. Identify the required physical capabilities and limitations of personnel working in respiratory protection.
2. Identify the personal protective clothing required for a given option and the following:
 - a. Identify skin contact hazards encountered at hazardous materials/WMD incidents.
 - i. Burns
 - ii. Rash
 - iii. Absorption
 - b. Identify the purpose, advantages, and limitations of the following types of protective clothing at hazardous materials/WMD incidents:
 - i. Chemical-protective clothing: liquid splash-protective clothing and vapor-protective clothing
 - ii. High temperature-protective clothing: proximity suit and entry suits
 - iii. Structural fire-fighting protective clothing

602-5.3.4

Identifying Decontamination Issues

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

Given scenarios involving hazardous materials/WMD incidents, operations level responders shall identify when emergency decontamination is needed and shall meet the following requirements:

1. Identify ways that people, personal protective equipment, apparatus, tools, and equipment become contaminated.
2. Describe how the potential for secondary contamination determines the need for decontamination.
3. Explain the importance and limitations of decontamination procedures at hazardous materials incidents.
4. Identify the purpose of emergency decontamination procedures at hazardous materials incidents.
5. Identify the factors that should be considered in emergency decontamination.
6. Identify the advantages and limitations of emergency decontamination procedures.

602-5.4

Core Competencies — Implementing the Planned Response

602-5.4.1

Establishing and Enforcing Scene Control Procedures

Given two scenarios involving hazardous materials/WMD incidents, the operations level responder shall identify how to establish and enforce scene control, including control zones and emergency decontamination, and communications between responders and to the public and shall meet the following requirements:

1. Identify the procedures for establishing scene control through control zones.
2. Identify the criteria for determining the locations of the control zones at hazardous materials/WMD incidents.
3. Identify the basic techniques for the following protective actions at hazardous materials/WMD incidents:
 - a. Evacuation
 - b. Sheltering-in-place
4. Demonstrate the ability to perform emergency decontamination
5. Identify the items to be considered in a safety briefing prior to allowing personnel to work at the following:
 - a. Hazardous material incidents
 - i. Preliminary evaluation
 - ii. Hazard identification

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- iii. Description of site
 - iv. Task(s) to be performed
 - v. Length of time for task(s)
 - vi. Required personnel protective clothing
 - vii. Monitoring requirements
 - viii. Notification of identified risks
- b. Hazardous materials/WMD incidents involving criminal activities
6. Identify the procedures for ensuring coordinated communication between responders and to the public.

602-5.4.2

Preserving Evidence

Given two scenarios involving hazardous materials/WMD incidents, the operations level responder shall describe the process to preserve evidence as listed in the emergency response plan and/or standard operating procedures.

602-5.4.3

Initiating the Incident Command System

Given scenarios involving hazardous materials/WMD incidents, the operations level responder shall initiate the incident command system specified in the emergency response plan and/or standard operating procedures and shall meet 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 management system:
 - a. Incident Safety Officer
 - i. Obtains briefing from:
 - a) Incident Commander; or
 - b) Incident Safety Officer; and
 - c) Hazard Branch Director or Hazard Division/Group Supervisor
 - ii. Participates in:
 - a) Preparation of incident safety plan
 - b) Implementation of the incident safety plan; and
 - c) Medical monitoring of entry team personnel before and after entry
 - iii. Advises Incident Commander or Hazard Branch Director or Hazard Division/Group Supervisor of:

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- a) Deviations from the incident safety plan
 - b) Dangerous or unsafe activities
 - iv. Alters, suspends, or terminates any operation that is considered unsafe
 - 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 response objectives of other agencies that respond to hazardous materials/WMD incidents.

602-5.4.4 **Using Personal Protective Equipment**

The operations level responder shall describe considerations for the use of personal protective equipment provided by the AHJ, and shall meet the following requirements:

1. Identify the importance of the buddy system.
2. Identify the importance of the backup personnel.
3. Identify the safety precautions to be observed when approaching and working at hazardous materials/WMD incidents.
4. Identify the signs and symptoms of heat and cold stress and procedures for their control.
5. Identify the capabilities and limitations of personnel working in the personal protective equipment provided by the AHJ.
6. Identify the procedures for cleaning, disinfecting, and inspecting personal protective equipment provided by the AHJ.
7. Describe the maintenance, testing, inspection, and storage procedures for personal protective equipment provided by the AHJ according to the manufacturer's specifications and recommendations.

602-5.5 **Core Competencies — Evaluating Progress**

602-5.5.1 **Evaluating the Status of Planned Response**

Given two scenarios involving hazardous materials/WMD incidents, including the incident action plan, the operations level responder shall evaluate the status of the actions taken in accomplishing the response objectives and shall meet the following requirements:

1. Identify the considerations for evaluating whether actions taken were effective in accomplishing the objectives.
 - a. Incident stabilized
 - b. Incident increasing in intensity
2. Describe the circumstances under which it would be prudent to withdraw from a hazardous materials/WMD incident.

602-5.5.2

Communicating the Status of the Planned Response

Given two scenarios involving hazardous materials/WMD incidents, including the incident action plan, the operations level responder shall communicate the status of the planned response through the normal chain of command and shall meet the following requirements:

1. Identify the methods for communicating the status of the planned response through the normal chain of command.
2. Identify the methods for immediate notification of the incident commander and other response personnel about critical emergency conditions at the incident.

602-5.6

Competencies — Terminating the Incident (Reserved)

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

CERTIFICATION CURRICULUM MANUAL – CHAPTER SIX

HAZARDOUS MATERIALS OPERATIONS – MISSION SPECIFIC COMPETENCIES

REFERENCE LIST FOR THE HAZARDOUS MATERIALS OPERATIONS - MISSION SPECIFIC COMPETENCIES 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

Texts

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.

Essentials of Fire Fighting and Fire Department Operations, 5th edition. International Fire Service Training Association. (2008). Stillwater, OK: Fire Protection Publications, Oklahoma State University.

Fire Fighter's Handbook of Hazardous Materials, 7th edition. Baker, Charles T., (2006). Sudbury, MA: Jones and Bartlett.

Firefighter's Handbook: Essentials of Firefighting and Emergency Response, 3rd edition. Delmar Publishers. (2008). Clifton Park, NY: Delmar, Cengage Learning.

Fundamentals of Fire Fighter Skills, 2nd edition. International Association of Fire Chiefs, & National Fire Protection Association. (2008). Sudbury, MA: Jones and Bartlett.

Hazardous Materials Awareness and Operations. DeBobes, L. J. (2009). Sudbury, MA: Jones & Bartlett.

Hazardous Materials for First Responders, 3rd edition. Adams, B., & Miller, L. A. (2004). Stillwater, OK: Fire Protection Publications, Oklahoma State University.

Hazardous Materials: Managing the Incident. Chester Noll, G. G., Hildebrand, M. S., & Yvorra, J. G. (2005). MD: Red Hat Publishing, Inc.

Hazardous Materials/Weapons of Mass Destruction Response Handbook, 5th edition. Trebisacci, D. G. (2008). Quincy, MA: National Fire Protection Association.

NFPA 472: Standard for Professional Competence of Responders to Hazardous Materials Incidents. (2008). 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.

Texts

Bretherick's Handbook of Reactive Chemical Hazards. Urben, P. G., Pitt, M. J., & Bretherick, L. (2007). Amsterdam: Elsevier.

Chlorine Emergencies: An Overview for First Responders. Chlorine Institute. (2007). Arlington, VA: The Chlorine Institute.

CHRIS: Chemical Hazards Response Information System. United States. (1992). COMDTINST, M16465.11B. Washington, DC: U.S. Dept. of Transportation, U.S. Coast Guard.

Emergency Care for Hazardous Materials Exposure. Currance, P., Bronstein, A. C., & Clements, B. (2005). St. Louis, MO: Mosby.

Emergency Handling of Hazardous Materials in Surface Transportation. Association of American Railroads. (2009). Washington, DC: Association of American Railroads.

Field Guide to Tank Car Identification. Association of American Railroads. (2009). Washington, DC: Association of American Railroads.

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

Hawley's Condensed Chemical Dictionary. Lewis, R. J., & Hawley, G. G. (2007). West Sussex: Wiley.

Hazardous Materials Air Monitoring and Detection Devices. Hawley, C. (2002). Albany, NY: Delmar/Thomson Learning.

Hazardous Materials Field Guide, 2nd edition. Bevelacqua, A. S., & Stilp, R. H. (2007). Albany, NY: Delmar Publications.

Hazardous Materials: Managing the Incident Field Operations Guide. Chester Bevelacqua, A. S., Hildebrand, M. S., & Noll, G. G. (2005). MD: Red Hat Publishing, Inc.

How to Use the Chlorine Institute Emergency Kit "A" for 100 lb. and 150 lb. Chlorine Cylinders. Chlorine Institute. (1996). New York, NY: The Chlorine Institute.

How to Use the Chlorine Institute Emergency Kit "B" for Chlorine Ton Containers. Chlorine Institute. (1988). New York, NY: The Chlorine Institute.

How to Use the Chlorine Institute Emergency Kit "C" for Chlorine Tank Cars and Tank Trucks. Chlorine Institute. (1993). New York, NY: The Chlorine Institute.

Symbol Seeker: Hazard Identification Manual. Burns, P. P. (2002). Preston, England: Symbol Seeker.

Media

Hazardous Materials Containment Series. Action Training Systems. [4 Disc DVD Set] Hazardous materials containment - series of 4 titles. Seattle, WA: Action Training Systems.

Hazardous Materials: Managing the Incident DVD Series. Massingham, G., Noll, G. G., Hildebrand, M. S., & Noll, G. G. (2005). [8 Disc DVD Set] Edgartown, MA: Emergency Film Group.

CHAPTER 6
SECTION 603
HAZARDOUS MATERIALS OPERATIONS - MISSION SPECIFIC COMPETENCIES
CURRICULUM OUTLINES

SECTION	SUBJECT	RECOMMENDED HOURS
603-6.1	General - Introduction - Laws, Regulations, and National Consensus Standards	1
603-6.2	Mission Specific Competencies: Personal Protective Equipment	8
603-6.3	Mission Specific Competencies: Mass Decontamination	8
603-6.4	Mission Specific Competencies: Technical Decontamination	8
603-6.5	Mission Specific Competencies: Evidence Preservation and Sampling	8
603-6.6	Mission Specific Competencies: Product Control	8
603-6.7	Mission Specific Competencies: Air Monitoring and Sampling	8
603-6.8	Mission Specific Competencies: Victim Rescue and Recovery	8
603-6.9	Mission Specific Competencies: Response to Illicit Laboratory Incidents	16

Mission Specific - Personal Protective Equipment		
SECTION	SUBJECT	RECOMMENDED HOURS
603-6.2	Mission Specific Competencies: Personal Protective Equipment	
603-6.2.1	General - Introduction - Laws, Regulations, and National Consensus Standards	1
603-6.2.2	Analyzing the Incident - Reserved - None Required at this Level	
603-6.2.3	Planning the Response	3
603-6.2.4	Implementing the Planned Response	3
603-6.2.5	Terminating the Incident	1
	TOTAL RECOMMENDED HOURS	8

Mission Specific - Mass Decontamination		
SECTION	SUBJECT	RECOMMENDED HOURS
603-6.3	Mission Specific Competencies: Mass Decontamination	
603-6.3.1	General - Introduction - Laws, Regulations, and National Consensus Standards	1
603-6.3.2	Analyzing the Incident - Reserved - None Required at this Level	
603-6.3.3	Planning the Response	2
603-6.3.4	Implementing the Planned Response	3
603-6.3.5	Evaluating Progress	1
603-6.3.6	Terminating the Incident	1
	TOTAL RECOMMENDED HOURS	8

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

Mission Specific - Technical Decontamination		
SECTION	SUBJECT	RECOMMENDED HOURS
603-6.4	Mission Specific Competencies: Technical Decontamination	
603-6.4.1	General - Introduction - Laws, Regulations, and National Consensus Standards	1
603-6.4.2	Analyzing the Incident - Reserved - None Required at this Level	
603-6.4.3	Planning the Response	2
603-6.4.4	Implementing the Planned Response	3
603-6.4.5	Evaluating Progress	1
603-6.4.6	Terminating the Incident	1
	TOTAL RECOMMENDED HOURS	8

Mission Specific – Evidence Preservation and Sampling		
SECTION	SUBJECT	RECOMMENDED HOURS
603-6.5	Mission Specific Competencies: Evidence Preservation and Sampling	
603-6.5.1	General - Introduction - Laws, Regulations, and National Consensus Standards	1
603-6.5.2	Analyzing the Incident	1
603-6.5.3	Planning the Response	2
603-6.5.4	Implementing the Planned Response	4
603-6.5.5	Evaluating Progress - Reserved - None Required at this Level	
603-6.5.6	Terminating the Incident - Reserved - None Required at this Level	
	TOTAL RECOMMENDED HOURS	8

Mission Specific – Product Control		
SECTION	SUBJECT	RECOMMENDED HOURS
603-6.6	Mission Specific Competencies: Product Control	
603-6.6.1	General - Introduction - Laws, Regulations, and National Consensus Standards	1
603-6.6.2	Analyzing the Incident - Reserved - None Required at this Level	
603-6.6.3	Planning the Response	2
603-6.6.4	Implementing the Planned Response	5
603-6.6.5	Evaluating Progress - Reserved - None Required at this Level	
603-6.6.6	Terminating the Incident - Reserved - None Required at this Level	
	TOTAL RECOMMENDED HOURS	8

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

Mission Specific - Air Monitoring and Sampling		
SECTION	SUBJECT	RECOMMENDED HOURS
603-6.7	Mission Specific Competencies: Air Monitoring and Sampling	
603-6.7.1	General - Introduction - Laws, Regulations, and National Consensus Standards	1
603-6.7.2	Analyzing the Incident - Reserved - None Required at this Level	
603-6.7.3	Planning the Response	4
603-6.7.4	Implementing the Planned Response	3
603-6.7.5	Evaluating Progress - Reserved - None Required at this Level	
603-6.7.6	Terminating the Incident - Reserved - None Required at this Level	
TOTAL RECOMMENDED HOURS		8

Mission Specific – Victim Rescue and Recovery		
SECTION	SUBJECT	RECOMMENDED HOURS
603-6.8	Mission Specific Competencies: Victim Rescue and Recovery	
603-6.8.1	General - Introduction - Laws, Regulations, and National Consensus Standards	1
603-6.8.2	Analyzing the Incident - Reserved - None Required at this Level	
603-6.8.3	Planning the Response	3
603-6.8.4	Implementing the Planned Response	4
603-6.8.5	Evaluating Progress - Reserved - None Required at this Level	
603-6.8.6	Terminating the Incident - Reserved - None Required at this Level	
TOTAL RECOMMENDED HOURS		8

Mission Specific – Response to Illicit Laboratory Incidents		
SECTION	SUBJECT	RECOMMENDED HOURS
603-6.9	Mission Specific Competencies: Response to Illicit Laboratory Incidents	
603-6.9.1	General - Introduction - Laws, Regulations, and National Consensus Standards	1
603-6.9.2	Analyzing the Incident	4
603-6.9.3	Planning the Response	6
603-6.9.4	Implementing the Planned Response	5
603-6.9.5	Evaluating Progress - Reserved - None Required at this Level	
603-6.9.6	Terminating the Incident - Reserved - None Required at this Level	
TOTAL RECOMMENDED HOURS		16

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

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

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*. Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

SECTION 603

HAZARDOUS MATERIALS OPERATIONS

MISSION SPECIFIC COMPETENCIES

Hazardous Materials Operations – Mission Specific Competencies are optional job performance requirements (JPRs) which may be adopted by the authority having jurisdiction (AHJ). These JPRs may 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):

- Use personal protective equipment, as provided by the AHJ
- Perform technical decontamination
- Perform mass decontamination
- Perform product control
- Perform air monitoring and sampling
- Perform victim rescue and recovery operations
- Evidence preservation and sampling
- 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.

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.**

This is in accordance with the competency requirements of *NFPA 1001: Standard for Fire Fighter Professional Qualifications 2008 Ed.*, the *TCFP Standards Manual* and the *TCFP Curriculum Manual*.

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

603-6.1

General

603-6.1.1

Introduction

603-6.1.1.1

This chapter shall address competencies for the following operations level responders assigned mission-specific responsibilities at hazardous materials/WMD incidents by the authority having jurisdiction beyond the core competencies at the operations level (Section 602):

1. Operations level responders assigned to use personal protective equipment
2. Operations level responders assigned to perform mass decontamination
3. Operations level responders assigned to perform technical decontamination
4. Operations level responders assigned to perform evidence preservation and sampling
5. Operations level responders assigned to perform product control
6. Operations level responders assigned to perform air monitoring and sampling
7. Operations level responders assigned to perform victim rescue/recovery
8. Operations level responders assigned to respond to illicit laboratory incidents

603-6.1.1.2

The operations level responder who is assigned mission-specific responsibilities at hazardous materials/WMD incidents shall be trained to meet all competencies at the awareness level (Section 601), all core competencies at the operations level (Section 602), and all competencies for the assigned responsibilities in the applicable section(s) in this chapter.

603-6.1.1.3

The operations level responder who is assigned mission-specific responsibilities at hazardous materials/WMD incidents shall receive additional training to meet applicable governmental occupational health and safety regulations.

603-6.1.1.4

The operations level responder who is 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.

603-6.1.1.5 The development of assigned mission-specific knowledge and skills shall be based on the tools, equipment, and procedures provided by the AHJ for the mission-specific responsibilities assigned.

603-6.1.2 **Goal**

The goal of the competencies in this chapter shall be to provide the operations level responder assigned mission-specific responsibilities at hazardous materials/WMD incidents by the AHJ with the knowledge and skills to perform the assigned mission-specific responsibilities safely and effectively.

603-6.1.3 **Mandating of Competencies**

This standard shall not mandate that the response organizations perform mission-specific responsibilities.

603-6.1.3.1 Operations level responders assigned mission-specific responsibilities at hazardous materials/WMD incidents, operating within the scope of their training in this chapter, shall be able to perform their assigned mission-specific responsibilities.

603-6.1.3.2 If a response organization desires to train some or all of its operations level responders to perform mission-specific responsibilities at hazardous materials/WMD incidents, the minimum required competencies shall be as set out in this chapter.

603-6.2 **Mission-Specific Competencies: Personal Protective Equipment**

603-6.2.1 **General**

603-6.2.1.1 **Introduction**

603-6.2.1.1.1 The operations level responder assigned to use personal protective equipment shall be that person, competent at the operations level, who is assigned to use of personal protective equipment at hazardous materials/WMD incidents.

603-6.2.1.1.2 The operations level responder assigned to use personal protective equipment at hazardous materials/WMD incidents shall be trained to meet all competencies at the awareness level (Section 601), all core competencies at the operations level (Section 602), and all competencies in this section.

603-6.2.1.1.3 The operations level responder assigned to use personal protective equipment at hazardous materials/WMD incidents shall operate under the guidance of a hazardous materials technician, an allied professional, or standard operating procedures.

603-6.2.1.1.4 The operations level responder assigned to use personal protective equipment shall receive the additional training necessary to meet specific needs of the jurisdiction.

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

603-6.2.1.2

Goal

The goal of the competencies in this section shall be to provide the operations level responder assigned to use personal protective equipment with the knowledge and skills to perform the following tasks safely and effectively:

1. Plan a response within the capabilities of personal protective equipment provided by the AHJ in order to perform mission specific tasks assigned.
2. Implement the planned response consistent with the standard operating procedures and site safety and control plan by donning, working in, and doffing personal protective equipment provided by the AHJ.
3. Terminate the incident by completing the reports and documentation pertaining to personal protective equipment.

603-6.2.2

Competencies — Analyzing the Incident (Reserved)

603-6.2.3

Competencies — Planning the Response

603-6.2.3.1

Selecting Personal Protective Equipment

Given scenarios involving hazardous materials/WMD incidents with known and unknown hazardous materials/WMD, the operations level responder assigned to use personal protective equipment shall select the personal protective equipment required to support mission-specific tasks at hazardous materials/WMD incidents based on local procedures and shall meet the following requirements:

1. Describe the types of protective clothing and equipment that are available for response based on NFPA standards and how these items relate to EPA levels of protection.
2. Describe personal protective equipment options for the following hazards:
 - a. Thermal
 - b. Radiological
 - c. Asphyxiating
 - d. Chemical
 - e. Etiological/biological
 - f. Mechanical
3. Select personal protective equipment for mission-specific tasks at hazardous materials/WMD incidents based on local procedures.
 - a. Describe the following terms and explain their impact and significance on the selection of chemical-protective clothing:
 - i. Degradation

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- ii. Penetration
- iii. Permeation
- b. Identify at least three indications of material degradation of chemical-protective clothing.
- c. Identify the different designs of vapor-protective and splash-protective clothing and describe the advantages and disadvantages of each type.
- d. Identify the relative advantages and disadvantages of the following heat exchange units used for the cooling of personnel operating in personal protective equipment:
 - i. Air cooled
 - ii. Ice cooled
 - iii. Water cooled
 - iv. Phase change cooling technology
- e. Identify the physiological and psychological stresses that can affect users of personal protective equipment.
- f. Describe local procedures for going through the technical decontamination process.

603-6.2.4

Competencies — Implementing the Planned Response

603-6.2.4.1

Using Protective Clothing and Respiratory Protection

Given the personal protective equipment provided by the AHJ, the operations level responder assigned to use personal protective equipment shall demonstrate the ability to don, work in, and doff the equipment provided to support mission-specific tasks and shall meet the following requirements:

1. Describe at least three safety procedures for personnel wearing protective clothing.
2. Describe at least three emergency procedures for personnel wearing protective clothing.
3. Demonstrate the ability to don, work in, and doff personal protective equipment provided by the AHJ.
4. Demonstrate local procedures for responders undergoing the technical decontamination process.
5. Describe the maintenance, testing, inspection, storage, and documentation procedures for personal protective equipment provided by the AHJ according to the manufacturer's specifications and recommendations.

603-6.2.5

Competencies — Terminating the Incident

603-6.2.5.1

Reporting and Documenting the Incident

Given a scenario involving a hazardous materials/WMD incident, the operations level responder assigned to use personal protective equipment

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

shall identify and complete the reporting and documentation requirements consistent with the emergency response plan or standard operating procedures regarding personal protective equipment.

603-6.3 **Mission-Specific Competencies: Mass Decontamination**

603-6.3.1 **General**

603-6.3.1.1 **Introduction**

603-6.3.1.1.1 The operations level responder assigned to perform mass decontamination at hazardous materials/WMD incidents shall be that person, competent at the operations level, who is assigned to implement mass decontamination operations at hazardous materials/WMD incidents.

603-6.3.1.1.2 The operations level responder assigned to perform mass decontamination at hazardous materials/WMD incidents shall be trained to meet all competencies at the awareness level (Section 601), all core competencies at the operations level (Section 602), all mission-specific competencies for personal protective equipment (Section 603-6.2), and all competencies in this section.

603-6.3.1.1.3 The operations level responder assigned to perform mass decontamination at hazardous materials/WMD incidents shall operate under the guidance of a hazardous materials technician, an allied professional, or standard operating procedures.

603-6.3.1.1.4 The operations level responder assigned to perform mass decontamination at hazardous materials/WMD incidents shall receive the additional training necessary to meet specific needs of the jurisdiction.

603-6.3.1.2 **Goal**

603-6.3.1.2.1 The goal of the competencies in this section shall be to provide the operations level responder assigned to perform mass decontamination at hazardous materials/WMD incidents with the knowledge and skills to perform the tasks in 6.3.1.2.2 safely and effectively.

603-6.3.1.2.2 When responding to hazardous materials/WMD incidents, the operations level responder assigned to perform mass decontamination shall be able to perform the following tasks:

1. Plan a response within the capabilities of available personnel, personal protective equipment, and control equipment by selecting a mass decontamination process to minimize the hazard.
2. Implement the planned response to favorably change the outcomes consistent with standard operating procedures and the site safety and control plan by completing the following tasks:

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- a. Perform the decontamination duties as assigned.
 - b. Perform the mass decontamination functions identified in the incident action plan.
3. Evaluate the progress of the planned response by evaluating the effectiveness of the mass decontamination process.
 4. Terminate the incident by providing reports and documentation of decontamination operations.

603-6.3.2 **Competencies — Analyzing the Incident (Reserved)**

603-6.3.3 **Competencies — Planning the Response**

603-6.3.3.1 **Selecting Personal Protective Equipment**

Given an emergency response plan or standard operating procedures, the operations level responder assigned to mass decontamination shall select the personal protective equipment required to support mass decontamination at hazardous materials/WMD incidents based on local procedures (see *Section 603-6.2*).

603-6.3.3.2 **Selecting Decontamination Procedures**

Given scenarios involving hazardous materials/WMD incidents, the operations level responder assigned to mass decontamination operations shall select a mass decontamination procedure that will minimize the hazard and spread of contamination, determine the equipment required to implement that procedure, and meet the following requirements:

1. Identify the advantages and limitations of mass decontamination operations.
2. Describe the advantages and limitations of each of the following mass decontamination methods:
 - a. Dilution
 - b. Isolation
 - c. Washing
3. Identify sources of information for determining the correct mass decontamination procedure and identify how to access those resources in a hazardous materials/WMD incident.
4. Given resources provided by the AHJ, identify the supplies and equipment required to set up and implement mass decontamination operations.
5. Identify procedures, equipment, and safety precautions for communicating with crowds and crowd management techniques that can be used at incidents where a large number of people might be contaminated.

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

603-6.3.4 **Competencies — Implementing the Planned Response**

603-6.3.4.1 **Performing Incident Management Duties**

Given a scenario involving a hazardous materials/WMD incident and the emergency response plan or standard operating procedures, the operations level responder assigned to mass decontamination operations shall demonstrate the mass decontamination duties assigned in the incident action plan by describing the local procedures for the implementation of the mass decontamination function within the incident command system.

603-6.3.4.2 **Performing Decontamination Operations Identified in Incident Action Plan**

The operations level responder assigned to mass decontamination operations shall demonstrate the ability to set up and implement mass decontamination operations for ambulatory and nonambulatory victims.

603-6.3.5 **Competencies — Evaluating Progress**

603-6.3.5.1 **Evaluating the Effectiveness of the Mass Decontamination Process**

Given examples of contaminated items that have undergone the required decontamination, the operations level responder assigned to mass decontamination operations shall identify procedures for determining whether the items have been fully decontaminated according to the standard operating procedures of the AHJ or the incident action plan.

603-6.3.6 **Competencies — Terminating the Incident**

603-6.3.6.1 **Reporting and Documenting the Incident**

Given a scenario involving a hazardous materials/WMD incident, the operations level responder assigned to mass decontamination operations shall complete the reporting and documentation requirements consistent with the emergency response plan or standard operating procedures and shall meet the following requirements:

1. Identify the reports and supporting documentation required by the emergency response plan or standard operating procedures.
2. Describe the importance of personnel exposure records.
3. Identify the steps in keeping an activity log and exposure records.
4. Identify the requirements for filing documents and maintaining records.

603-6.4 **Mission-Specific Competencies: Technical Decontamination**

603-6.4.1 **General**

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

603-6.4.1.1 **Introduction**

603-6.4.1.1.1 The operations level responder assigned to perform technical decontamination at hazardous materials/WMD incidents shall be that person, competent at the operations level, who is assigned to implement technical decontamination operations at hazardous materials/WMD incidents.

603-6.4.1.1.2 The operations level responder assigned to perform technical decontamination at hazardous materials/WMD incidents shall be trained to meet all competencies at the awareness level (Section 601), all core competencies at the operations level (Section 602), all mission-specific competencies for personal protective equipment (Section 603-6.2), and all competencies in this section.

603-6.4.1.1.3 The operations level responder assigned to perform technical decontamination at hazardous materials/WMD incidents shall operate under the guidance of a hazardous materials technician, an allied professional, or standard operating procedures.

603-6.4.1.1.4 The operations level responder assigned to perform technical decontamination at hazardous materials/WMD incidents shall receive the additional training necessary to meet specific needs of the jurisdiction.

603-6.4.1.2 **Goal**

603-6.4.1.2.1 The goal of the competencies in this section shall be to provide the operations level responder assigned to perform technical decontamination at hazardous materials/WMD incidents with the knowledge and skills to perform the tasks in 6.4.1.2.2 safely and effectively.

603-6.4.1.2.2 When responding to hazardous materials/WMD incidents, the operations level responder assigned to perform technical decontamination shall be able to perform the following tasks:

1. Plan a response within the capabilities of available personnel, personal protective equipment, and control equipment by selecting a technical decontamination process to minimize the hazard.
2. Implement the planned response to favorably change the outcomes consistent with standard operating procedures and the site safety and control plan by completing the following tasks:
 - a. Perform the technical decontamination duties as assigned.
 - b. Perform the technical decontamination functions identified in the incident action plan.
3. Evaluate the progress of the planned response by evaluating the effectiveness of the technical decontamination process.

4. Terminate the incident by completing the providing reports and documentation of decontamination operations.

603-6.4.2 **Competencies — Analyzing the Incident (Reserved)**

603-6.4.3 **Competencies — Planning the Response**

603-6.4.3.1 **Selecting Personal Protective Equipment**

Given an emergency response plan or standard operating procedures, the operations level responder assigned to technical decontamination operations shall select the personal protective equipment required to support technical decontamination at hazardous materials/WMD incidents based on local procedures (see Section 603-6.2).

603-6.4.3.2 **Selecting Decontamination Procedures**

Given scenarios involving hazardous materials/WMD incidents, the operations level responder assigned to technical decontamination operations shall select a technical decontamination procedure that will minimize the hazard and spread of contamination and determine the equipment required to implement that procedure and shall meet the following requirements:

1. Identify the advantages and limitations of technical decontamination operations.
2. Describe the advantages and limitations of each of the following technical decontamination methods:
 - a. Absorption
 - b. Adsorption
 - c. Chemical degradation
 - d. Dilution
 - e. Disinfection
 - f. Evaporation
 - g. Isolation and disposal
 - h. Neutralization
 - i. Solidification
 - j. Sterilization
 - k. Vacuuming
 - l. Washing
3. Identify sources of information for determining the correct technical decontamination procedure and identify how to access those resources in a hazardous materials/WMD incident.
4. Given resources provided by the AHJ, identify the supplies and equipment required to set up and implement technical decontamination operations.

5. Identify the procedures, equipment, and safety precautions for processing evidence during technical decontamination operations at hazardous materials/WMD incidents.
6. Identify procedures, equipment, and safety precautions for handling tools, equipment, weapons, criminal suspects, and law enforcement/search canines brought to the decontamination corridor at hazardous materials/WMD incidents.

603-6.4.4 **Competencies — Implementing the Planned Response**

603-6.4.4.1 **Performing Incident Management Duties**

Given a scenario involving a hazardous materials/WMD incident and the emergency response plan or standard operating procedures, the operations level responder assigned to technical decontamination operations shall demonstrate the technical decontamination duties assigned in the incident action plan and shall meet the following requirements:

1. Identify the role of the operations level responder assigned to technical decontamination operations during hazardous materials/WMD incidents.
2. Describe the procedures for implementing technical decontamination operations within the incident command system.

603-6.4.4.2 **Performing Decontamination Operations Identified in Incident Action Plan**

The responder assigned to technical decontamination operations shall demonstrate the ability to set up and implement the following types of decontamination operations:

1. Technical decontamination operations in support of entry operations
2. Technical decontamination operations for ambulatory and nonambulatory victims

603-6.4.5 **Competencies — Evaluating Progress**

603-6.4.5.1 **Evaluating the Effectiveness of the Technical Decontamination Process**

Given examples of contaminated items that have undergone the required decontamination, the operations level responder assigned to technical decontamination operations shall identify procedures for determining whether the items have been fully decontaminated according to the standard operating procedures of the AHJ or the incident action plan.

603-6.4.6 **Competencies — Terminating the Incident**

603-6.4.6.1 **Reporting and Documenting the Incident**

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

Given a scenario involving a hazardous materials/WMD incident, the operations level responder assigned to technical decontamination operations shall complete the reporting and documentation requirements consistent with the emergency response plan or standard operating procedures and shall meet the following requirements:

1. Identify the reports and supporting technical documentation required by the emergency response plan or standard operating procedures.
2. Describe the importance of personnel exposure records.
3. Identify the steps in keeping an activity log and exposure records.
4. Identify the requirements for filing documents and maintaining records.

603-6.5 **Mission-Specific Competencies: Evidence Preservation and Sampling**

603-6.5.1 **General**

603-6.5.1.1 **Introduction**

603-6.5.1.1.1 The operations level responder assigned to perform evidence preservation and sampling shall be that person, competent at the operations level, who is assigned to preserve forensic evidence, take samples, and/or seize evidence at hazardous materials/WMD incidents involving potential violations of criminal statutes or governmental regulations.

603-6.5.1.1.2 The operations level responder assigned to perform evidence preservation and sampling at hazardous materials/WMD incidents shall be trained to meet all competencies at the awareness level (Section 601), all core competencies at the operations level (Section 602), all mission-specific competencies for personal protective equipment (Section 603-6.2), and all competencies in this section.

603-6.5.1.1.3 The operations level responder assigned to perform evidence preservation and sampling at hazardous materials/WMD incidents shall operate under the guidance of a hazardous materials technician, an allied professional, or standard operating procedures.

603-6.5.1.1.4 The operations level responder assigned to perform evidence preservation and sampling at hazardous materials/WMD incidents shall receive the additional training necessary to meet specific needs of the jurisdiction.

603-6.5.1.2 **Goal**

603-6.5.1.2.1 The goal of the competencies in this section shall be to provide the operations level responder assigned to evidence preservation and sampling

at hazardous materials/WMD incidents with the knowledge and skills to perform the tasks in 6.5.1.2.2 safely and effectively.

603-6.5.1.2.2

When responding to hazardous materials/WMD incidents involving potential violations of criminal statutes or governmental regulations, the operations level responder assigned to perform evidence preservation and sampling shall be able to perform the following tasks:

1. Analyze a hazardous materials/WMD incident to determine the complexity of the problem and potential outcomes by completing the following tasks:
 - a. Determine if the incident is potentially criminal in nature and identify the law enforcement agency having investigative jurisdiction.
 - b. Identify unique aspects of criminal hazardous materials/WMD incidents.
2. Plan a response for an incident where there is potential criminal intent involving hazardous materials/WMD within the capabilities and competencies of available personnel, personal protective equipment, and control equipment by completing the following tasks:
 - a. Determine the response options to conduct sampling and evidence preservation operations.
 - b. Describe how the options are within the legal authorities, capabilities, and competencies of available personnel, personal protective equipment, and control equipment.
3. Implement the planned response to a hazardous materials/WMD incident involving potential violations of criminal statutes or governmental regulations by completing the following tasks under the guidance of law enforcement:
 - a. Preserve forensic evidence.
 - b. Take samples.
 - c. Seize evidence.

603-6.5.2 **Competencies — Analyzing the Incident**

603-6.5.2.1 **Determining If the Incident Is Potentially Criminal in Nature and Identifying the Law Enforcement Agency That Has Investigative Jurisdiction**

Given examples of hazardous materials/WMD incidents involving potential criminal intent, the operations level responder assigned to evidence preservation and sampling shall describe the potential criminal violation and identify the law enforcement agency having investigative jurisdiction and shall meet the following requirements:

1. Given examples of the following hazardous materials/WMD incidents, the operations level responder shall describe products that might be encountered in the incident associated with each situation:

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- a. Hazardous materials/WMD suspicious letter
 - b. Hazardous materials/WMD suspicious package
 - c. Hazardous materials/WMD illicit laboratory
 - d. Release/attack with a WMD agent
 - e. Environmental crimes
2. Given examples of the following hazardous materials/WMD incidents, the operations level responder shall identify the agency(s) with investigative authority and the incident response considerations associated with each situation:
- a. Hazardous materials/WMD suspicious letter
 - b. Hazardous materials/WMD suspicious package
 - c. Hazardous materials/WMD illicit laboratory
 - d. Release/attack with a WMD agent
 - e. Environmental crimes

603-6.5.3

Competencies — Planning the Response

603-6.5.3.1

Identifying Unique Aspects of Criminal Hazardous Materials/WMD Incidents

The operations level responder assigned to evidence preservation and sampling shall be capable of identifying the unique aspects associated with illicit laboratories, hazardous materials/WMD incidents, and environmental crimes and shall meet the following requirements:

1. Given an incident involving illicit laboratories, a hazardous materials/WMD incident, or an environmental crime, the operations level responder shall perform the following tasks:
 - a. Describe the procedure to secure, characterize, and preserve the scene.
 - b. Describe the procedure to document personnel and scene activities associated with the incident.
 - c. Describe the procedure to determine whether the operations level responders are within their legal authority to perform evidence preservation and sampling tasks.
 - d. Describe the procedure to notify the agency with investigative authority.
 - e. Describe the procedure to notify the explosive ordnance disposal (EOD) personnel.
 - f. Identify potential sample/evidence.
 - g. Identify the applicable sampling equipment.
 - h. Describe the procedures to protect samples and evidence from secondary contamination.
 - i. Describe documentation procedures.
 - j. Describe evidentiary sampling techniques.
 - k. Describe field screening protocols for collected samples and evidence.
 - l. Describe evidence labeling and packaging procedures.
 - m. Describe evidence decontamination procedures.

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- n. Describe evidence packaging procedures for evidence transportation.
 - o. Describe chain-of-custody procedures.
2. Given an example of an illicit laboratory, the operations level responder assigned to evidence preservation and sampling shall be able to perform the following tasks:
 - a. Describe the hazards, safety procedures, decontamination, and tactical guidelines for this type of incident.
 - b. Describe the factors to be evaluated in selecting the personal protective equipment, sampling equipment, detection devices, and sample and evidence packaging and transport containers.
 - c. Describe the sampling options associated with liquid and solid sample and evidence collection.
 - d. Describe the field screening protocols for collected samples and evidence.
 3. Given an example of an environmental crime, the operations level responder assigned to evidence preservation and sampling shall be able to perform the following tasks:
 - a. Describe the hazards, safety procedures, decontamination, and tactical guidelines for this type of incident.
 - b. Describe the factors to be evaluated in selecting the personal protective equipment, sampling equipment, detection devices, and sample and evidence packaging and transport containers.
 - c. Describe the sampling options associated with the collection of liquid and solid samples and evidence.
 - d. Describe the field screening protocols for collected samples and evidence.
 4. Given an example of a hazardous materials/WMD suspicious letter, the operations level responder assigned to evidence preservation and sampling shall be able to perform the following tasks:
 - a. Describe the hazards, safety procedures, decontamination, and tactical guidelines for this type of incident.
 - b. Describe the factors to be evaluated in selecting the personal protective equipment, sampling equipment, detection devices, and sample and evidence packaging and transport containers.
 - c. Describe the sampling options associated with the collection of liquid and solid samples and evidence.
 - d. Describe the field screening protocols for collected samples and evidence.
 5. Given an example of a hazardous materials/WMD suspicious package, the operations level responder assigned to evidence preservation and sampling shall be able to perform the following tasks:
 - a. Describe the hazards, safety procedures, decontamination, and tactical guidelines for this type of incident.

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- b. Describe the factors to be evaluated in selecting the personal protective equipment, sampling equipment, detection devices, and sample and evidence packaging and transport containers.
 - c. Describe the sampling options associated with liquid and solid sample/evidence collection.
 - d. Describe the field screening protocols for collected samples and evidence.
6. Given an example of a release/attack involving a hazardous material/WMD agent, the operations level responder assigned to evidence preservation and sampling shall be able to perform the following tasks:
 - a. Describe the hazards, safety procedures, decontamination and tactical guidelines for this type of incident.
 - b. Describe the factors to be evaluated in selecting the personal protective equipment, sampling equipment, detection devices, and sample and evidence packaging and transport containers.
 - c. Describe the sampling options associated with the collection of liquid and solid samples and evidence.
 - d. Describe the field screening protocols for collected samples and evidence.
7. Given examples of different types of potential criminal hazardous materials/WMD incidents, the operations level responder shall identify and describe the application, use, and limitations of the various types field screening tools that can be utilized for screening the following:
 - a. Corrosivity
 - b. Flammability
 - c. Oxidation
 - d. Radioactivity
 - e. Volatile organic compounds (VOC)
8. Describe the potential adverse impact of using destructive field screening techniques.
9. Describe the procedures for maintaining the evidentiary integrity of any item removed from the crime scene.

603-6.5.3.2

Selecting Personal Protective Equipment

The operations level responder assigned to evidence preservation and sampling shall select the personal protective equipment required to support evidence preservation and sampling at hazardous materials/WMD incidents based on local procedures (see Section 603-6.2).

603-6.5.4

Competencies — Implementing the Planned Response

603-6.5.4.1

Implementing the Planned Response

Given the incident action plan for a criminal incident involving hazardous materials/WMD, the operations level responder assigned to evidence

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

preservation and sampling shall implement or oversee the implementation of the selected response actions safely and effectively and shall meet the following requirements:

1. Secure, characterize, and preserve the scene.
2. Document personnel and scene activities associated with the incident.
3. Describe whether the responders are within their legal authority to perform evidence preservation and sampling tasks.
4. Notify the agency with investigative authority.
5. Notify the EOD personnel.
6. Identify potential samples and evidence to be collected.
7. Demonstrate the procedures to protect samples and evidence from secondary contamination.
8. Demonstrate the correct techniques to collect samples utilizing the equipment provided.
9. Demonstrate the documentation procedures.
10. Demonstrate the sampling protocols.
11. Demonstrate field screening protocols for samples and evidence collected.
12. Demonstrate evidence labeling and packaging procedures.
13. Demonstrate evidence decontamination procedures.
14. Demonstrate evidence packaging procedures for evidence transportation.

603-6.5.4.2 The operations level responder assigned to evidence preservation and sampling shall describe local procedures for the technical decontamination process.

603-6.5.5 ***Competencies — Implementing the Planned Response (Reserved)***

603-6.5.6 ***Competencies — Terminating the Incident (Reserved)***

603-6.6 ***Mission-Specific Competencies: Product Control***

603-6.6.1 ***General***

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

603-6.6.1.1 **Introduction**

603-6.6.1.1.1 The operations level responder assigned to perform product control shall be that person, competent at the operations level, who is assigned to implement product control measures at hazardous materials/WMD incidents.

603-6.6.1.1.2 The operations level responder assigned to perform product control at hazardous materials/WMD incidents shall be trained to meet all competencies at the awareness level (Section 601), all core competencies at the operations level (Section 602), all mission-specific competencies for personal protective equipment (Section 603-6.2), and all competencies in this section.

603-6.6.1.1.3 The operations level responder assigned to perform product control at hazardous materials/WMD incidents shall operate under the guidance of a hazardous materials technician, an allied professional, or standard operating procedures.

603-6.6.1.1.4 The operations level responder assigned to perform product control at hazardous materials/WMD incidents shall receive the additional training necessary to meet specific needs of the jurisdiction.

603-6.6.1.2 **Goal**

603-6.6.1.2.1 The goal of the competencies in this section shall be to provide the operations level responder assigned to product control at hazardous materials/WMD incidents with the knowledge and skills to perform the tasks in 6.6.1.2.2 safely and effectively.

603-6.6.1.2.2 When responding to hazardous materials/WMD incidents, the operations level responder assigned to perform product control shall be able to perform the following tasks:

1. Plan an initial response within the capabilities and competencies of available personnel, personal protective equipment, and control equipment and in accordance with the emergency response plan or standard operating procedures by completing the following tasks:
 - a. Describe the control options available to the operations level responder.
 - b. Describe the control options available for flammable liquid and flammable gas incidents.

2. Implement the planned response to a hazardous materials/WMD incident.

603-6.6.2 **Competencies — Analyzing the Incident (Reserved)**

603-6.6.3 **Competencies — Planning the Response**

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

603-6.6.3.1

Identifying Control Options

Given examples of hazardous materials/WMD incidents, the operations level responder assigned to perform product control shall identify the options for each response objective and shall meet the following requirements as prescribed by the AHJ:

1. Identify the options to accomplish a given response objective.
2. Identify the purpose for and the procedures, equipment, and safety precautions associated with each of the following control techniques:
 - a. Absorption
 - b. Adsorption
 - c. Damming
 - d. Diking
 - e. Dilution
 - f. Diversion
 - g. Remote valve shutoff
 - h. Retention
 - i. Vapor dispersion
 - j. Vapor suppression

603-6.6.3.2

Selecting Personal Protective Equipment

The operations level responder assigned to perform product control shall select the personal protective equipment required to support product control at hazardous materials/WMD incidents based on local procedures (see *Section 603-6.2*).

603-6.6.4

Competencies — Implementing the Planned Response

603-6.6.4.1

Performing Control Options

Given an incident action plan for a hazardous materials/WMD incident, within the capabilities and equipment provided by the AHJ, the operations level responder assigned to perform product control shall demonstrate control functions set out in the plan and shall meet the following requirements as prescribed by the AHJ:

1. Using the type of special purpose or hazard suppressing foams or agents and foam equipment furnished by the AHJ, demonstrate the application of the foam(s) or agent(s) on a spill or fire involving hazardous materials/WMD.
2. Identify the characteristics and applicability of the following Class B foams if supplied by the AHJ:
 - a. Aqueous film-forming foam (AFFF)
 - b. Alcohol-resistant concentrates
 - c. Fluoroprotein
 - d. High-expansion foam

3. Given the required tools and equipment, demonstrate how to perform the following control activities:
 - a. Absorption
 - b. Adsorption
 - c. Damming
 - d. Diking
 - e. Dilution
 - f. Diversion
 - g. Retention
 - h. Remote valve shutoff
 - i. Vapor dispersion
 - j. Vapor suppression
4. Identify the location and describe the use of emergency remote shutoff devices on MC/DOT-306/406, MC/DOT-307/407, and MC-331 cargo tanks containing flammable liquids or gases.
5. Describe the use of emergency remote shutoff devices at fixed facilities.

603-6.6.4.2 The operations level responder assigned to perform product control shall describe local procedures for going through the technical decontamination process.

603-6.6.5 **Competencies — Evaluating Progress (Reserved)**

603-6.6.6 **Competencies — Terminating the Incident.(Reserved)**

603-6.7 **Mission-Specific Competencies: Air Monitoring and Sampling**

603-6.7.1 **General**

603-6.7.1.1 **Introduction**

603-6.7.1.1.1 The operations level responder assigned to perform air monitoring and sampling shall be that person, competent at the operations level, who is assigned to implement air monitoring and sampling operations at hazardous materials/WMD incidents.

603-6.7.1.1.2 The operations level responder assigned to perform air monitoring and sampling at hazardous materials/WMD incidents shall be trained to meet all competencies at the awareness level (Section 601), all core competencies at the operations level (Section 602), all mission-specific competencies for personal protective equipment (Section 603-6.2), and all competencies in this section.

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- 603-6.7.1.1.3** The operations level responder assigned to perform air monitoring and sampling at hazardous materials/WMD incidents shall operate under the guidance of a hazardous materials technician, an allied professional, or standard operating procedures.
1. Direct guidance: operations level responder working under the control of a hazardous material technician or allied professional who can:
 - a. Continually assess and/or observe their actions
 - b. Provide immediate feedback
 2. Written guidance: standard operating procedures or “rules of engagement” that emphasize:
 - a. Task expected operations level responders
 - b. Task beyond the capability of operations level responders
 - c. Required PPE and other equipment to perform the expected task
 - d. Procedures for ensuring coordination within the ICS

- 603-6.7.1.1.4** The operations level responder assigned to perform air monitoring and sampling at hazardous materials/WMD incidents shall receive the additional training necessary to meet specific needs of the jurisdiction.

1. Monitoring and detection equipment may include:
 - a. Carbon monoxide meter
 - b. Colorimetric tubes
 - c. Combustible gas indicator
 - d. Oxygen meter
 - e. Passive dosimeters
 - f. pH indicators and/or pH meters
 - g. Photoionization and/or flame ionization detectors
 - h. Radiation detection instruments
 - i. Reagents
 - j. Test strips
 - k. WMD detectors (chemical and/or biological)
 - l. Other equipment provided by the AHJ
2. Evidence sampling and collection equipment is addressed in Section 603-6.5
3. Sampling equipment that may be used by operations trained responders may be required by the AHJ may include but is not limited to:
 - a. Any tool designated to remove liquid or solid product from a container for the purpose of environmental sampling and testing
 - b. Any container suitable for the collection of a liquid or solid sample based on the type and quantity

603-6.7.1.2 **Goal**

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

603-6.7.1.2.1 The goal of the competencies in this section shall be to provide the operations level responder assigned to air monitoring and sampling at hazardous materials/WMD incidents with the knowledge and skills to perform the tasks in 6.7.1.2.2 safely and effectively.

603-6.7.1.2.2 When responding to hazardous materials/WMD incidents, the operations level responder assigned to perform air monitoring and sampling shall be able to perform the following tasks:

1. Plan the air monitoring and sampling activities within the capabilities and competencies of available personnel, personal protective equipment, and control equipment and in accordance with the emergency response plan or standard operating procedures describe the air monitoring and sampling options available to the operations level responder.
2. Implement the air monitoring and sampling activities as specified in the incident action plan.

603-6.7.2 **Competencies – Analyzing the Incident (Reserved)**

603-6.7.3 **Competencies – Planning the Response**

603-6.7.3.1 Given the air monitoring and sampling equipment provided by the AHJ, the operations level responder assigned to perform air monitoring and sampling shall select the detection or monitoring equipment suitable for detecting or monitoring solid, liquid, or gaseous hazardous materials/WMD.

603-6.7.3.2 Given detection and monitoring device(s) provided by the AHJ, the operations level responder assigned to perform air monitoring and sampling shall describe the operation, capabilities and limitations, local monitoring procedures, field testing, and maintenance procedures associated with each device.

603-6.7.3.3 **Selecting Personal Protective Equipment**

The operations level responder assigned to perform air monitoring and sampling shall identify the local procedures for selecting personal protective equipment to support air monitoring and sampling at hazardous materials/WMD incidents.

603-6.7.3.4 **Selecting Personal Protective Equipment**

The operations level responder assigned to perform air monitoring and sampling shall select the personal protective equipment required to support air monitoring and sampling at hazardous materials/WMD incidents based on local procedures (see Section 603-6.2).

603-6.7.4 **Competencies – Implementing the Planned Response**

603-6.7.4.1 Given a scenario involving hazardous materials/WMD and detection and monitoring devices provided by the AHJ, the operations level responder assigned to perform air monitoring and sampling shall demonstrate the field test and operation of each device and interpret the readings based on local procedures.

1. Personnel must be able to identify:
 - a. Solids
 - b. Liquids
 - c. Gases

2. Hazards need to be identified based on:
 - a. Corrosivity
 - b. Flammability
 - c. Oxygen concentration
 - d. Radioactivity
 - e. Toxicity
 - f. Pathogenicity

3. Monitoring and detection equipment may include:
 - a. Carbon monoxide meter
 - b. Colorimetric tubes
 - c. Combustible gas indicator
 - d. Oxygen meter
 - e. Passive dosimeters
 - f. pH indicators and/or pH meters
 - g. Photoionization and/or flame ionization detectors
 - h. Radiation detection instruments
 - i. Reagents
 - j. Test strips
 - k. WMD detectors (chemical and/or biological)
 - l. Other equipment provided by the AHJ

603-6.7.4.2 The operations level responder assigned to perform air monitoring and sampling shall describe local procedures for decontamination of themselves and their detection and monitoring devices upon completion of the air monitoring mission.

603-6.7.5 **Competencies – Evaluating Progress (Reserved)**

603-6.7.6 **Competencies – Terminating the Incident (Reserved)**

603-6.8 **Mission-Specific Competencies: Victim Rescue and Recovery**

603-6.8.1 **General**

603-6.8.1.1 **Introduction**

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- 603-6.8.1.1.1** The operations level responder assigned to perform victim rescue and recovery shall be that person, competent at the operations level, who is assigned to rescue and recover exposed and contaminated victims at hazardous materials/WMD incidents.
- 603-6.8.1.1.2** The operations level responder assigned to perform victim rescue and recovery at hazardous materials/WMD incidents shall be trained to meet all competencies at the awareness level (Section 601), all core competencies at the operations level (Section 602), all mission-specific competencies for personal protective equipment (Section 603-6.2), and all competencies in this section.
- 603-6.8.1.1.3** The operations level responder assigned to perform victim rescue and recovery at hazardous materials/WMD incidents shall operate under the guidance of a hazardous materials technician, an allied professional, or standard operating procedures.
1. Direct guidance: operations level responder working under the control of a hazardous materials technician or allied professional who can:
 - a. Continually assess and/or observe their actions
 - b. Provide immediate feedback
 2. Written guidance: standard operating procedures or “rules of engagement” that emphasize:
 - a. Task expected operations level responders
 - b. Task beyond the capability of operations level responders
 - c. Required PPE and other equipment to perform the expected task
 - d. Procedures for ensuring coordination within the ICS
- 603-6.8.1.1.4** The operations level responder assigned to perform victim rescue and recovery at hazardous materials/WMD incidents shall receive the additional training necessary to meet specific needs of the jurisdiction.
- 603-6.8.1.2** **Goal**
- 603-6.8.1.2.1** The goal of the competencies in this section shall be to provide the operations level responder assigned victim rescue and recovery at hazardous materials/WMD incidents with the knowledge and skills to perform the tasks in 6.8.1.2.2 safely and effectively.
- 603-6.8.1.2.2** When responding to hazardous materials/WMD incidents, the operations level responder assigned to perform victim rescue and recovery shall be able to perform the following tasks:
1. Plan a response for victim rescue and recovery operations involving the release of hazardous materials/WMD agent within the capabilities of available personnel and personal protective equipment.

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

2. Implement the planned response to accomplish victim rescue and recovery operations within the capabilities of available personnel and personal protective equipment.

603-6.8.2

Competencies – Analyzing the Incident (Reserved)

603-6.8.3

Competencies – Planning the Response

603-6.8.3.1

Given scenarios involving hazardous materials/WMD incidents, the operations level responder assigned to victim rescue and recovery shall determine the feasibility of conducting victim rescue and recovery operations at an incident involving a hazardous material/WMD and shall be able to perform the following tasks:

1. Determine the feasibility of conducting rescue and recovery operations.
2. Describe the safety procedures, tactical guidelines, and incident response considerations to effect a rescue associated with each of the following situations:
 - a. Line-of-sight with ambulatory victims
 - b. Line-of-sight with nonambulatory victims
 - c. Non-line-of-sight with ambulatory victims
 - d. Non-line-of-sight with nonambulatory victims
 - e. Victim rescue operations versus victim recovery operations
 - i. Additional victim rescue hazard considerations include:
 - a) Hostile human threats
 - b) Improvised explosive devices (IEDs)
 - c) Agent type and possible harm
 - ii. Operational considerations may include:
 - a) The emergency responders will enter potentially contaminated areas only to perform rescue of known live victims or to perform rescue of known live victims or to perform an immediate reconnaissance to determine if live victims exist
 - b) Emergency responders will immediately exit any area where they encounter evidence of chemical contamination and cannot identify any living victims
 - c) Emergency responders will avoid contact with any unidentified materials
 - d) Emergency responders and rescued victims will undergo an emergency decontamination immediately upon exit from the potentially hazardous area
 - e) Immediate medical assistance such as that provided by EMS providers is immediately available

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- f) Emergency responders, when finding conditions in excess of immediately dangerous to life or health (IDLH) should attempt to change the environment (ventilation, vapor dispersion/suppression, etc.) to enable others to respond to assist
 - g) While reducing the hazards to create a safer environment in which to operate is always a good work practice, it is essential when performing victim recovery
3. Determine if the options are within the capabilities of available personnel and personal protective equipment.
 4. Describe the procedures for implementing victim rescue and recovery operations within the incident command system.

603-6.8.3.2

Selecting Personal Protective Equipment

The operations level responder assigned to perform victim rescue and recovery shall select the personal protective equipment required to support victim rescue and recovery at hazardous materials/WMD incidents based on local procedures (see Section 603-6.2).

603-6.8.4

Competencies – Implementing the Planned Response

603-6.8.4.1

Given a scenario involving a hazardous material/WMD, the operations level responder assigned to victim rescue and recovery shall perform the following tasks:

1. Identify the different team positions and describe their main functions.
2. Select and use specialized rescue equipment and procedures provided by the AHJ to support victim rescue and recovery operations.
3. Demonstrate safe and effective methods for victim rescue and recovery.
4. Demonstrate the ability to triage victims.
5. Describe local procedures for performing decontamination upon completion of the victim rescue and removal mission.

603-6.8.5

Competencies – Evaluating Progress (Reserved)

603-6.8.6

Competencies – Terminating the Incident (Reserved)

603-6.9

Mission-Specific Competencies: Response to Illicit Laboratory Incidents

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

603-6.9.1 **General**

603-6.9.1.1 **Introduction**

603-6.9.1.1.1 The operations level responder assigned to respond to illicit laboratory incidents shall be that person, competent at the operations level, who, at hazardous materials/WMD incidents involving potential violations of criminal statutes specific to the illegal manufacture of methamphetamines, other drugs, or WMD, is assigned to secure the scene, identify the laboratory or process, and preserve evidence at hazardous materials/WMD incidents involving potential violations of criminal statutes specific to the illegal manufacture of methamphetamines, other drugs, or WMD.

603-6.9.1.1.2 The operations level responder who responds to illicit laboratory incidents shall be trained to meet all competencies at the awareness level (Section 601), all core competencies at the operations level (Section 602), all mission-specific competencies for personal protective equipment (Section 603-6.2), and all competencies in this section.

603-6.9.1.1.3 The operations level responder who responds to illicit laboratory incidents shall operate under the guidance of a hazardous materials technician, an allied professional, or standard operating procedures.

1. Direct guidance: operations level responder working under the control of a hazardous material technician or allied professional who can:
 - a. Continually assess and/or observe their actions
 - b. Provide immediate feedback
2. Written guidance: standard operating procedures or “rules of engagement” that emphasize:
 - a. Task expected operations level responders
 - b. Task beyond the capability of operations level responders
 - c. Required PPE and other equipment to perform the expected task
 - d. Procedures for ensuring coordination within the ICS

603-6.9.1.1.4 The operations level responder who responds to illicit laboratory incidents shall receive the additional training necessary to meet specific needs of the jurisdiction.

603-6.9.1.2 **Goal**

603-6.9.1.2.1 The goal of the competencies in this section shall be to provide the operations level responder assigned to respond to illicit laboratory incidents with the knowledge and skills to perform the tasks in 6.9.1.2.2 safely and effectively.

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

603-6.9.1.2.2 When responding to hazardous materials/WMD incidents, the operations level responder assigned to respond to illicit laboratory incidents shall be able to perform the following tasks:

1. Analyze a hazardous materials/WMD incident to determine the complexity of the problem and potential outcomes and whether the incident is potentially a criminal illicit laboratory operation.
2. Plan a response for a hazardous materials/WMD incident involving potential illicit laboratory operations in compliance with evidence preservation operations within the capabilities and competencies of available personnel, personal protective equipment, and control equipment after notifying the responsible law enforcement agencies of the problem.
3. Implement the planned response to a hazardous materials/WMD incident involving potential illicit laboratory operations utilizing applicable evidence preservation guidelines.

603-6.9.2 **Competencies – Analyzing the Incident**

603-6.9.2.1 **Determining if a Hazardous Materials/WMD Incident is an Illicit Laboratory Operation**

Given examples of hazardous materials/WMD incidents involving illicit laboratory operations, the operations level responder assigned to respond to illicit laboratory incidents shall identify the potential drugs/WMD being manufactured and shall meet the following related requirements:

1. Illicit laboratories can be designed to produce many different products including:
 - a. Illegal drugs (e.g., methamphetamines)
 - b. Chemical modification (e.g., distilled pesticides)
 - c. Biological toxins or pathogens (e.g., ricin, anthrax, toularemia)
 - d. Explosives (e.g., ANFO, pipe bombs)
2. Given examples of illicit drug manufacturing methods, describe the operational considerations, hazards, and products involved in the illicit process.
3. Given examples of illicit chemical WMD methods, describe the operational considerations, hazards, and products involved in the illicit process.
4. Given examples of illicit biological WMD methods, describe the operational considerations, hazards, and products involved in the illicit process.
5. Given examples of illicit laboratory operations, describe the potential booby traps that have been encountered by response personnel.

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

6. Given examples of illicit laboratory operations, describe the agencies that have investigative authority and operational responsibility to support the response.

603-6.9.3 **Competencies – Planning the Response**

603-6.9.3.1 **Determining the Response Options**

Given an analysis of hazardous materials/WMD incidents involving illicit laboratories, the operations level responder assigned to respond to illicit laboratory incidents shall identify possible response options.

603-6.9.3.2 **Identifying Unique Aspects of Criminal Hazardous Materials/WMD Incidents**

603-6.9.3.2.1 The operations level responder assigned to respond to illicit laboratory incidents shall identify the unique operational aspects associated with illicit drug manufacturing and illicit WMD manufacturing.

603-6.9.3.2.2 Given an incident involving illicit drug manufacturing or illicit WMD manufacturing, the operations level responder assigned to illicit laboratory incidents shall describe the following tasks:

1. Law enforcement securing and preserving the scene
 - a. Tasks include neutralization of tactical threat
 - b. Safe rendering of explosive devices or booby traps
 - c. Maintain accountability and identification of all personnel in the crime scene
 - d. Crime scene documentation
 - e. Safeguarding/protecting evidence
2. Joint hazardous materials and EOD personnel site reconnaissance and hazard identification
3. Determining atmospheric hazards through air monitoring and detection
 - a. At a minimum, monitoring should include:
 - i. Flammability – combustible gas indicator
 - ii. Oxygen level – oxygen meter
 - iii. Toxicity – photoionization detector
 - iv. Corrosivity – pH paper
 - v. Radiological – radiological survey meter
 - b. Other monitoring devices as determined by the AHJ
4. Mitigation of immediate hazards while preserving evidence
5. Coordinated crime scene operation with the law enforcement agency having investigative authority

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

6. Documenting personnel and scene activities associated with incident

603-6.9.3.3

Identifying the Law Enforcement Agency That Has Investigative Jurisdiction

The operations level responder assigned to respond to illicit laboratory incidents shall identify the law enforcement agency having investigative jurisdiction and shall meet the following requirements:

1. Given scenarios involving illicit drug manufacturing or illicit WMD manufacturing, identify the law enforcement agency(s) with investigative authority for the following situations:
 - a. Illicit drug manufacturing
 - b. Illicit WMD manufacturing
 - c. Environmental crimes resulting from illicit laboratory operations
2. Identify the role of law enforcement agencies at the following levels:
 - a. Federal
 - b. State
 - c. Local

603-6.9.3.4

Identifying Unique Tasks and Operations at Sites Involving Illicit Laboratories

603-6.9.3.4.1

The operations level responder assigned to respond to illicit laboratory incidents shall identify and describe the unique tasks and operations encountered at illicit laboratory scenes.

603-6.9.3.4.2

Given scenarios involving illicit drug manufacturing or illicit WMD manufacturing, describe the following:

1. Hazards, safety procedures, and tactical guidelines for this type of emergency
2. Factors to be evaluated in selection of the appropriate personal protective equipment for each type of tactical operation
 - a. Selection of PPE is based upon:
 - i. Available intelligence
 - ii. Outward warning signs
 - iii. Detection clues
 - iv. Activity of animals
 - v. Interviews with neighbors/witnesses
 - b. Explosive ordnance disposal (EOD) operations will require an appropriate level of EOD protective gear to augment chemical protective clothing based on the hazard risk assessment
3. Factors to be considered in selection of appropriate decontamination procedures
4. Factors to be evaluated in the selection of detection devices

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

5. Factors to be considered in the development of a remediation plan

603-6.9.3.5

Selecting Personal Protective Equipment

The operations level responder assigned to respond to illicit laboratory incidents shall select the personal protective equipment required to respond to illicit laboratory incidents based on local procedures.

603-6.9.4

Competencies – Implementing the Planned Response

603-6.9.4.1

Implementing the Planned Response

Given scenarios involving an illicit drug/WMD laboratory operation involving hazardous materials/WMD, the operations level responder assigned to respond to illicit laboratory incidents shall implement or oversee the implementation of the selected response options safely and effectively.

603-6.9.4.1.1

Given a simulated illicit drug/WMD laboratory incident, the operations level responder assigned to respond to illicit laboratory incidents shall be able to perform the following tasks:

1. Describe safe and effective methods for law enforcement to secure the scene.
2. Demonstrate decontamination procedures for tactical law enforcement personnel (SWAT or K-9) securing an illicit laboratory.
3. Demonstrate methods to identify and avoid potential unique safety hazards found at illicit laboratories such as booby traps and releases of hazardous materials.
4. Demonstrate methods to conduct joint hazardous materials/EOD operations to identify safety hazards and implement control procedures.
 - a. At a minimum, monitoring should include:
 - i. Flammability – combustible gas indicator
 - ii. Oxygen level – oxygen meter
 - iii. Toxicity – photoionization detector
 - iv. Corrosivity – pH paper
 - v. Radiological – radiological survey meter
 - b. Other monitoring devices as determined by the AHJ

603-6.9.4.1.2

Given a simulated illicit drug/WMD laboratory entry operation, the operations level responder assigned to respond to illicit laboratory incidents shall demonstrate methods of identifying the following during reconnaissance operations:

1. The potential manufacture of illicit drugs
2. The potential manufacture of illicit WMD materials

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

3. Potential environmental crimes associated with the manufacture of illicit drugs/WMD materials

603-6.9.4.1.3 Given a simulated illicit drug/WMD laboratory incident, the operations level responder assigned to respond to illicit laboratory incidents shall describe joint agency crime scene operations, including support to forensic crime scene processing teams.

603-6.9.4.1.4 Given a simulated illicit drug/WMD laboratory incident, the operations level responder assigned to respond to illicit laboratory incidents shall describe the policy and procedures for post-crime scene processing and site remediation operations.

603-6.9.4.1.5 The operations level responder assigned to respond to illicit laboratory incidents shall be able to describe local procedures for performing decontamination upon completion of the illicit laboratory mission.

603-6.9.5 **Competencies – Evaluating Progress (Reserved)**

603-6.9.6 **Competencies – Terminating the Incident (Reserved)**

CERTIFICATION CURRICULUM MANUAL – CHAPTER SIX

HAZARDOUS MATERIALS TECHNICIAN

REFERENCE LIST FOR THE HAZARDOUS MATERIALS TECHNICIAN 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

Texts

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.

Fire Fighter's Handbook of Hazardous Materials, 7th edition. Baker, Charles T., (2006). Sudsbury, MA: Jones and Bartlett.

Hazardous Materials: Managing the Incident. Chester Noll, G. G., Hildebrand, M. S., & Yvorra, J. G. (2005). MD: Red Hat Publishing, Inc.

Hazardous Materials/Weapons of Mass Destruction Response Handbook Trebisacci, D. G. (2008). 5th edition. Quincy, MA: National Fire Protection Association.

NFPA 472: Standard for Professional Competence of Responders to Hazardous Materials Incidents. (2008 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.

Texts

Bretherick's Handbook of Reactive Chemical Hazards. Urben, P. G., Pitt, M. J., & Bretherick, L. (2007). Amsterdam: Elsevier.

Chlorine Emergencies: An Overview for First Responders. Chlorine Institute. (2007). Arlington, VA: The Chlorine Institute.

CHRIS: Chemical Hazards Response Information System. United States. (1992). COMDTINST, M16465.11B. Washington, DC: U.S. Dept. of Transportation, U.S. Coast Guard.

Dangerous Properties of Industrial and Consumer Chemicals. New Cheremisinoff, N. P., King, J. A., & Boyko, R. (1994). York, NY: M. Dekker.

Emergency Care for Hazardous Materials Exposure. St. Currence, P., Bronstein, A. C., & Clements, B. (2005). Louis, MO: Mosby.

Emergency Handling of Hazardous Materials in Surface Transportation. Association of American Railroads. (2009). Washington, DC: Association of American Railroads.

Field Guide to Tank Car Identification. Association of American Railroads. (2009). Washington, DC: Association of American Railroads.

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

Hawley's Condensed Chemical Dictionary. Lewis, R. J., & Hawley, G. G. (2007). West Sussex, England: Wiley.

Hazardous Materials Air Monitoring and Detection Devices. Hawley, C. (2002). Albany, NY: Delmar/Thomson Learning.

Hazardous Materials Field Guide, 2nd edition. Bevelacqua, A. S., & Stilp, R. H. (2007). Albany, NY: Delmar Publications.

Hazardous Materials: Managing the Incident Field Operations Guide. Chester Bevelacqua, A. S., Hildebrand, M. S., & Noll, G. G. (2005). MD: Red Hat Publishing, Inc.

How to Use the Chlorine Institute Emergency Kit "A" for 100 lb. and 150 lb. Chlorine Cylinders. Chlorine Institute. (1996). New York, NY: The Chlorine Institute.

How to Use the Chlorine Institute Emergency Kit "B" for Chlorine Ton Containers. New Chlorine Institute. (1988). York, NY: The Chlorine Institute.

How to Use the Chlorine Institute Emergency Kit "C" for Chlorine Tank Cars and Tank Trucks. Chlorine Institute. (1993). New York, NY: The Chlorine Institute.

Symbol Seeker: Hazard Identification Manual. Burns, P. P. (2002). Preston, England: Symbol Seeker.

Media

Hazardous Materials Containment Series. Action Training Systems. [4 Disc DVD Set] Hazardous materials containment - series of 4 titles. Seattle, WA: Action Training Systems.

Hazardous Materials: Managing the Incident DVD Series. Massingham, G., Noll, G. G., Hildebrand, M. S., & Noll, G. G. (2005). [8 Disc DVD Set] Edgartown, MA: Emergency Film Group.

Intermodal Containers. Noll, G. G., Hildebrand, M. S., & Donahue, M. L. (2002). [DVD] Edgartown, MA: Emergency Film Group.

Petroleum Storage Tanks. Hildebrand, M. S., & Noll, G. G. (2003). [DVD] Edgartown, MA: Emergency Film Group.

**CHAPTER 6
SECTION 604
HAZARDOUS MATERIALS TECHNICIAN
CURRICULUM OUTLINE**

SECTION	SUBJECT	RECOMMENDED HOURS
604-7.1	General - Introduction - Laws, Regulations, and National Consensus Standards	
604-7.2	Analyzing the Incident	
604-7.3	Planning the Response	
604-7.4	Implementing the Planned Response	
604-7.5	Evaluating Progress	
604-7.6	Terminating the Incident	
	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.

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

SECTION 604

HAZARDOUS MATERIAL TECHNICIAN

Hazardous Materials Technician Level Personnel are those who respond to hazardous materials/weapons of mass destruction (WMD) incidents and

- Use a risk-based response process to analyze a problem involving hazardous materials/weapons of mass destruction (WMD),
- Select and implement applicable decontamination procedures,
- Control a release,
- Use specialized protective clothing, and
- Use specialized control equipment.

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

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

Response options for technician level responders may include offensive actions.

604-7.1 **General**

604-7.1.1 **Introduction**

604-7.1.1.1 The hazardous materials technician shall be that person who responds to hazardous materials/WMD incidents using a risk-based response process by which he or she analyzes a problem involving hazardous materials/WMD, selects applicable decontamination procedures, and controls a release using specialized protective clothing and control equipment [see 7.1.2.2(1)]

604-7.1.1.2 The hazardous materials technician shall be trained to meet all competencies at the awareness level (Section 601), all core competencies at the operations level (Section 602), and all competencies of this chapter

604-7.1.1.3 The hazardous materials technician shall receive additional training to meet applicable governmental occupational health and safety regulations

604-7.1.1.4 The hazardous materials technician shall be permitted to have additional competencies that are specific to the response mission, expected tasks, and equipment and training as determined by the AHJ

Reprinted with permission from NFPA 472 *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents* 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

604-7.1.2 **Goal**

604-7.1.2.1 The goal of the competencies at this level shall be to provide the hazardous materials technician with the knowledge and skills to perform the tasks in 7.1.2.2 safely

604-7.1.2.2 In addition to being competent at both the awareness and the operations levels, the hazardous materials technician shall be able to perform the following tasks:

1. Analyze a hazardous materials/WMD incident to determine the complexity of the problem and potential outcomes by completing the following tasks:
 - a. Survey the hazardous materials/WMD incident to identify special containers involved, to identify or classify unknown materials, and to verify the presence and concentrations of hazardous materials through the use of monitoring equipment
 - b. Collect and interpret hazard and response information from printed and technical resources, computer databases, and monitoring equipment
 - c. Describe the type and extent of damage to containers
 - d. Predict the likely behavior of released materials and their containers when multiple materials are involved
 - e. Estimate the size of an endangered area using computer modeling, monitoring equipment, or specialists in this field

2. Plan a response within the capabilities of available personnel, personal protective equipment, and control equipment by completing the following tasks:
 - a. Describe the response objectives for hazardous materials/WMD incidents
 - b. Describe the potential response options available by response objective
 - c. Select the personal protective equipment required for a given action option
 - d. Select a technical decontamination process to minimize the hazard
 - e. Develop an incident action plan for a hazardous materials/WMD incident, including a site safety and control plan, consistent with the emergency response plan or standard operating procedures and within the capability of the available personnel, personal protective equipment, and control equipment

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

3. Implement the planned response to favorably change the outcomes consistent with the standard operating procedures and site safety and control plan by completing the following tasks:
 - a. Perform the duties of an assigned hazardous materials branch or group position within the local Incident Command System (ICS)
 - b. Don, work in, and doff personal protective clothing, including, but not limited to, both liquid splash- and vapor-protective clothing with correct respiratory protection
 - c. Perform the control functions identified in the incident action plan
 - d. Perform the decontamination functions identified in the incident action plan
4. Evaluate the progress of the planned response by completing the following tasks:
 - a. Evaluate the effectiveness of the control functions
 - b. Evaluate the effectiveness of the decontamination process
5. Terminate the incident by completing the following tasks:
 - a. Assist in the incident debriefing
 - b. Assist in the incident critique
 - c. Provide reports and documentation of the incident

604-7.2

Competencies — Analyzing the Incident

604-7.2.1

Surveying Hazardous Materials/WMD Incidents

Given examples of hazardous materials/WMD incidents, the hazardous materials technician shall identify containers involved and, given the necessary equipment, identify or classify unknown materials involved, verify the identity of the hazardous materials/WMD involved, determine the concentration of hazardous materials, and shall meet the requirements of 7.2.1.1 through 7.2.1.5

604-7.2.1.1

Given examples of various containers for hazardous materials/WMD, the hazardous materials technician shall identify each container by name and specification and identify the typical contents by name and hazard class

604-7.2.1.1.1

Given examples of the following railroad cars, the hazardous materials technician shall identify the container by name and specification and identify the typical contents by name and hazard class:

1. Cryogenic liquid tank cars

2. Nonpressure tank cars
3. Pneumatically unloaded hopper cars
4. Pressure tank cars

604-7.2.1.1.2 Given examples of the following intermodal tanks, the hazardous materials technician shall identify the container by name and specification and identify the typical contents by name and hazard class:

1. Nonpressure intermodal tanks
 - a. IM-101 portable tanks (IMO Type 1 internationally)
 - b. IM-102 portable tanks (IMO Type 2 internationally)
2. Pressure intermodal tank (DOT Specification 51; IMO Type 5 internationally)
3. Specialized intermodal tanks
 - a. Cryogenic intermodal tanks (DOT Specification 51; IMO Type 7 internationally)
 - b. Tube modules

604-7.2.1.1.3 Given examples of the following cargo tanks, the hazardous materials technician shall identify the container by name and specification and identify the typical contents by name and hazard class:

1. Compressed gas tube trailers
2. Corrosive liquid tanks
3. Cryogenic liquid tanks
4. Dry bulk cargo tanks
5. High-pressure tanks
6. Low-pressure chemical tanks
7. Nonpressure liquid tanks

604-7.2.1.1.4 Given examples of the following facility storage tanks, the hazardous materials technician shall identify the container by name and identify the typical contents by name and hazard class:

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

1. Cryogenic liquid tank
2. Nonpressure tank
3. Pressure tank

604-7.2.1.1.5 Given examples of the following nonbulk packaging, the hazardous materials technician shall identify the package by name and identify the typical contents by name and hazard class:

1. Bags
2. Carboys
3. Cylinders
4. Drums

604-7.2.1.1.6 Given examples of the following radioactive materials packages, the hazardous materials technician shall identify the container/package by name and identify the typical contents by name:

1. Excepted
2. Industrial
3. Type A
4. Type B
5. Type C

604-7.2.1.2 Given examples of three facility and three transportation containers, the hazardous materials technician shall identify the approximate capacity of each container

604-7.2.1.2.1 Using the markings on the container, the hazardous materials technician shall identify the capacity (by weight or volume) of the following examples of transportation vehicles:

1. Cargo tanks
2. Tank cars

3. Tank containers

604-7.2.1.2.2 Using the markings on the container and other available resources, the hazardous materials technician shall identify the capacity (by weight or volume) of each of the following facility containers:

1. Cryogenic liquid tank
2. Nonpressure tank (general service or low-pressure tank)
3. Pressure tank

604-7.2.1.3 Given at least three unknown hazardous materials/WMD, one of which is a solid, one a liquid, and one a gas, the hazardous materials technician shall identify or classify by hazard each unknown material

604-7.2.1.3.1 The hazardous materials technician shall identify the steps in an analysis process for identifying unknown solid and liquid materials

1. Approach from up wind
2. Wear appropriate level of Chemical Protective Clothing (CPC)
3. Work in pairs
4. Have backup team
5. Monitor in the following order:
 - a. Radioactivity
 - b. Oxygen availability
 - c. pH (if a liquid or soluble solid)

604-7.2.1.3.2 The hazardous materials technician shall identify the steps in an analysis process for identifying an unknown atmosphere

1. Approach from up wind
2. Wear appropriate level of CPC
3. Work in pairs
4. Have backup team
5. Monitor in the following order:
 - a. Radioactivity

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- b. Combustibility
- c. Oxygen
 - i. Deficiency
 - ii. Enriched
- d. pH (if possible corrosive)
- e. Hydrogen sulfide
- f. Carbon monoxide
- g. Organic vapor

604-7.2.1.3.3 The hazardous materials technician shall identify the type(s) of monitoring technology used to determine the following hazards:

- 1. Corrosivity
- 2. Flammability
- 3. Oxidation potential
- 4. Oxygen deficiency
- 5. Pathogenicity
- 6. Radioactivity
- 7. Toxicity

604-7.2.1.3.4 The hazardous materials technician shall identify the capabilities and limiting factors associated with the selection and use of the following monitoring equipment, test strips, and reagents:

- 1. Biological immunoassay indicators
- 2. Chemical agent monitors (CAMs)
- 3. Colorimetric indicators [colorimetric detector tubes, indicating papers (pH paper and meters), reagents, test strips]
- 4. Combustible gas indicator
- 5. DNA fluoroscopy
- 6. Electrochemical cells (carbon monoxide meter, oxygen meter)
- 7. Flame ionization detector

8. Gas chromatograph/mass spectrometer (GC/MS)
9. Infrared spectroscopy
10. Ion mobility spectroscopy
11. Mass channel analyzer
12. Metal oxide sensor
13. Photoionization detectors
14. Polymerase chain reaction (PCR)
15. Radiation detection and measurement instruments
16. Raman spectroscopy
17. Surface acoustical wave (SAW)
18. Wet chemistry

604-7.2.1.3.5 Given three hazardous materials/WMD, one of which is a solid, one a liquid, and one a gas, and using the following monitoring equipment, test strips, and reagents, the hazardous materials technician shall select from the following equipment and demonstrate the correct techniques to identify the hazards (corrosivity, flammability, oxidation potential, oxygen deficiency, radioactivity, toxicity, and pathogenicity):

1. Carbon monoxide meter
2. Colorimetric tubes
3. Combustible gas indicator
4. Oxygen meter
5. Passive dosimeters
6. pH indicators and pH meters
7. Photoionization and flame ionization detectors
8. Radiation detection instruments

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

9. Reagents
10. Test strips
11. WMD detectors (chemical and biological)
12. Other equipment provided by the AHJ

604-7.2.1.3.6 Given monitoring equipment, test strips, and reagents provided by the AHJ, the hazardous materials technician shall demonstrate the field maintenance and testing procedures for those items

604-7.2.1.4 Given a label for a radioactive material, the hazardous materials technician shall identify the type or category of label, contents, activity, transport index, and criticality safety index as applicable, then describe the radiation dose rates associated with each label

604-7.2.1.5 The hazardous materials technician shall demonstrate methods for collecting samples of the following:

1. Gas
2. Liquid
3. Solid

604-7.2.2 **Collecting and Interpreting Hazard and Response Information**
Given access to printed and technical resources, computer databases, and monitoring equipment, the hazardous materials technician shall collect and interpret hazard and response information not available from the current edition of the DOT *Emergency Response Guidebook* or an MSDS and shall meet the requirements of 7.2.2.1 through 7.2.2.6

604-7.2.2.1 The hazardous materials technician shall identify and interpret the types of hazard and response information available from each of the following resources and explain the advantages and disadvantages of each resource:

1. Hazardous materials databases – examples include:
 - a. CAMEO (Computer Assisted Management of Emergency Operations)
 - b. MARPLOT (Mapping Applications for Response, Planning and Local Operational Tasks)
 - c. ALOHA (Aerial Locations Of Hazardous Atmospheres)

- d. WISER (Wireless Informational Systems for Emergency Responders)
 - e. OREIS (Operational Response Emergency Informational System)
2. Monitoring equipment – examples include:
 - a. Combustible gas indicators
 - b. Colorimetric tubes
 - c. Photoionization detectors/flame ionization detectors
 - d. Radiological survey equipment
 - e. Oxygen meters
 - f. Toxic Gas Sensors
 - g. pH paper
 - h. Chemical test strips
 3. Reference manuals
 - a. DOT Emergency Response Handbook
 - b. ARR Hazardous Materials Emergency Action Guides
 - c. ARR General Handling of Hazardous Materials in Surface Transportation
 - d. Field Guide to Tank Guide Identification
 - e. Bretherick's Handbook of Reactive Substances
 - f. Emergency Care for Hazardous Materials Exposure
 - g. Hawley's Condensed Chemical Dictionary
 - h. NIOSH Pocket Guide
 - i. CHRIS Chemical Hazards Response Information System (USCG)
 - j. Dangerous Properties of Industrial Chemicals
 - k. NFPA Fire Protection Guide of Hazardous Materials
 4. Technical information centers (i.e., CHEMTREC/CANUTEC/ SETIQ and local, state, and federal authorities) – examples include:
 - a. CHEMTREC
 - b. Chlorine Institute
 - c. US Coast Guard and DOT National Response Center
 - d. The Agency for Toxic Substance and Disease Registry (ATSDR)
 - e. National Animal Poison Control Center (NAPCC)
 - f. National Pesticide Informational Center (NPIC)
 - g. National Poison Control Center (Mr. Yuck)
 - h. US Army Operational Center
 - i. Defense Logistics Agency
 5. Technical information specialists

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

6. Hazard Communication and Right To Know Reporting Requirements
 - a. OSHA Hazardous Communication Standard 29 CFR 1910.1200
 - b. Material Safety Data Sheets
 - c. Tier II Reports
 - d. EPA EPlan Database
 - e. Other federal, state and local reporting requirements

604-7.2.2.2 The hazardous materials technician shall describe the following terms and explain their significance in the analysis process:

1. Acid, caustic
2. Air reactivity
3. Autorefrigeration
4. Biological agents and biological toxins
5. Blood agents
6. Boiling point
7. Catalyst
8. Chemical change
9. Chemical interactions
10. Compound, mixture
11. Concentration
12. Critical temperature and pressure
13. Dissociation and corrosivity
14. Dose
15. Dose response
16. Expansion ratio
17. Fire point

Reprinted with permission from NFPA 472 *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents* 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

18. Flammable (explosive) range (LEL and UEL)
19. Flash point
20. Half-life
21. Halogenated hydrocarbon
22. Ignition (autoignition) temperature
23. Inhibitor
24. Instability
25. Ionic and covalent compounds
26. Irritants (riot control agents)
27. Maximum safe storage temperature (MSST)
28. Melting point and freezing point
29. Miscibility
30. Nerve agents
31. Organic and inorganic
32. Oxidation potential
33. Persistence
34. pH
35. Physical change
36. Physical state (solid, liquid, gas)
37. Polymerization
38. Radioactivity
39. Reactivity

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

40. Riot control agents
41. Saturated, unsaturated (straight and branched), and aromatic hydrocarbons
42. Self-accelerating decomposition temperature (SADT)
43. Solubility
44. Solution and slurry
45. Specific gravity
46. Strength
47. Sublimation
48. Temperature of product
49. Toxic products of combustion
50. Vapor density
51. Vapor pressure
52. Vesicants (blister agents)
53. Viscosity
54. Volatility

604-7.2.2.3 The hazardous materials technician shall describe the heat transfer processes that occur as a result of a cryogenic liquid spill

604-7.2.2.4 Given five hazardous materials/WMD scenarios and the associated reference materials, the hazardous materials technician shall identify the signs and symptoms of exposure to each material and the target organ effects of exposure to that material

604-7.2.2.5 The hazardous materials technician shall identify two methods for determining the pressure in bulk packaging or facility containers

1. Fixed pressure gauge
2. Attach a pressure gauge

3. Determine temperature of the product and use a vapor pressure/temperature conversion chart

604-7.2.2.6 The hazardous materials technician shall identify one method for determining the amount of lading remaining in damaged bulk packaging or facility containers

1. Shipping papers and related documents
2. Fixed gauging devices
3. Weigh small nonbulk cylinders
4. Infrared cameras
5. Visible frost line on liquefied gas containers

604-7.2.3 ***Describing the Condition of the Container Involved in the Incident.***

Given examples of container damage, the hazardous materials technician shall describe the damage and shall meet the related requirements of 7.2.3.1 through 7.2.3.5

604-7.2.3.1 Given examples of containers, including the DOT specification markings for nonbulk and bulk packaging, and associated reference guides, the hazardous materials technician shall identify the basic design and construction features of each container

604-7.2.3.1.1 The hazardous materials technician shall identify the basic design and construction features, including closures, of the following bulk containers: NOTE: CGA=Compressed Gas Association, MC= Motor Carrier, TC=Transport Canada, DOT=Dept. of Transportation, SCT=Secretariat of Communications and Transportation [Mexico])

1. Cargo tanks
 - a. Compressed gas tube trailers
 - b. Corrosive liquid tanks
 - DOT 412, TC 412, SCT 312, MC 312, TC 312
 - c. Cryogenic liquid tanks
 - MC 338, TC 338, SCT 338, TC 341, CGA 341
 - d. Dry bulk cargo tanks

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- e. High pressure tanks
 - MC 331, TC 331, SCT 331
 - f. Low pressure chemical tanks
 - DOT 407, TC 407, SCT 307, MC 307, TC 307
 - g. Non-pressure liquid tanks
 - DOT 406, TC 406, SCT 306, MC 306, TC 306
2. Fixed facility tanks
- a. Cryogenic liquid tank
 - i. Refrigerated storage tanks=less than 15 psi
 - ii. High pressure cryogenic tanks=greater than 15psi
 - b. Non-pressure tank (Atmospheric pressure=0-0.5 psi)
 - i. Horizontal tank
 - ii. Cone roof tank
 - iii. Floating roof tank
 - iv. Covered floating roof tank
 - v. Floating roof with geodesic dome
 - vi. Lifter roof tank
 - vii. Vapor dome roof tank
 - viii. Underground storage tanks
 - c. Pressure tank
 - i. Low Pressure (0.5-15 psi)
 - a) Vertical dome roof tanks
 - ii. High pressure (greater than 15 psi)
 - a) Horizontal pressure vessel
 - b) Spherical pressure vessel
 - c) Noded spheroid
 - d) Underground high pressure
3. Intermediate bulk containers (also known as tote tanks)
4. Intermodal tanks
- a. Nonpressure intermodal tanks
 - i. IM-101 portable tank (IMO Type 1 internationally)
 - a) 25.4 – 100 psig
 - b) 5,000 – 6,340 gallon normal capacity
 - ii. IM-102 portable tank (IMO Type 2 internationally)
 - a) 14.5 – 24.4 psig
 - b) 5,000 – 6,340 gallon normal capacity

- b. Pressure intermodal tanks (DOT Specification 51; IMO Type 5 internationally)
 - i. 100 – 500 psi
 - ii. 4,500 – 5,500 gallon normal capacity
 - c. Specialized intermodal tanks
 - i. Cryogenic intermodal tanks (DOT Specification 51; IMO Type 7 internationally)
 - a) Insulated space is normally maintained under vacuum
 - b) 4,500 – 5,500 gallons normal capacity
 - ii. Tube modules
 - a) 2,400 – 5,000 psi
 - b) Cylinders range from 9 – 48 inches in diameter
5. One-ton containers (pressure drums)
6. Pipelines
7. Railroad cars
- a. Cryogenic liquid tank cars
 - b. Nonpressure tank cars (general service or low pressure cars)
 - c. Pneumatically unloaded hopper cars
 - d. Pressure tank cars
 - e. Other specialized cars

604-7.2.3.1.2 The hazardous materials technician shall identify the basic design and construction features, including closures of the following nonbulk containers:

- 1. Bags
- 2. Carboys and Jerricans
- 3. Cylinders
- 4. Drums
 - a. Types
 - i. Open head
 - ii. Closed head
 - b. Construction Materials
 - i. Metal
 - ii. Plastic
 - iii. Fiberboard
 - iv. Other suitable materials

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- c. Fittings
 - i. Bungs
 - ii. Chime ring

5. Dewar flask (cryogenic liquids)

604-7.2.3.1.3 The hazardous materials technician shall identify the basic design features and testing requirements on the following radioactive materials packages:

1. Excepted
2. Industrial
3. Type A
4. Type B
5. Type C – used in air shipments

604-7.2.3.2 The hazardous materials technician shall describe how a liquid petroleum product pipeline can carry different products

1. Co-mingling of products
2. Batching
3. Separation with a pig

604-7.2.3.3 Given an example of a pipeline, the hazardous materials technician shall identify the following:

1. Ownership of the line
2. Procedures for checking for gas migration
3. Procedure for shutting down the line or controlling the leak
4. Type of product in the line

604-7.2.3.4 Given examples of container stress or damage, the hazardous materials technician shall identify the type of damage in each example and assess the level of risk associated with the damage

1. Cracks

2. Scores
3. Gouges
4. Dents
5. Wheel burn
6. Rail burn
7. Street burn

604-7.2.3.5 Given a scenario involving radioactive materials, the hazardous materials technician, using available survey and monitoring equipment, shall determine if the integrity of any container has been breached

604-7.2.4 **Predicting Likely Behavior of Materials and Their Containers Where Multiple Materials Are Involved**

Given examples of hazardous materials/WMD incidents involving multiple hazardous materials or WMD, the hazardous materials technician shall predict the likely behavior of the material in each case and meet the requirements of 7.2.4.1 through 7.2.4.3

604-7.2.4.1 The hazardous materials technician shall identify at least three resources available that indicate the effects of mixing various hazardous materials

1. Richard J. Lewis, Jr., *Hazardous Chemicals Desk Reference*
2. NOAA (National Oceanic Atmospheric Administration) Chemical Reactivity Worksheet
3. Bretherick's *Handbook of Reactive Chemical Hazards*
4. NFPA *Fire Protection Guide on Hazardous Materials*
5. Material Safety Data Sheets

604-7.2.4.2 The hazardous materials technician shall identify the impact of the following fire and safety features on the behavior of the products during an incident at a bulk liquid facility and explain their significance in the analysis process:

1. Fire protection systems

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

2. Monitoring and detection systems
3. Pressure relief and vacuum relief protection
4. Product spillage and control (impoundment and diking)
5. Tank spacing
6. Transfer operations

604-7.2.4.3 The hazardous materials technician shall identify the impact of the following fire and safety features on the behavior of the products during an incident at a bulk gas facility and explain their significance in the analysis process:

1. Fire protection systems
2. Monitoring and detection systems
3. Pressure relief protection
4. Transfer operations

604-7.2.5 **Estimating the Likely Size of an Endangered Area**

Given examples of hazardous materials/WMD incidents, the hazardous materials technician shall estimate the likely size, shape, and concentrations associated with the release of materials involved in an incident by using computer modeling, monitoring equipment, or specialists in this field and shall meet the requirements of 7.2.5.1 through 7.2.5.4

604-7.2.5.1 Given the emergency response plan, the hazardous materials technician shall identify resources for dispersion pattern prediction and modeling, including computers, monitoring equipment, or specialists in the field

604-7.2.5.2 Given the quantity, concentration, and release rate of a material, the hazardous materials technician shall identify the steps for determining the likely extent of the physical, safety, and health hazards within the endangered area of a hazardous materials/WMD incident

604-7.2.5.2.1 The hazardous materials technician shall describe the following terms and exposure values and explain their significance in the analysis process:

1. Counts per minute (cpm) and kilocounts per minute (kcpm)
2. Immediately dangerous to life and health (IDLH) value
3. Incubation period
4. Infectious dose
5. Lethal concentrations (LC₅₀)
6. Lethal dose (LD₅₀)
7. Parts per billion (ppb)
8. Parts per million (ppm)
9. Permissible exposure limit (PEL)
10. Radiation absorbed dose (rad)
11. Roentgen equivalent man (rem), millirem (mrem), microrem (μ rem)
12. Threshold limit value ceiling (TLV-C)
13. Threshold limit value short-term exposure limit (TLV-STEL)
14. Threshold limit value time-weighted average (TLV-TWA)
15. Health Hazard = Exposure + Toxicity
16. Dose = Concentration x Time
17. ALARA = As Low As Reasonably Achievable

604-7.2.5.2.2 The hazardous materials technician shall identify two methods for predicting the areas of potential harm within the endangered area of a hazardous materials/WMD incident

1. Determine the level of toxicity of the hazardous material that has been released in the endangered area
2. Determine the length of time that persons in the endangered area would be exposed to the hazard

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

3. Determine areas of potential harm using reference sources or direct monitoring instruments
 - a. *Emergency Response Guidebook*
 - b. Computer dispersion models
 - i. CAMEO (Computer Assisted Management of Emergency Operations)
 - ii. MARPLOT (Mapping Applications for Response, Planning and Local Operational Tasks)
 - iii. ALOHA (Aerial Locations Of Hazardous Atmospheres)
 - iv. WISER (Wireless Informational Systems for Emergency Responders)
 - c. Portable and fixed air-monitoring systems

604-7.2.5.3 The hazardous materials technician shall identify the steps for estimating the outcomes within an endangered area of a hazardous materials/WMD incident

1. Determining the dimensions of the endangered area
2. Estimating the number of exposures within the endangered area
3. Measuring or predicting the concentrations of materials in the endangered area
4. Estimating the physical, health, and safety hazards within the endangered area
5. Identifying the area of potential harm within the endangered area
6. Estimating the potential outcomes within the endangered area

604-7.2.5.4 Given three examples involving a hazardous materials/WMD release and the corresponding instrument monitoring readings, the hazardous materials technician shall determine the applicable public protective response options and the areas to be protected

604-7.3 **Competencies — Planning the Response**

604-7.3.1 **Identifying Response Objectives**

604-7.3.1.1 Given scenarios involving hazardous materials/WMD incidents, the hazardous materials technician shall describe the response objectives for each problem

604-7.3.1.2 Given an analysis of a hazardous materials/WMD incident, the hazardous materials technician shall be able to describe the steps for determining response objectives (defensive, offensive, and nonintervention)

1. Estimate exposures that could be saved
2. Determine the response objectives

604-7.3.2 **Identifying the Potential Response Options**

604-7.3.2.1 Given scenarios involving hazardous materials/WMD incidents, the hazardous materials technician shall identify the possible response options (defensive, offensive, and nonintervention) by response objective for each problem

1. Offensive
 - a. Rescue
 - b. Public Protective Actions
 - c. Spill Control
 - d. Leak Control
 - e. Fire Control
 - f. Clean up and recovery
2. Defensive
 - a. Public Protective Actions
 - b. Spill Control
 - c. Fire Control
 - d. Clean up and recovery

3. Non intervention - Public Protective Actions

604-7.3.2.2 The hazardous materials technician shall be able to identify the possible response options to accomplish a given response objective.

The hazardous materials technician shall be able to identify concerns associated with the following event stages of the General Hazardous Materials Behavior Model:

1. Stress event
 - a. Thermal stress
 - b. Mechanical stress
 - c. Chemical stress
2. Breach event

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- a. Disintegration
 - b. Runaway Cracking
 - c. Failure of Container Attachments
 - d. Container Punctures
 - e. Container Splits or Tears
3. Release event
- a. Detonation
 - b. Violent Rupture
 - c. Rapid Relief
 - d. Spills or Leaks
4. Engulfing event
- a. Identify the hazardous material or the energy likely to engulf the area
 - b. What form is the energy or matter in?
 - c. What is making it move?
 - d. What path will it follow?
 - e. What type of dispersion pattern will it create?
 - i. Cloud
 - ii. Cone
 - iii. Plume
 - iv. Stream
 - v. Irregular
5. Impingement event (typically categorized based on duration)
- a. Harmful characteristics of material
 - b. Concentration of the hazardous material
 - c. Duration of the impingement
 - d. Characteristics of the exposure
6. Harm event
- a. Thermal
 - b. Toxicity/poison
 - c. Radiation
 - d. Asphyxiation
 - e. Corrosivity
 - f. Etiological
 - g. Mechanical

604-7.3.3

Selecting Personal Protective Equipment

Given scenarios of hazardous materials/WMD incidents with known and unknown hazardous materials/WMD, the hazardous materials technician shall determine the personal protective equipment for the

response options specified in the incident action plan in each situation and shall meet the requirements of 7.3.3.1 through 7.3.3.4.7

604-7.3.3.1

The hazardous materials technician shall identify and describe the four levels of personal protective equipment as specified by the Environmental Protection Agency (EPA) and the National Institute for Occupational Safety and Health (NIOSH)

1. Level A – Vapor Protective Chemical Protective Clothing (CPC)
 - a. Encapsulated garment
 - b. Requires SCBA (positive pressure self contained breathing apparatus) or SAR (supplied air respirator) use
2. Level B – Splash Protective CPC
 - a. Encapsulated garment
 - b. Non-encapsulated garment
 - c. Requires SCBA or SAR use
3. Level C – Splash Protective CPC
 - a. Non-encapsulated garment
 - b. Utilizes APR (air purifying respirator) or PAPR (powered air purifying respirator)
4. Level D – Non-emergency/hazardous materials response work clothing
5. Chemical protective clothing for Level A, Level B or Level C ensembles should be selected based on one of the following applicable criteria:
 - a. NFPA 1991 *Standard on Vapor Protective Ensembles for Hazardous Materials Emergencies*
 - b. NFPA 1992 *Standard on Liquid Splash Protective Ensembles and Clothing for Hazardous Materials Emergencies*
 - c. NFPA 1994 *Standard on Protective Ensembles for First Responders to CBRN Terrorism Incidents*

604-7.3.3.2

The hazardous materials technician shall identify and describe personal protective equipment options available for the following hazards:

1. Thermal
2. Radiological

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

3. Asphyxiating
4. Chemical (liquids and vapors)
5. Etiological (biological)
6. Mechanical (explosives)

604-7.3.3.3 The hazardous materials technician shall identify the process to be considered in selecting respiratory protection for a specified action option

1. IDLH environments
 - a. Toxic environments
 - b. Flammable/explosive environments
 - c. Hazardous oxygen levels
 - d. Radiation exposure
2. Non-IDLH Atmospheres
 - a. Toxic environments
 - b. Flammable/explosive environments
 - c. Hazardous oxygen levels
 - d. Radiation exposure

604-7.3.3.4 The hazardous materials technician shall identify the factors to be considered in selecting chemical-protective clothing for a specified action option

604-7.3.3.4.1 The hazardous materials technician shall describe the following terms and explain their impact and significance on the selection of chemical-protective clothing:

1. Degradation
2. Penetration
3. Permeation

604-7.3.3.4.2 The hazardous materials technician shall identify at least three indications of material degradation of chemical-protective clothing

1. Stiffness or excessive pliability
2. Tears, cuts or abrasions

3. Damage to zippers or other closures

604-7.3.3.4.3 The hazardous materials technician shall identify the different designs of vapor-protective and splash-protective clothing and describe the advantages and disadvantages of each type

1. Type I
 - a. Fully encapsulating air tight vapor protective suit
 - b. With SCBA
2. Type II
 - a. Non-encapsulating suit
 - b. With SCBA worn on outside
3. Type III
 - a. Fully encapsulating suit
 - b. With SAR

604-7.3.3.4.4 The hazardous materials technician shall identify the relative advantages and disadvantages of the following heat exchange units used for the cooling of personnel in personal protective equipment:

1. Air cooled
2. Ice cooled
3. Water cooled
4. Phase change cooling technology

604-7.3.3.4.5 The hazardous materials technician shall identify the process for selecting protective clothing at hazardous materials/WMD incidents

1. Perform site management control functions
2. Identify the problem
3. Perform hazard and risk analysis
4. Consult PPE compatibility charts and respiratory protection guidelines
5. Select appropriate PPE based on the above

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- 604-7.3.3.4.6** Given three examples of various hazardous materials, the hazardous materials technician shall determine the protective clothing construction materials for a given action option using chemical compatibility charts
- 604-7.3.3.4.7** The hazardous materials technician shall identify the physiological and psychological stresses that can affect users of personal protective equipment
1. Physiological
 - a. Extreme heat or cold operating conditions
 - b. Noise
 - c. Reduced vision from fogging of CPC or SCBA face pieces
 - d. Operations in low-light or low-visibility environments
 - e. Reduced handling and dexterity due to the need to wear several layers of gloves
 - f. Adverse weather conditions
 - g. Physical hazards and the physical operating environment
 2. Psychological
 - a. Lack of physical fitness and the physical ability to perform the required tasks
 - b. Response operations involving injuries, fatalities or high-risk operations
 - c. Operations within enclosed or confined space environments
 - d. Background and experience levels in both wearing CPC and operating in hostile environments
 - e. Fear of either suit or respiratory protection failure

604-7.3.4

Selecting Decontamination Procedures

Given a scenario involving a hazardous materials/WMD incident, the hazardous materials technician shall select a decontamination procedure that will minimize the hazard, shall determine the equipment required to implement that procedure, and shall complete the following tasks:

1. Describe the advantages and limitations of each of the following decontamination methods:
 - a. Absorption
 - b. Adsorption
 - c. Chemical degradation
 - d. Dilution
 - e. Disinfecting
 - f. Evaporation
 - g. Isolation and disposal

- h. Neutralization
 - i. Solidification
 - j. Sterilization
 - k. Vacuuming
 - l. Washing
2. Identify three sources of information for determining the applicable decontamination procedure and identify how to access those resources in a hazardous materials/WMD incident
 - a. CHEMTREC
 - b. CHEM-TEL
 - c. Manufacturer
 - d. MSDS
 - e. National Response Center (NRC)
 - f. CANUTEC
 - g. SETIQ
 - h. Local or regional poison control centers

604-7.3.5

Developing a Plan of Action

Given scenarios involving hazardous materials/WMD incidents, the hazardous materials technician shall develop a plan of action, including site safety and a control plan, that is consistent with the emergency response plan and standard operating procedures and within the capability of available personnel, personal protective equipment, and control equipment for that incident, and shall meet the requirements of 7.3.5.1 through 7.3.5.5

A typical plan of action for a hazardous materials response would contain the following components:

1. Site description
2. Entry objective
3. On scene organization and coordination
4. On scene control
5. Hazard evaluation
6. Personal protective equipment
7. On scene work assignments
8. Communications procedures

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

9. Decontamination procedures
10. On scene safety and health considerations including designation of the safety officer, emergency medical care procedures, environmental monitoring, emergency procedures, and personnel monitoring

604-7.3.5.1 The hazardous materials technician shall describe the purpose of, procedures for, equipment required for, and safety precautions used with the following techniques for hazardous materials/WMD control:

1. Absorption
2. Adsorption
3. Blanketing
4. Covering
5. Damming
6. Diking
7. Dilution
8. Dispersion
9. Diversion
10. Fire suppression
11. Neutralization
 - a. For corrosive releases
 - i. Not for use on living tissue – use primarily on decon equipment or neutralize spills
 - ii. Process generates heat
 - iii. Final solution should be as close to pH 7 as possible
 - iv. pH disposal guidelines dependent on AHJ
 - b. For other chemical releases
 - i. Consult technical reference
 - ii. Process typically generates heat
 - iii. pH disposal guidelines dependent on AHJ
12. Overpacking

Reprinted with permission from NFPA 472 *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents* 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

13. Patching
14. Plugging
15. Pressure isolation and reduction (flaring; venting; vent and burn; isolation of valves, pumps, or energy sources)
16. Retention
17. Solidification
18. Transfer
19. Vapor control (dispersion, suppression)

604-7.3.5.2

Given a scenario involving a hazardous materials/WMD incident, the hazardous materials technician shall develop the site safety and control plan that must be included as part of the incident action plan

In accordance with 29 CFR 1910.120 site safety and control plans should address the following:

1. Analysis of hazards on the site and a risk analysis of those hazards
2. Site map or sketch
3. Site work (control) zones
4. Use of buddy system
5. Site communications
6. Command post
7. Standard operating procedures and safe work practices
8. Medical Assistance and triage area
9. Other relevant topics

604-7.3.5.2.1

The hazardous materials technician shall list and describe the safety considerations to be included

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

604-7.3.5.2.2 The hazardous materials technician shall identify the points that should be made in a safety briefing prior to working at the scene

604-7.3.5.3 The hazardous materials technician shall identify the atmospheric and physical safety hazards associated with hazardous materials/WMD incidents involving confined spaces

Hazards associated with confined spaces that should continually be monitored include but are not limited to:

1. Atmospheric hazards
 - a. Oxygen deficient
 - b. Oxygen enriched
 - c. Flammable/explosive
 - d. Toxic
2. Physical hazards
 - a. Engulfment
 - b. Slips/falls
 - c. Electrical
 - d. Structural
 - e. Mechanical

604-7.3.5.4 The hazardous materials technician shall identify the pre-entry activities to be performed.

1. Initial activities would include:
 - a. Establish command
 - b. Appoint a Safety Officer
 - c. Establish hazard control zones
 - d. Identify escape routes
 - e. Designate a withdrawal signal
 - f. Identify safe locations (uphill, upwind, up stream)
2. Develop Incident Action Plan
3. Identify hazards
4. Prior to entry into a hazard area the following tasks should be complete:
 - a. Establish entry team(s) and back up team(s)
 - b. Conduct site safety briefing
 - c. Designate primary and emergency modes of communication
 - d. Establish decon corridor
 - e. Identification of task(s) to be performed

- f. Identification of personal protective equipment/respiratory protection
- g. Monitoring requirements

604-7.3.5.5 The hazardous materials technician shall identify the procedures, equipment, and safety precautions for preserving and collecting legal evidence at hazardous materials /WMD incidents

1. Evidence should be collected in accordance with AHJ.
2. All evidence collected must be appropriately documented and chain of custody maintained in accordance with AHJ.
3. Proper PPE must be utilized during collection process.

604-7.4 **Competencies — Implementing the Planned Response**

604-7.4.1 **Performing Incident Command Duties**

Given the emergency response plan or standard operating procedures and a scenario involving a hazardous materials/WMD incident, the hazardous materials technician shall demonstrate the duties of an assigned function in the hazardous materials branch or group within the incident command system and shall identify the role of the hazardous materials technician during hazardous materials/WMD incidents

1. Primary hazardous materials group or branch functions include:
 - a. Hazardous materials branch/group supervision (Hazardous Materials Branch Director/Group Supervisor)
 - b. Safety (Assistant Safety Officer – Hazardous Materials)
 - c. Site Access Control (Site Access Control Unit Leader)
 - i. Establishes Hazard Control Zones
 - ii. Manages Safe Refuge Area
 - d. Entry Team Operations (Entry Team Leader)
 - i. Recon team
 - ii. Entry team(s)
 - iii. Back-up team
 - e. Decontamination (Decon Team Leader)
 - f. Information/research coordination (Information/Research Team Leader)
 - i. Technical/Product Specialist
 - ii. Environmental/Remediation Contractors
 - iii. Governmental or External Agency Liaisons
2. Secondary hazardous materials group or branch functions include:

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- a. Resources/logistics
- b. Medical (Medical Unit Leader)
- c. Incident rehabilitation (Rehabilitation Unit Leader)
- d. The above secondary functions are performed by the Hazardous Materials Branch/Group only if they are not being performed by the logistics section, i.e., logistics section has not been activated

604-7.4.2 **Using Protective Clothing and Respiratory Protection**

The hazardous materials technician shall demonstrate the ability to don, work in, and doff liquid splash-protective, vapor-protective, and chemical-protective clothing and any other specialized personal protective equipment provided by the AHJ, including respiratory protection, and shall complete the following tasks:

1. Describe three safety procedures for personnel working in chemical-protective clothing
2. Describe three emergency procedures for personnel working in chemical-protective clothing
 - a. Loss of air supply
 - b. Loss of suit integrity
 - c. Loss of verbal communications
 - d. Victim/responder down in hazard area
3. Demonstrate the ability to don, work in, and doff self-contained breathing apparatus in addition to any other respiratory protection provided by the AHJ
4. Demonstrate the ability to don, work in, and doff liquid splash-protective, vapor-protective, and chemical-protective clothing in addition to any other specialized protective equipment provided by the AHJ

604-7.4.3 **Performing Control Functions Identified in Incident Action Plan.**

Given scenarios involving hazardous materials/WMD incidents, the hazardous materials technician shall select the tools, equipment, and materials for the control of hazardous materials/WMD incidents and identify the precautions for controlling releases from the packaging/containers and shall complete the following tasks:

1. Given a pressure vessel, select the material or equipment and demonstrate a method(s) to contain leaks from the following locations:
 - a. Fusible plug

- b. Fusible plug threads
 - c. Side wall of cylinder
 - d. Valve blowout
 - e. Valve gland
 - f. Valve inlet threads
 - g. Valve seat
 - h. Valve stem assembly blowout
2. Given the fittings on a pressure container, demonstrate the ability to perform the following:
 - a. Close valves that are open
 - b. Replace missing plugs
 - c. Tighten loose plugs
3. Given a 55 gal (208 L) drum and applicable tools and materials, demonstrate the ability to contain the following types of leaks:
 - a. Bung leak
 - b. Chime leak
 - c. Forklift puncture
 - d. Nail puncture
4. Given a 55 gal (208 L) drum and an overpack drum, demonstrate the ability to place the 55 gal (208 L) drum into the overpack drum using the following methods:
 - a. Rolling slide-in
 - b. Slide-in
 - c. Slip-over
5. Identify the maintenance and inspection procedures for the tools and equipment provided for the control of hazardous materials releases according to the manufacturer's specifications and recommendations
6. Identify three considerations for assessing a leak or spill inside a confined space without entering the area.

Use remote monitoring to evaluate for:

 - a. Oxygen levels
 - b. Flammable atmospheres
 - c. Toxic atmospheres
7. Identify three safety considerations for product transfer operations
 - a. Grounding
 - b. Bonding
 - c. Elimination of ignition sources and shock hazards

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

8. Given an MC-306/DOT-406 cargo tank and a dome cover clamp, demonstrate the ability to install the clamp on the dome
9. Identify the methods and precautions used to control a fire involving an MC-306/DOT-406 aluminum shell cargo tank
10. Describe at least one method for containing each of the following types of leaks in MC-306/DOT-406, MC-307/DOT-407, and MC-312/DOT-412 cargo tanks:
 - a. Dome cover leak
 - b. Irregular-shaped hole
 - c. Puncture
 - d. Split or tear
11. Describe three product removal and transfer considerations for overturned MC-306/DOT-406, MC-307/DOT-407, MC-312/DOT-412, MC-331, and MC-338 cargo tanks
 - a. Inherent risks associated with such operations
 - b. Procedures and safety precautions
 - c. Equipment required

604-7.4.4 Given MC-306/DOT-406, MC-307/DOT-407, MC-312/DOT-412, MC-331, and MC-338 cargo tanks, the hazardous materials technician shall identify the common methods for product transfer from each type of cargo tank.

604-7.4.5 **Performing Decontamination Operations Identified in the Incident Action Plan.**

The hazardous materials technician shall demonstrate the ability to set up and implement the following types of decontamination operations:

1. Technical decontamination operations in support of entry operations
2. Technical decontamination operations involving ambulatory and non-ambulatory victims
3. Mass decontamination operations involving ambulatory and non-ambulatory victims

604-7.5 **Competencies — Evaluating Progress**

604-7.5.1 **Evaluating the Effectiveness of the Control Functions**

Reprinted with permission from NFPA 472 *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents* 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

Given scenarios involving hazardous materials/WMD incidents and the incident action plan, the hazardous materials technician shall evaluate the effectiveness of any control functions identified in the incident action plan.

604-7.5.2 **Evaluating the Effectiveness of the Decontamination Process**

Given an incident action plan for a scenario involving a hazardous materials/WMD incident, the hazardous materials technician shall evaluate the effectiveness of any decontamination procedures identified in the incident action plan.

604-7.6 **Competencies — Terminating the Incident**

604-7.6.1 **Assisting in the Debriefing**

Given a scenario involving a hazardous materials/WMD incident, the hazardous materials technician shall participate in the debriefing of the incident and shall meet the following requirements:

An effective debriefing should address the following informational issues regarding response activities:

- Positive aspects – Identify strengths or things that went well that need to be maintained or continued
- Negative aspects – Identify weaknesses that went poorly and need to be corrected
- Unique aspects – Unusual or unsuspected conditions that may need to be addressed or planned for

1. Describe (at least) three components of an effective debriefing
 - a. Inform responders of the potential signs and symptoms of any possible hazardous materials exposures
 - b. Identify:
 - i. Damaged equipment
 - ii. Expended supplies
 - iii. Items that need to be disposed
 - iv. Unsafe site conditions
 - c. Assign:
 - i. information gathering responsibilities for a post-incident analysis and critique
 - ii. Point of contact for any follow up on incident related issues
 - d. Assess the need for Critical Incident Stress Debriefing (CISD)
2. Describe the key topics of an effective debriefing
 - a. Health information

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- b. Equipment and apparatus exposure review
 - c. A follow-up contact person
 - d. Problems requiring immediate action
 - e. Thank you!
3. Describe when a debriefing should take place
 - a. As soon as the “emergency phase” of the incident is over
 - b. Should be before any responders leave the scene
 4. Describe who should be involved in a debriefing.
 - a. Hazardous Materials Response Team
 - b. Incident Commander
 - c. Section Chiefs/Branch Directors/Division and Group Supervisors, etc.
 - d. Information Officer
 - e. Agency representatives or key players as determined by the Incident Commander (i.e. Safety Officer and Agency Liaisons)

604-7.6.2

Assisting in the Incident Critique

Given a scenario involving a hazardous materials/WMD incident, the hazardous materials technician shall provide operational observations of the activities that were performed in the hot and warm zones during the incident and shall complete the following tasks:

1. Describe three components of an effective critique
 - a. Direction
 - b. Participation
 - c. Solutions
2. Describe who should be involved in a critique
 - a. Hazardous Materials Response Team
 - b. Incident Commander
 - c. Section Chiefs/Branch Directors/Division and Group Supervisors, etc.
 - d. Information Officer
 - e. Agency representatives or key players as determined by the Incident Commander (i.e. Safety Officer and Agency Liaisons)
3. Describe why an effective critique is necessary after a hazardous materials/WMD incident
 - a. Develop recommendations for improving the emergency response team

- b. Promotes systems-dependent operations rather than people-dependent organizations
 - c. Promotes a willingness to cooperate through teamwork
 - d. Promotes improvement of safe operating procedures
 - e. Promotes sharing of information among emergency response organizations
4. Describe which written documents should be prepared as a result of the critique
 - a. Post-Critique Report
 - b. Formal-Critique Report
5. Describe recommended methods for critiquing large-scale emergency responses
 - a. Participant-level critique
 - b. Operations-level critique
 - c. Group-level critique

604-7.6.3

Reporting and Documenting the Incident

Given a scenario involving a hazardous materials/WMD incident, the hazardous materials technician shall complete the reporting and documentation requirements consistent with the emergency response plan or standard operating procedures and shall meet the following requirements:

1. Identify the reports and supporting documentation required by the emergency response plan or standard operating procedures
2. Demonstrate completion of the reports required by the emergency response plan or standard operating procedures
 - a. Incident action plan and all components
 - b. Site safety plan and all components
 - c. Other documentation required by AHJ
3. Describe the importance of personnel exposure records
4. Describe the importance of debriefing records
5. Describe the importance of critique records
6. Identify the steps in keeping an activity log and exposure records
 - a. Activity log
 - i. Record major event(s)
 - ii. Record time major event(s) occurred
 - iii. Briefly describe major event(s)

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- iv. Additional information to include
 - a) Information that may assist in the investigation or cost recovery process
 - b) Task assignments
 - c) Task completion
 - d) Injuries and exposures
 - b. Exposure records
 - i. General information
 - a) Name of exposed worker
 - b) Personal ID number
 - c) Assignment/station
 - d) Incident date
 - e) Incident number
 - f) Incident location
 - ii. Nature of incident
 - iii. Level of personal protection
 - iv. Emergency response activity
 - v. Exposure data
 - a) Method of exposure
 - b) Duration of exposure
 - vi. Medical treatment provided
 - a) Signs and symptoms
 - b) On-scene medical treatment
 - c) Medical facility treatment
 - d) Follow-up action required
 - vii. Medical treatment provided
 - a) Comment section
 - b) Individual's signature and date
 - c) Officer's signature and date
7. Identify the steps to be taken in compiling incident reports that meet federal, state, local, and organizational requirements – AHJ
8. Identify the requirements for compiling hot zone entry and exit logs – AHJ
9. Identify the requirements for compiling personal protective equipment logs
- The compilation of personal protective equipment logs should follow the PPE manufacturer's recommended procedures and any additional guidance from the AHJ (Regulations, SOPs, SOGs, etc.).
10. Identify the requirements for filing documents and maintaining records – AHJ

Reprinted with permission from NFPA 472 *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents* 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

CERTIFICATION CURRICULUM MANUAL – CHAPTER SIX

HAZARDOUS MATERIALS INCIDENT COMMANDER

REFERENCE LIST FOR THE HAZARDOUS MATERIALS INCIDENT COMMANDER 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

Texts

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.

Fire Fighter's Handbook of Hazardous Materials, Baker, Charles T., 7th edition. (2006). Sudsbury, MA: Jones and Bartlett.

Hazardous Materials: Managing the Incident. Chester Noll, G. G., Hildebrand, M. S., & Yvorra, J. G. (2005). MD: Red Hat Publishing Company, Inc.

Hazardous Materials/Weapons of Mass Destruction Response Handbook, 5th edition. Trebisacci, D. G. (2008). Quincy, MA: National Fire Protection Association.

NFPA 472: Standard for Professional Competence of Responders to Hazardous Materials Incidents. (2008 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.

Texts

Bretherick's Handbook of Reactive Chemical Hazards. Urben, P. G., Pitt, M. J., & Bretherick, L. (2007). Amsterdam: Elsevier.

Chlorine Emergencies: An Overview for First Responders. Chlorine Institute. (2007). Arlington, VA: The Chlorine Institute.

CHRIS: Chemical Hazards Response Information System. United States. (1992). COMDTINST, M16465.11B. Washington, DC: U.S. Dept. of Transportation, U.S. Coast Guard.

Dangerous Properties of Industrial and Consumer Chemicals. Cheremisinoff, N. P., King, J. A., & Boyko, R. (1994). New York, NY: M. Dekker.

Emergency Care for Hazardous Materials Exposure. Currance, P., Bronstein, A. C., & Clements, B. (2005). St. Louis, MO: Mosby.

Emergency Handling of Hazardous Materials in Surface Transportation. Association of American Railroads. (2009). Washington, DC: Association of American Railroads.

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, A. S., Hildebrand, M. S., & Noll, G. G. (2007). MD: Red Hat Publishing, Inc.

Hawley's Condensed Chemical Dictionary. Lewis, R. J., & Hawley, G. G. (2007). West Sussex, England: Wiley.

Symbol Seeker: Hazard Identification Manual. Burns, P. P. (2002). Preston, England: Symbol Seeker.

Media

Hazardous Materials Containment Series. Action Training Systems. [4 Disc DVD Set]. Hazardous materials containment - series of 4 titles. Seattle, WA: Action Training Systems.

Hazardous Materials: Managing the Incident DVD Series. Massingham, G., Noll, G. G., Hildebrand, M. S., & Noll, G. G. (2005). [8 Disc DVD Set]. Edgartown, MA: Emergency Film Group.

**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	Analyzing the Incident	4
605-8.3	Planning the Response	9
605-8.4	Implementing the Planned Response	4
605-8.5	Evaluating Progress	2
605-8.6	Terminating the Incident	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.

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

SECTION 605

HAZARDOUS MATERIALS INCIDENT COMMANDER

The Hazardous Materials Incident Commander is the person responsible for all hazardous materials/weapons of mass destruction (WMD) incident activities, including the development of strategies and tactics and the ordering and release of resources. The Hazardous Materials Incident Commander has overall authority and responsibility for conducting incident operations and is responsible for the management of all incident operations at the hazardous materials/weapons of mass destruction (WMD) incident site.

The Hazardous Materials Incident Commander must first master all the job performance requirements and knowledge, skills and abilities pertaining to:

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

The Hazardous Materials Incident Commander performs the following functions and is primarily responsible for:

- Having clear authority and knowledge of agency policy,
- Ensuring incident safety,
- Establishing the incident command post (ICP),
- Setting priorities, determining incident objectives and strategies to be followed,
- Establishing the incident command system (ICS) needed to manage the incident,
- Approving the incident action plan (IAP),
- Coordinating command and general staff functions,
- Approving resource order requests and the use of volunteers and auxiliary personnel,
- Ordering demobilization as needed,
- Ensuring after-action reports are completed.

605-8.1 General

605-8.1.1 Introduction

605-8.1.1.1 The incident commander (IC) shall be that person responsible for all incident activities, including the development of strategies and tactics and the ordering and release of resources.

605-8.1.1.2 The incident commander shall be trained to meet all competencies at the awareness level (Section 601), all core competencies at the operations level (Section 602), and all competencies in this chapter.

605-8.1.1.3 The incident commander shall receive any additional training necessary to meet applicable governmental occupational health and safety regulations.

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*. Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

605-8.1.1.4 The incident commander shall receive any additional training necessary to meet specific needs of the jurisdiction.

605-8.1.2 **Goal**

605-8.1.2.1 The goal of the competencies at this level shall be to provide the incident commander with the knowledge and skills to perform the tasks in 8.1.2.2 safely.

605-8.1.2.2 In addition to being competent at the awareness and operations levels, the incident commander shall be able to perform the following tasks:

1. Analyze a hazardous materials/WMD incident to determine the complexity of the problem and potential outcomes by completing the following tasks:
 - a. Collect and interpret hazard and response information from printed and technical resources, computer databases, and monitoring equipment
 - b. Estimate the potential outcomes within the endangered area at a hazardous materials/WMD incident
2. Plan response operations within the capabilities and competencies of available personnel, personal protective equipment, and control equipment by completing the following tasks:
 - a. Identify the response objectives for hazardous materials/WMD incidents
 - b. Identify the potential response options (defensive, offensive, and nonintervention) available by response objective
 - c. Approve the level of personal protective equipment required for a given action option
 - d. Develop an incident action plan, including site safety and control plan, consistent with the emergency response plan or standard operating procedures and within the capability of available personnel, personal protective equipment, and control equipment
3. Implement a response to favorably change the outcome consistent with the emergency response plan or standard operating procedures by completing the following tasks:
 - a. Implement an incident command system/unified command, including the specified procedures for notification and utilization of nonlocal resources (e.g., private, state, and federal government personnel)
 - b. Direct resources (private, governmental, and others) with task assignments and on-scene activities and provide management overview, technical review, and logistical support to those resources
 - c. Provide a focal point for information transfer to media and local elected officials through the incident command system structure

4. Evaluate the progress of the planned response to ensure the response objectives are being met safely, effectively, and efficiently and adjust the incident action plan accordingly.
5. Terminate the emergency phase of the incident by completing the following tasks:
 - a. Transfer command (control) when appropriate
 - b. Conduct an incident debriefing
 - c. Conduct a multiagency critique
 - d. Report and document the hazardous materials/WMD incident and submit the report to the designated entity

605-8.2 **Competencies — Analyzing the Incident**

605-8.2.1 **Collecting and Interpreting Hazard and Response Information**

605-8.2.1.1 Given access to printed and technical resources, computer databases, and monitoring equipment, the incident commander shall collect and interpret hazard and response information not available from the current edition of the DOT *Emergency Response Guidebook* or an MSDS.

605-8.2.1.2 The incident commander shall be able to identify and interpret the types of hazard and response information available from each of the following resources and explain the advantages and disadvantages of each resource:

1. Hazardous materials databases – examples include:
 - a. CAMEO (Computer Assisted Management of Emergency Operations)
 - b. MARPLOT (Mapping Applications for Response, Planning and Local Operational Tasks)
 - c. ALOHA (Aerial Locations Of Hazardous Atmospheres)
 - d. WISER (Wireless Informational Systems for Emergency Responders)
 - e. OREIS (Operational Response Emergency Informational System)
2. Monitoring equipment – examples include:
 - a. Combustible gas indicators
 - b. Colorimetric tubes
 - c. Photoionization detectors/flame ionization detectors
 - d. Radiological survey equipment
 - e. Oxygen meters
 - f. Toxic Gas Sensors
 - g. pH paper
 - h. Chemical test strips
3. Reference manuals
 - a. DOT Emergency Response Handbook
 - b. ARR Hazardous Materials Emergency Action Guides

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*. Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- c. ARR General Handling of Hazardous Materials in Surface Transportation
 - d. Field Guide to Tank Guide Identification
 - e. Bretherick's Handbook of Reactive Substances
 - f. Emergency Care for Hazardous Materials Exposure
 - g. Hawley's Condensed Chemical Dictionary
 - h. NIOSH Pocket Guide
 - i. CHRIS Chemical Hazards Response Information System (USCG)
 - j. Dangerous Properties of Industrial Chemicals
 - k. NFPA Fire Protection Guide of Hazardous Materials
4. Technical information centers (i.e., CHEMTREC/CANUTEC/ SETIQ and local, state, and federal authorities) – examples include:
 - a. CHEMTREC
 - b. Chlorine Institute
 - c. US Coast Guard and DOT National Response Center
 - d. The Agency for Toxic Substance and Disease Registry (ATSDR)
 - e. National Animal Poison Control Center (NAPCC)
 - f. National Pesticide Informational Center (NPIC)
 - g. National Poison Control Center (Mr. Yuck)
 - h. US Army Operational Center
 - i. Defense Logistics Agency
 5. Technical information specialist

605-8.2.2 **Estimating Potential Outcomes**

Given scenarios involving hazardous materials/WMD incidents, the surrounding conditions, and the predicted behavior of the container and its contents, the incident commander shall estimate the potential outcomes within the endangered area and shall complete the following tasks:

1. Identify the steps for estimating the outcomes within an endangered area of a hazardous materials/WMD incident.
 - a. Determining the dimensions of the endangered area
 - b. Estimating the number of exposures within the endangered area
 - c. Measuring or predicting the concentrations of materials in the endangered area
 - d. Estimating the physical, health, and safety hazards within the endangered area
 - e. Identifying the area of potential harm within the endangered area
 - f. Estimating the potential outcomes within the endangered area
2. Describe the following toxicological terms and exposure values and explain their significance in the analysis process:
 - a. Counts per minute (cpm) and kilocounts per minute (kcpm)
 - b. Immediately dangerous to life and health (IDLH) value
 - c. Infectious dose
 - d. Lethal concentrations (LC₅₀)
 - e. Lethal dose (LD₅₀)

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*. Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- f. Parts per billion (ppb)
 - g. Parts per million (ppm)
 - h. Permissible exposure limit (PEL)
 - i. Radiation absorbed dose (rad)
 - j. Roentgen equivalent man (rem); millirem (mrem); microrem (μ rem)
 - k. Threshold limit value ceiling (TLV-C)
 - l. Threshold limit value short-term exposure limit (TLV-STEL)
 - m. Threshold limit value time-weighted average (TLV-TWA)
3. Identify two methods for predicting the areas of potential harm within the endangered area of a hazardous materials/WMD incident.
 - a. Determine the level of toxicity of the hazardous material that has been released in the endangered area
 - b. Determine the length of time that persons in the endangered area would be exposed to the hazard
 - c. Determine areas of potential harm using reference sources or direct monitoring instruments
 - i. *Emergency Response Guidebook*
 - ii. Computer dispersion models
 - a) CAMEO (Computer Assisted Management of Emergency Operations)
 - b) MARPLOT (Mapping Applications for Response, Planning and Local Operational Tasks)
 - c) ALOHA (Aerial Locations Of Hazardous Atmospheres)
 - d) WISER (Wireless Informational Systems for Emergency Responders)
 - iii. Portable and fixed air-monitoring systems
 4. Identify the methods available to the organization for obtaining local weather conditions and predictions for short-term future weather changes.
 - a. National Weather Service
 - b. Local weather service
 - c. Internet weather resources, i.e. Weather Bug station locations
 - d. On-scene direct monitoring instrumentation, i.e. WeatherPak
 5. Explain the basic toxicological principles relative to assessment and treatment of personnel exposed to hazardous materials, including the following:
 - a. Acute and delayed toxicity (chronic)
 - b. Dose response
 - c. Local and systemic effects
 - d. Routes of exposure
 - i. Inhalation
 - ii. Ingestion
 - iii. Absorption
 - iv. Injection
 - e. Synergistic effects

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*. Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

6. Describe the health risks associated with the following:
 - a. Biological agents and biological toxins
 - b. Blood agents
 - c. Choking agents
 - d. Irritants (riot control agents)
 - e. Nerve agents
 - f. Radiological materials
 - g. Vesicants (blister agents)

605-8.3 **Competencies — Planning the Response**

605-8.3.1 **Identifying Response Objectives**

Given an analysis of a hazardous materials/WMD incident, the incident commander shall be able to describe the steps for determining response objectives (defensive, offensive, and nonintervention).

605-8.3.2 **Identifying the Potential Response Options**

Given scenarios involving hazardous materials/WMD, the incident commander shall identify the possible response options (defensive, offensive, and nonintervention) by response objective for each problem and shall complete the following tasks:

1. Identify the possible response options to accomplish a given response objective.
 - a. Offensive
 - i. Rescue
 - ii. Public Protective Actions
 - iii. Spill Control
 - iv. Leak Control
 - v. Fire Control
 - vi. Clean up and recovery
 - b. Defensive
 - i. Public Protective Actions
 - ii. Spill Control
 - iii. Fire Control
 - iv. Clean up and recovery
 - c. Non intervention - Public Protective Actions
2. Identify the purpose of each of the following techniques for hazardous materials control:
 - a. Absorption
 - b. Adsorption
 - c. Blanketing
 - d. Covering
 - e. Damming
 - f. Diking
 - g. Dilution
 - h. Dispersion
 - i. Diversion

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*. Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- j. Fire suppression
- k. Neutralization
 - i. For corrosive releases
 - a) Not for use on living tissue – use primarily on decon equipment or neutralize spills
 - b) Process generates heat
 - c) Final solution should be as close to pH 7 as possible
 - d) pH disposal guidelines dependent on AHJ
 - ii. For other chemical releases
 - a) Consult technical reference
 - b) Process typically generates heat
 - c) pH disposal guidelines dependent on AHJ
- l. Overpacking
- m. Patching
- n. Plugging
- o. Pressure isolation and reduction (flaring; venting; vent and burn; isolation of valves, pumps, or energy sources)
- p. Retention
- q. Solidification
- r. Transfer
- s. Vapor control (dispersion, suppression)

605-8.3.3

Approving the Level of Personal Protective Equipment

Given scenarios involving hazardous materials/WMD with known and unknown hazardous materials/WMD, the incident commander shall approve the personal protective equipment for the response options specified in the incident action plan in each situation and shall complete the following tasks:

1. Identify the four levels of chemical protection (EPA/OSHA) and describe the equipment required for each level and the conditions under which each level is used.
 - a. Level A – Vapor Protective Chemical Protective Clothing (CPC)
 - i. Encapsulated garment
 - ii. Requires SCBA (positive pressure self contained breathing apparatus) or SAR (supplied air respirator) use
 - b. Level B – Splash Protective CPC
 - i. Encapsulated garment
 - ii. Non-encapsulated garment
 - iii. Requires SCBA or SAR use
 - c. Level C – Splash Protective CPC
 - i. Non-encapsulated garment
 - ii. Utilizes APR (air purifying respirator) or PAPR (powered air purifying respirator)
 - d. Level D – Non-emergency/hazardous materials response work clothing
 - e. Chemical protective clothing for Level A, Level B or Level C ensembles should be selected based on one of the following applicable criteria:

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*. Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- i. NFPA 1991 *Standard on Vapor Protective Ensembles for Hazardous Materials Emergencies*
 - ii. NFPA 1992 *Standard on Liquid Splash Protective Ensembles and Clothing for Hazardous Materials Emergencies*
 - iii. NFPA 1994 *Standard on Protective Ensembles for First Responders to CBRN Terrorism Incidents*
2. Describe the following terms and explain their impact and significance on the selection of chemical-protective clothing:
 - a. Degradation
 - b. Penetration
 - c. Permeation
3. Describe three safety considerations for personnel working in vapor-protective, liquid splash-protective and high temperature-protective clothing.
 - a. Loss of dexterity
 - b. Limited vision
 - c. Reduced communications capability
 - d. Heat and/or cold stress
 - e. Need for rehabilitation
4. Identify the physiological and psychological stresses that can affect users of personal protective equipment.
 - a. Physiological
 - i. Extreme heat or cold operating conditions
 - ii. Noise
 - iii. Reduced vision from fogging of CPC or SCBA face pieces
 - iv. Operations in low-light or low-visibility environments
 - v. Reduced handling and dexterity due to the need to wear several layers of gloves
 - vi. Adverse weather conditions
 - vii. Physical hazards and the physical operating environment
 - b. Psychological
 - i. Lack of physical fitness and the physical ability to perform the required tasks
 - ii. Response operations involving injuries, fatalities or high-risk operations
 - iii. Operations within enclosed or confined space environments
 - iv. Background and experience levels in both wearing CPC and operating in hostile environments
 - v. Fear of either suit or respiratory protection failure

605-8.3.4 **Developing an Incident Action Plan**

Given scenarios involving hazardous materials/WMD incidents, the incident commander shall develop an incident action plan, including site safety and control plan, consistent with the emergency response plan or standard operating

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*. Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

procedures and within the capability of the available personnel, personal protective equipment, and control equipment, and shall complete the tasks in 8.3.4.1 through 8.3.4.5.5.

605-8.3.4.1 The incident commander shall identify the steps for developing an incident action plan.

1. Analyze - Analyze the incident
2. Plan - Develop the Incident Action Plan including the following:
 - a. Site restrictions
 - b. Entry objectives
 - c. On-scene organization and control
 - d. Selection of personal protective equipment
 - e. Site safety plan (ICS 208HM)
 - f. Communications procedures
 - g. Emergency procedures and personnel accountability
 - h. Emergency medical care arrangements
 - i. Rehabilitation plan
 - j. Decontamination procedures
 - k. On-scene work assignments (branches)
 - l. Ensure debriefing and critiquing of the incident is conducted once the incident is terminated
 - m. Document the plan using:
 - i. Appropriate regulatory agency methods as necessary
 - ii. Department of Homeland Security – National Incident Management System/Incident Command System standardized forms
 - a) ICS 201 Incident Briefing Form
 - b) ICS 202 Incident Objectives Worksheet
 - c) ICS 203 Organization Assignment List
 - d) ICS 204 Division Assignment List
 - e) ICS 205 Communications Plan
 - f) ICS 206 Medical Plan
 - g) ICS 208HM Site Safety and Control Plan
 - h) ICS 211 Incident Check-in List
 - i) ICS 213 General Message
 - j) ICS 214 Unit Log
 - k) ICS 215 Incident Planning Worksheet
 - l) ICS 215A Incident Action Plan Safety Analysis
3. Implement - Implement the plan
4. Evaluate - Evaluate the plan's effectiveness and revise as necessary

605-8.3.4.2 The Incident Commander shall identify the factors to be evaluated in selecting public protective actions, including evacuation and sheltering-in-place.

1. The Hazardous Material Involved

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*. Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- a. Degree of health hazard
 - b. Chemical and physical properties
 - c. Amount involved
 - d. Containment/control of release
 - e. Rate of vapor movement
2. The Population Threatened
 - a. Location
 - b. Number of people
 - c. Time available to evacuate or shelter in-place
 - d. Ability to control evacuation or shelter-in-place
 - e. Building types and availability
 - f. Special institutions or populations, e.g., nursing homes, hospitals, prisons
3. Weather Conditions
 - a. Effect on vapor and cloud movement
 - b. Potential for change
 - c. Effect on evacuation or protection in-place

605-8.3.4.3 Given the emergency response plan or standard operating procedures, the incident commander shall identify which agency will perform the following:

1. Receive the initial notification
2. Provide secondary notification and activation of response agencies
3. Make ongoing assessments of the situation
4. Command on-scene personnel (incident management system)
5. Coordinate support and mutual aid
6. Provide law enforcement and on-scene security (crowd control)
7. Provide traffic control and rerouting
8. Provide resources for public safety protective action (evacuation or shelter in-place)
9. Provide fire suppression services
10. Provide on-scene medical assistance (ambulance) and medical treatment (hospital)
11. Provide public notification (warning)
12. Provide public information (news media statements)

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*. Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

13. Provide on-scene communications support
14. Provide emergency on-scene decontamination
15. Provide operations-level hazard control services
16. Provide technician-level hazard mitigation services
17. Provide environmental remedial action (cleanup) services
18. Provide environmental monitoring
19. Implement on-site accountability
20. Provide on-site responder identification
21. Provide incident command post security
22. Provide incident or crime scene investigation
23. Provide evidence collection and sampling

605-8.3.4.4 The incident commander shall identify the process for determining the effectiveness of a response option based on the potential outcomes.

1. Evaluate the effectiveness of the response based on:
 - a. Are the IAP objectives being met?
 - b. What problems have arisen?
2. Revise or modify the incident action plan based on identified needs
3. Reevaluate the effectiveness of the revised IAP
4. Continually monitor the effectiveness of the IAP

605-8.3.4.5 The incident commander shall identify the safe operating practices and procedures that are required to be followed at a hazardous materials/WMD incident.

1. Approach cautiously from upwind, uphill and up stream
2. Secure the scene
 - a. Establish command
 - b. Implement ICS
 - c. Implement isolation zones
3. Identify the hazards
4. Assess the situation - perform hazard and risk analysis

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*. Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

5. Obtain help as needed
 - a. Ensure that all responders are only assigned to duties commensurate with their level of training
 - b. Awareness level personnel cannot intervene directly with the material
 - c. Operations level personnel can only perform defensive response tasks
 - d. Operations personnel trained to a mission specific competency may perform that task under the direct supervision of Technician level personnel
 - e. Technician level personnel may perform offensive response activities
 - f. Specialist personnel may provide technical assistance, advice or response support depending on their degree of training
 - g. Skilled support personnel may operate special equipment needed to support the response. They may not have any hazardous materials training and must be adequately briefed prior to being utilized.
6. Decide on site entry – if applicable
7. Respond
 - a. Develop IAP
 - b. Develop site safety plan
 - c. Implement IAP
8. Above all, do not come into contact with the material
 - a. Do not smell the material
 - b. Do not touch the material
 - c. Do not taste the material

605-8.3.4.5.1 The incident commander shall identify the importance of pre-incident planning relating to safety during responses to specific sites.

605-8.3.4.5.2 The incident commander shall identify the procedures for presenting a safety briefing prior to allowing personnel to work on a hazardous materials/WMD incident.

1. Orient personnel to the scene
2. Identify objectives
3. Identify scene safety and health considerations
4. Designate a safety officer
5. Identify emergency medical care procedures – ICS 206 Medical Plan

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*. Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

6. Establish environmental monitoring
7. Identify emergency procedures
 - a. Communications plan
 - b. Safe havens
 - c. Back-up team
 - d. Buddy system
 - e. Establish decon plan – have technical decon and emergency decon procedures in place
 - f. Identify SOPs and other safe work practices that apply
8. Conduct personnel monitoring
 - a. Pre and post entry medical screening
 - b. Personnel accountability

605-8.3.4.5.3 The incident commander shall identify at least three safety precautions associated with search and rescue missions at hazardous materials/WMD incidents.

1. Buddy system
2. Back up team
3. PPE requirements - based on scene size up and the hazard and risk analysis

605-8.3.4.5.4 The incident commander shall identify the advantages and limitations of the following and describe an example where each decontamination method would be used:

1. Absorption
2. Adsorption
3. Chemical degradation
4. Dilution
5. Disinfection
6. Evaporation
7. Isolation and disposal
8. Neutralization
9. Solidification
10. Sterilization

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*. Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

11. Vacuuming

12. Washing

605-8.3.4.5.5 The incident commander shall identify the atmospheric and physical safety hazards associated with hazardous materials/WMD incidents involving confined spaces.

1. Atmospheric hazards
 - a. Oxygen-deficient atmosphere
 - b. Oxygen-enriched atmosphere
 - c. Flammable and explosive atmospheres
 - d. Toxic atmosphere
2. Physical hazards
 - a. Engulfment hazards
 - b. Falls and slips
 - c. Electrical hazards
 - d. Structural hazards
 - i. Limited egress
 - ii. Extended travel distances
 - iii. Darkness
 - e. Mechanical hazards
 - f. Poor communications

605-8.4 **Competencies — Implementing the Planned Response**

605-8.4.1 **Implementing an Incident Command System**

Given a copy of the emergency response plan and annexes related to hazardous materials/WMD, the incident commander shall identify the requirements of the plan, including the procedures for notification and utilization of nonlocal resources (private, state, and federal government personnel), and shall meet the following requirements:

1. Identify the role of the incident commander during a hazardous materials/WMD incident.
 - a. The incident commander (IC) shall be that person responsible for all incident activities, including the development of strategies and tactics and the ordering and release of resources.
 - b. The incident commander is the responder in charge of a single command ICS structure.
2. Describe the concept of unified command and its application and use at a hazardous materials/WMD incident.
 - a. Unified command involves establishing a unified command team of command-level representatives from each of the primary responding agencies that develop strategies and tactics and authorize the ordering and release of resources.

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*. Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- b. Unified command team shares command responsibilities but the responsible party plays the lead role.
3. Identify the duties and responsibilities of the following hazardous materials branch/group functions within the incident command system:
 - a. Decontamination
 - b. Entry (backup)
 - c. Hazardous materials branch director or group supervisor
 - d. Hazardous materials safety
 - e. Information and research
4. Identify the steps for implementing the emergency response plans required under Title III Emergency Planning and Community Right-to-Know Act (EPCRA) of the Superfund Amendments and Reauthorization Act (SARA) Section 303, or other state and emergency response planning legislation.
 - a. An event occurs
 - b. The emergency management/response system is activated
 - c. Responders respond to the scene
 - d. The local, state, federal, or facility response plan is implemented per AHJ
5. Given the emergency response planning documents, identify the elements of each of the documents.
 - a. Facility emergency response plans
 - b. Pre-incident tactical plans
 - c. Published emergency response references
 - d. Shipping documents
6. Identify the elements of the incident management system necessary to coordinate response activities at hazardous materials/WMD incidents.
 - a. Command staff
 - i. Incident commander
 - ii. Incident Safety Officer
 - iii. Public Information Officer
 - iv. Liaison Officer
 - b. General Staff
 - i. Operations Section Chief
 - a) Hazardous Materials Branch or Group
 - 1) Primary hazardous materials group or branch functions include:
 - i) Hazardous materials branch/group supervision (Hazardous Materials Branch Director/Group Supervisor)
 - ii) Safety (Assistant Safety Officer – Hazardous Materials)
 - iii) Site Access Control (Site Access Control Unit Leader)

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*. Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- (a) Establishes Hazard Control Zones
 - (b) Manages Safe Refuge Area
 - iv) Entry Team Operations (Entry Team Leader)
 - (a) Recon team
 - (b) Entry team(s)
 - (c) Back-up team
 - v) Decontamination (Decon Team Leader)
 - vi) Information/research coordination (Information/Research Team Leader)
 - (a) Technical/Product Specialist
 - (b) Environmental/Remediation Contractors
 - (c) Governmental or External Agency Liaisons
 - 2) Secondary hazardous materials group or branch functions include:
 - i) Resources/logistics
 - ii) Medical (Medical Unit Leader)
 - iii) Incident rehabilitation (Rehabilitation Unit Leader)
 - iv) The above secondary functions are performed by the Hazardous Materials Branch/Group only if they are not being performed by the logistics section, i.e., logistics section has not been activated.
 - ii. Planning Section Chief – as applicable
 - iii. Logistics Section Chief – as applicable
 - iv. Finance/Admin. Section Chief – as applicable
- 7. Identify the primary government agencies and identify the scope of their regulatory authority (including the regulations) pertaining to the production, transportation, storage, and use of hazardous materials and the disposal of hazardous wastes.
 - a. Federal
 - i. DHS – Department of Homeland Security
 - ii. DOT – Department of Transportation
 - iii. EPA – Environmental Protection Agency
 - iv. FAA – Federal Aviation Administration
 - v. NRC – Nuclear Regulatory Commission
 - vi. OSHA – Occupational Safety and Health Administration
 - vii. USCG – United States Coast Guard
 - b. State
 - i. DPS – Department of Public Safety
 - ii. Railroad Commission

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*. Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- iii. TCEQ – Texas Commission on Environmental Quality
 - iv. TDSHS – Texas Department of State Health Services
 - v. TGLO – Texas General Land Office
 - vi. TXDOT – Texas Department of Transportation
 - c. Local
 - i. Local emergency management
 - ii. Local county/municipal agencies
8. Identify the governmental agencies and resources that can offer assistance during a hazardous materials/WMD incident and identify their role and the type of assistance or resources that might be available.
- a. Federal
 - i. DHS - Homeland Security Issues
 - ii. FBI - Crisis Management
 - iii. FEMA - Consequence Management
 - iv. EPA - Environmental Management
 - v. US Coast Guard - Navigable Waterway Management & Port Security
 - vi. DOD - Explosives, Munitions, Military Shipments Technical Assistance/Response
 - vii. ATF - Explosives Technical Assistance
 - b. State
 - i. DPS - District Disaster Chair (DDC)
 - ii. TDEM - Emergency Management
 - iii. TCEQ - Environmental Management
 - iv. TGLO - Water Quality
 - v. TRRC - Pipelines and Propane Storage
 - c. Local
 - i. Local emergency management
 - ii. Local fire department
 - iii. Local police department
 - iv. EMS providers

605-8.4.2 **Directing Resources (Private and Governmental)**

Given a scenario involving a hazardous materials/WMD incident and the necessary resources to implement the planned response, the incident commander shall demonstrate the ability to direct the resources in a safe and efficient manner consistent with the capabilities of those resources.

Criteria and factors should include the following:

1. Task assignment (based on strategic and tactical options)
2. Operational safety
3. Operational effectiveness
4. Planning support

5. Logistics support
6. Administrative support

605-8.4.3 **Providing a Focal Point for Information Transfer to the Media and Elected Officials**

Given a scenario involving a hazardous materials/WMD incident, the incident commander shall identify information to be provided to the media and local, state, and federal officials and shall complete the following tasks:

1. Identify the local policy for providing information to the media. (AHJ)
2. Identify the responsibilities of the public information officer at a hazardous materials/WMD incident.
3. Describe the concept of a joint information center (JIC) and its application and use at a hazardous materials/WMD incident.

605-8.5 **Competencies — Evaluating Progress**

605-8.5.1 **Evaluating Progress of the Incident Action Plan**

Given scenarios involving hazardous materials/WMD incidents, the incident commander shall evaluate the progress of the incident action plan to determine whether the efforts are accomplishing the response objectives and shall complete the following tasks:

1. Identify the procedures for evaluating whether the response options are effective in accomplishing the objectives.
 - a. Evaluate the effectiveness of the response based on:
 - i. Are the IAP objectives being met?
 - ii. What problems have arisen?
 - b. Revise or modify the incident action plan based on identified needs
 - c. Reevaluate the effectiveness of the revised IAP
 - d. Continually monitor the effectiveness of the IAP
2. Identify the steps for comparing actual behavior of the material and the container to that predicted in the analysis process.

Identifying and predicting material and container behavior can be done utilizing the General Hazardous Materials Behavior Model which includes identifying the following:

- a. Stress event
 - i. Thermal stress
 - ii. Mechanical stress
 - iii. Chemical stress
- b. Breach event
 - i. Disintegration
 - ii. Runaway Cracking

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*. Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- iii. Failure of Container Attachments
 - iv. Container Punctures
 - v. Container Splits or Tears
 - c. Release event
 - i. Detonation
 - ii. Violent Rupture
 - iii. Rapid Relief
 - iv. Spills or Leaks
 - d. Engulfing event
 - i. Identify the hazardous material or the energy likely to engulf the area
 - ii. What form is the energy or matter in?
 - iii. What is making it move?
 - iv. What path will it follow?
 - v. What type of dispersion pattern will it create?
 - a) Cloud
 - b) Cone
 - c) Plume
 - d) Stream
 - e) Irregular
 - e. Impingement event (typically categorized based on duration)
 - i. Harmful characteristics of material
 - ii. Concentration of the hazardous material
 - iii. Duration of the impingement
 - iv. Characteristics of the exposure
 - f. Harm event
 - i. Thermal
 - ii. Toxicity/poison
 - iii. Radiation
 - iv. Asphyxiation
 - v. Corrosivity
 - vi. Etiological
 - vii. Mechanical
3. Determine the effectiveness of the following:
- a. Control, containment, or confinement operations
 - b. Decontamination process
 - c. Established control zones
 - d. Personnel being used
 - e. Personal protective equipment
4. Make modifications to the incident action plan as necessary.

605-8.6 **Competencies — Terminating the Incident**

605-8.6.1 **Transferring Command and Control**

Given a scenario involving a hazardous materials/WMD incident, the emergency response plan, and standard operating procedures, the incident commander shall

be able to identify the steps to be taken to transfer command and control of the incident and shall be able to demonstrate the transfer of command and control.

605-8.6.2 **Conducting a Debriefing**

Given scenarios involving a hazardous materials/WMD incident, the incident commander shall conduct a debriefing of the incident and shall complete the following tasks:

An effective debriefing should address the following informational issues regarding response activities:

- Positive aspects – Identify strengths or things that went well that need to be maintained or continued
 - Negative aspects – Identify weaknesses that went poorly and need to be corrected
 - Unique aspects – Unusual or unsuspected conditions that may need to be addressed or planned for
1. Describe three components of an effective debriefing.
 - a. Inform responders of the potential signs and symptoms of any possible hazardous materials exposures
 - b. Identify:
 - i. Damaged equipment
 - ii. Expended supplies
 - iii. Items that need to be disposed
 - iv. Unsafe site conditions
 - c. Assign:
 - i. information gathering responsibilities for a post-incident analysis and critique
 - ii. Point of contact for any follow up on incident related issues
 - d. Assess the need for Critical Incident Stress Debriefing (CISD)
 2. Describe the key topics in an effective debriefing.
 - a. Health information
 - b. Equipment and apparatus exposure review
 - c. A follow-up contact person
 - d. Problems requiring immediate action
 - e. Thank you!
 3. Describe when a debriefing should take place.
 - a. As soon as the “emergency phase” of the incident is over
 - b. Should be before any responders leave the scene
 4. Describe who should be involved in a debriefing.
 - a. Hazardous Materials Response Team
 - b. Incident Commander
 - c. Section Chiefs/Branch Directors/Division and Group Supervisors, etc.
 - d. Information Officer

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*. Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

- e. Agency representatives or key players as determined by the Incident Commander (i.e. Safety Officer and Agency Liaisons)
5. Identify the procedures for conducting incident debriefings at a hazardous materials/WMD incident.

605-8.6.3 **Conducting a Critique**

Given details of a scenario involving a multiagency hazardous materials/WMD incident, the incident commander shall conduct a critique of the incident and shall complete the following tasks:

1. Describe three components of an effective critique.
 - a. Direction
 - b. Participation
 - c. Solutions
2. Describe who should be involved in a critique.
 - a. Hazardous Materials Response Team
 - b. Incident Commander
 - c. Section Chiefs/Branch Directors/Division and Group Supervisors, etc.
 - d. Information Officer
 - e. Agency representatives or key players as determined by the Incident Commander (i.e. Safety Officer and Agency Liaisons)
3. Describe why an effective critique is necessary after a hazardous materials/WMD incident.
 - a. Develop recommendations for improving the emergency response team
 - b. Promotes systems-dependent operations rather than people-dependent organizations
 - c. Promotes a willingness to cooperate through teamwork
 - d. Promotes improvement of safe operating procedures
 - e. Promotes sharing of information among emergency response organizations
4. Describe what written documents should be prepared as a result of the critique.
 - a. Post-Critique Report
 - b. Formal-Critique Report
5. Implement the procedure for conducting a critique of the incident.

605-8.6.4 **Reporting and Documenting the Hazardous Materials/WMD Incident**

Given a scenario involving a hazardous materials/WMD incident, the incident commander shall demonstrate the ability to report and document the incident consistent with local, state, and federal requirements and shall complete the following tasks:

1. Identify the reporting requirements of the federal, state, and local agencies.
 - a. Incident action plan and all components
 - b. Site safety plan and all components
 - c. Other documentation required by AHJ
2. Identify the importance of the documentation for a hazardous materials/WMD incident, including training records, exposure records, incident reports, and critique reports.
3. Identify the steps in keeping an activity log and exposure records for hazardous materials/WMD incidents.
 - a. Activity log
 - i. Record major event(s)
 - ii. Record time major event(s) occurred
 - iii. Briefly describe major event(s)
 - iv. Additional information to include
 - a) Information that may assist in the investigation or cost recovery process
 - b) Task assignments
 - c) Task completion
 - d) Injuries and exposures
 - b. Exposure records
 - i. General information
 - a) Name of exposed worker
 - b) Personal ID number
 - c) Assignment/station
 - d) Incident date
 - e) Incident number
 - f) Incident location
 - ii. Nature of incident
 - iii. Level of personal protection
 - iv. Emergency response activity
 - v. Exposure data
 - a) Method of exposure
 - b) Duration of exposure
 - vi. Medical treatment provided
 - a) Signs and symptoms
 - b) On-scene medical treatment
 - c) Medical facility treatment
 - d) Follow-up action required
 - vii. Medical treatment provided
 - a) Comment section
 - b) Individual's signature and date
 - c) Officer's signature and date
4. Identify the requirements for compiling hazardous materials/WMD incident reports found in the emergency response plan or standard operating procedures.

Reprinted with permission from NFPA 472-2008, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*. Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

5. Identify the requirements for filing documents and maintaining records found in the emergency response plan or standard operating procedures.
6. Identify the procedures required for legal documentation and chain of custody and continuity described in the standard operating procedures or the emergency response plan.

Hazardous Materials Training Equipment & Prop List

The following are minimal recommended supplies necessary for hazardous materials training at the below listed levels of certification. Variations may exist based on the needs of each AHJ and any mission-specific job tasks as assigned by an AHJ.

Hazardous Materials Awareness

Department of Transportation's Emergency Response Guidebook (ERG) (current ed.)

Material Safety Data Sheet (MSDS – Sample

Placards & Labels

Transportation/Shipping document – Sample

NFPA 704 sample

Safety Vests

Binoculars

Hazardous Materials Operations

***Awareness** equipment plus...*

Structural Firefighter Protective Ensemble (bunker gear)

Reference Material:

- NIOSH Pocket Guide to Chemical Hazards
- NFPA Hazardous Materials / Weapons of Mass Destruction Response Handbook (current edition)
- Pesticide Label example

Respiratory Protection to include:

- Air Purifying Respirator (APR-half mask)
- Air Purifying Respirator (APR-full face)
- SCBA

Chemical Protective Clothing to include:

- Vapor Protective CPC (Level A)
- Splash Protective Encapsulated CPC (Level B)
- Splash Protective Non-Encapsulated CPC (Level B, Level C)
- Chemical Boots (Rubber Boots for training only)
- Inner/Outer gloves - assorted types
- Chem Tape (duct tape for training only)

Fire Hose, Foam Nozzles and Eductors, Foam

Pictures/slides of various railcar, intermodal, and highway cargo trailers

Pictures/slides of bulk and non-bulk containers, and fixed facility containment systems

Defensive Spill Equipment:

- Absorbent/Adsorbent
- Broom/Shovel
- 5-gallon buckets
- Assortment of boom and pads

Decontamination Equipment:

- Poly sheeting or tarp
- Duct tape
- Traffic cone(s)
- Decon Pools
- Sprayer(s)
- Garden hose(s) and sprayer/nozzles
- 5-gallon bucket(s)
- Various Decon solution(s)
- Folding chairs
- Overpack drum

Various monitoring detection equipment as may be required. Examples *may* include:

- Combustible Gas Indicator
- Oxygen Meter
- Radiation Detector

Hazardous Materials Operations – Mission Specific Competencies

Equipment needed for training to Hazardous Materials Operations – Mission Specific Competencies will be based the competencies themselves and the authority having jurisdiction (AHJ). Equipment, at a minimum, will include that which is required to train to the Hazardous Materials Operations Level. Additional equipment or props may include part or all of the equipment listed below for Hazardous Materials Technician.

For example, if training to the Mission Specific Competencies: Air Monitoring and Sampling is to be performed, additional monitoring detection and sampling equipment will be required.

Hazardous Materials Technician

Awareness and Operations equipment plus...

Reference Material:

- AAR Emergency Action Guide
- CPC Permeation Guides/Tables
- AAR Field Guide to Railcar Identification
- NFPA Fire Protection Guide to Hazardous Materials Detection
- Other printed or electronic publications/databases as may be required by the AHJ

Various monitoring detection equipment and corresponding samples to include:

- Combustible Gas Indicator
- Oxygen Meter
- Carbon monoxide meter
- Gas specific meter
- Photoionization detector
- Radiation Detectors (alpha, beta, gamma)
- Colormetric tubes, pump
- Classifier/Detection strips and reagents
- pH paper or pH meter
- additional monitoring and detection equipment as may be required by AHJ
- Calibration kit(s) as required for above

Leak & Spill Equipment:

- Plugging/Patching supplies
- Leaking drum(s): metal & poly
- Overpack drum(s)
- Leak pipe simulator
- 150 lbs. Chlorine cylinder leak prop
 - Chlorine emergency kit type "A"
- Chlorine 1-Ton cylinder leak prop
 - Chlorine emergency kit type "B"
- Pressure Railcar dome leak prop
 - Chlorine emergency kit type "C" or Midland kit
- Cargo Tank Leak Simulator (MC-306/DOT-406 Dome)
- Dome Cover Clamp
- Grounding & Bonding Kit
- Product Transfer Equipment
- Misc. Hand Tools (e.g., hand wrenches, bung wrench, spanner wrench, mallet, screwdrivers, etc.)

Command and Control Equipment/Forms (e.g., Incident Action Plan, Site Safety Plan, Medical Plan, Communication Plan - all NIMS/ICS compliant)

Hazardous Materials Incident Commander

Reference Material

- Department of Transportation's Emergency Response Guidebook (ERG) (current ed.)
- Material Safety Data Sheet (MSDS)- Sample
- Transportation/Shipping document – Sample
- NIOSH Pocket Guide to Chemical Hazards

- NFPA Hazardous Materials / Weapons of Mass Destruction Response Handbook (current edition)
- AAR Emergency Action Guide
- CPC Permeation Guides/Tables
- AAR Field Guide to Railcar Identification
- NFPA Fire Protection Guide to Hazardous Materials Detection
- Other printed or electronic publications/databases as may be required by the AHJ

Command and Control Equipment/Forms

- Department of Homeland Security – National Incident Management System/Incident Command System standardized forms
 - ICS 201 Incident Briefing Form
 - ICS 202 Incident Objectives Worksheet
 - ICS 203 Organization Assignment List
 - ICS 204 Division Assignment List
 - ICS 205 Communications Plan
 - ICS 206 Medical Plan
 - ICS 208HM Site Safety and Control Plan
 - ICS 211 Incident Check-in List
 - ICS 213 General Message
 - ICS 214 Unit Log
 - ICS 215 Incident Planning Worksheet
 - ICS 215A Incident Action Plan Safety Analysis

HAZARDOUS MATERIALS SKILLS MANUAL

CHAPTER SIX

Effective June 1, 2010



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

TEXAS COMMISSION ON FIRE PROTECTION
Hazardous Materials Awareness
Performance Standards

GENERAL
DOT Emergency Response Guidebook
Skill # 1

PERFORMANCE STANDARD

Section 601

NFPA 472 4.1.2.2, 4.2.3, 4.4.1

Awareness

OBJECTIVE

Given examples of hazardous materials/WMD incidents, the emergency response plan, the standard operating procedures, and the current edition of the DOT *Emergency Response Guidebook*, awareness level personnel shall be able to identify the actions to be taken to protect themselves and others and to control access to the scene and shall meet the following requirements:

4.1.2.2 (1)

Analyze the incident to determine both the hazardous material/WMD present and the basic hazard and response information for each hazardous material/WMD agent by completing the required tasks.

4.1.2.2 (2)

Implement actions consistent with the emergency response plan, the standard operating procedures, and the current edition of the DOT *Emergency Response Guidebook* by completing the required tasks.

4.2.3

Given the identity of various hazardous materials/WMD (name, UN/NA identification number, or type of placard), the awareness level personnel shall identify the fire, explosion, and health hazard information for each material by using the current edition of the DOT *Emergency Response Guidebook* and shall meet all requirements.

4.4.1

Given examples of hazardous materials/WMD incidents, the emergency response plan, the standard operating procedures, and the current edition of the DOT *Emergency Response Guidebook*, awareness level personnel shall be able to identify the actions to be taken to protect themselves and others and to control access to the scene and shall meet all requirements.

INSTRUCTIONS - procedures for achieving the objective

Given the most current edition of the *Emergency Response Guidebook* and a scenario or worksheet, you shall analyze, identify and describe, as may be required, the actions that are appropriate for the safe implementation of awareness level response measures.

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION

Awareness

Performance Standards

You shall respond verbally or in the written form as may be appropriate. You will begin on my instruction to start. The skill will end when you state to me that you have completed all of the identified steps. Do you understand these instructions?

EXAMINERS NOTE:

The candidate will not be allowed to review the performance steps at the time of testing.

Coordinators and Instructors: Refer to the example scenario & worksheet attached to this skill for additional guidance.

PREPARATION & EQUIPMENT

Emergency Response Guidebook, most current edition

A written or audio/visual representation of a scene or scenario (i.e. PowerPoint Presentation) or an instructor prepared worksheet.

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Hazardous Materials Awareness
 Performance Standards

GENERAL
 DOT Emergency Response Guidebook
Skill # 1

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS AWARENESS SKILL #1	<u>TEST</u>		<u>RETEST</u>	
	S	U	S	U
<p>General</p> <p>Analyze the incident to determine both the hazardous material/WMD present and the basic hazard and response information for each hazardous material/WMD agent by completing the following tasks (4.1.2.2 (1))</p> <p>Implement actions consistent with the emergency response plan, the standard operating procedures, and the current edition of the DOT <i>Emergency Response Guidebook</i> by completing the following tasks (4.1.2.2 (2))</p> <p>Given the identity of various hazardous materials/WMD (name, UN/NA identification number, or type of placard), the awareness level personnel shall identify the fire, explosion, and health hazard information for each material by using the current edition of the DOT <i>Emergency Response Guidebook</i> and shall meet the following requirements. (4.2.3)</p> <p>Given examples of hazardous materials/WMD incidents, the emergency response plan, the standard operating procedures, and the current edition of the DOT <i>Emergency Response Guidebook</i>, awareness level personnel shall be able to identify the actions to be taken to protect themselves and others and to control access to the scene and shall meet the following requirements. (4.4.1)</p>				

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION

Awareness

Performance Standards

The candidate shall:	S	U	S	U
a) Identify the Hazardous Material/WMD and/or the UN ID number for the unidentified material.				
b) Look up the Hazardous Material/WMD name in the appropriate section. <ul style="list-style-type: none"> • Use the yellow section to obtain information based on the chemical ID number, or • Use the blue section to obtain information based on the alphabetical chemical name 				
c) Note any highlighted entries and verbally identify it as a Toxic Inhalation Hazard (TIH).				
d) Determine the correct emergency action guide to use for the Hazardous Material/WMD identified based on: <ul style="list-style-type: none"> • Table of Placards, or • The Rail Car Identification Chart, or • The Road Trailer Identification Chart, or • The UN Number, or • The name of the Hazardous Material/WMD 				
e) Identify the potential fire and explosion and/or health hazards for the identified Hazardous Material/WMD.				
f) Identify the isolation distance and the protective actions required for the identified Hazardous Material/WMD. <ul style="list-style-type: none"> • Use the green section for Toxic Inhalation Hazards isolation distances when not involved in a fire • Use the orange guide page for all other isolation distances 				
g) Identify the appropriate emergency response actions for the identified Hazardous Material/WMD found on the orange guide pages based on the given scenario.				

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Hazardous Materials Awareness
Performance Standards

Evaluator/Candidate Comments:

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

Emergency Response Guidebook Worksheet

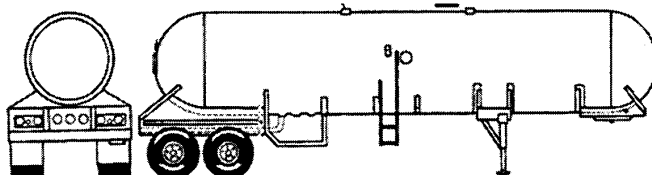
Guidelines for Development and Use

- The following worksheet is an example of a instructor designed worksheet that could be used to test a firefighter trainee's ability to properly use an Emergency Response Guidebook during a Hazardous Materials response. This worksheet has been designed to be completed using the 2008 edition of the Emergency Response Guidebook.
- The use of this worksheet would be suitable for training purposes. However, for skill examination purposes, it is expected that images, placards, UN numbers, and chemical names would be changed.
- This is not a single source solution skills examination evaluation. The development and use of a unique worksheet would be appropriate, acceptable and encouraged.
- Minimum worksheet development guidelines should include the following minimal content items as a general rule:
 - Hazardous Materials identification by UN Number (Yellow Section)
 - Hazardous Materials identification by Chemical Name (Blue Section)
 - Identify the correct
 - The ability to derive information from the Emergency Action Guide pages (Orange Section) including :
 - Potential Fire and Explosion Hazards
 - Potential Health Hazards
 - Protective Clothing Selection
 - Evacuation Considerations
 - Firefighting Measures
 - Spill or Leak recommended control measures
 - Immediate First Aid actions
 - The identification of Isolation Distances and Protective Actions for Non-Toxic Inhalation Hazards (Orange Section)
 - The identification of Initial Isolation Distances and Downwind Protective Distances for Toxic Inhalation Hazards (Green Section)

Worksheet

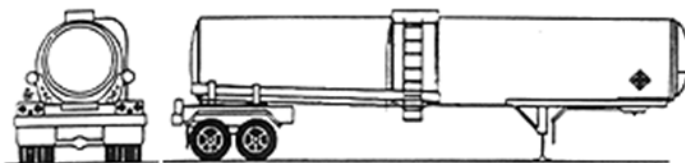
Using the *2008 Emergency Response Guidebook* solve the following problems:

1. What is the initial **isolation zone** and **downwind protective action distance** day and night when there is a small leak from the highway cargo tanker pictured here?



2. What is the **primary hazard** of the product with the ID number **UN1824**

3. What type of **fire fighting foam** should be used on a large spill fire involving the product in this highway cargo tanker? Are there **toxic effects** associated with this product?



4. What type of protective clothing should be worn to handle a spill involving **Hydrofluoric acid, solution**?

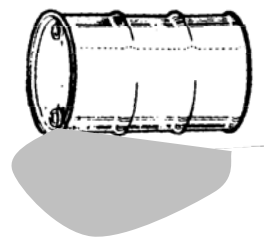
5. In case of accidental eye contact with **methanol**, what actions should you take?

6. What are the recommended **extinguishing agents** for the product with this placard? What is this product?



7. Which **guide number** should be used for the product spilled from the drum in this picture?

Guide Number: _____



8. Identify the **hazards and product name** of this display found on an intermodal container.



9. What is the **recommended evacuation distance** if a truck load of explosives with this placard is involved in a fire?



10. If **Styrene** is exposed to **excessive heat**, what may occur?

11. What types of extinguishing agents should **not** be applied to fires involving **Perchloric acid UN1802**?

12. What is Protective Clothing and Respiratory Protection recommendation for a response involving **Chloropicrin**?

13. Which guide number should be used for emergency response information for a spill involving material with this placard?

Guide Number: _____



14. What are the emergency response telephone numbers for **CHEMTREC®** and the **NATIONAL RESPONSE CENTER (NRC)**?

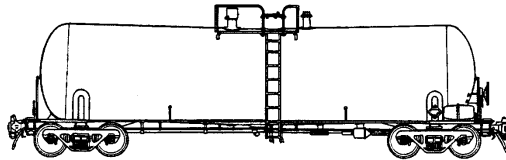
NRC #: _____

CHEMTREC#: _____

15. If water is leaking into a cargo hold of a barge containing **UN1830**, what may occur?

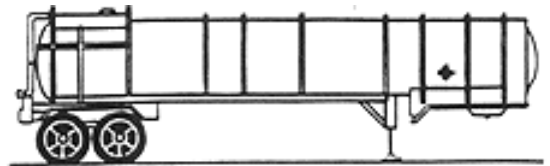
16. Which guide number would you use to find response information about the railcar pictured here?

Guide Number: _____

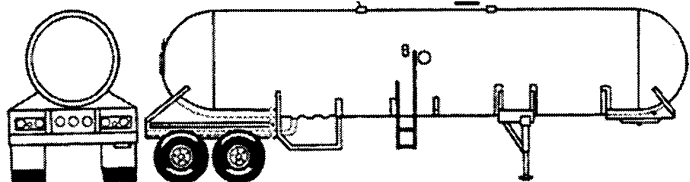


17. Which guide number would you use to find response information about the highway cargo tanker pictured here?

Guide Number: _____



18. If the highway cargo tanker pictured below is involved in a fire, what **sights or sounds** should cause an immediate withdrawal of emergency response personnel?



19. If a container of the material with this placard is submerged in water, what Toxic-by-Inhalation (TIH) gas may be produced?



20. Is **UN1053** a flammable gas? What is its primary hazard, fire or toxicity?

21. If an unconscious person is contaminated with "Boron trifluoride, diethyl etherate" is mouth-to-mouth a recommended first-aid procedure?

Guide _____

22. Why does "Propadiene, inhibited" have a "P" following the Guide Number in the blue-bordered Section?

23. If a large amount of "sulfuryl chloride" is spilled into water, what is the initial isolation distance?

UN Identification Number _____

Initial Isolation distance _____.

24. What toxic gases may be produced by the reaction between sulfuryl chloride and water?

25. What general safety precautions are recommended by the 2008 North American Emergency Response Guidebook?

1. _____.

2. _____.

3. _____.

4. _____.

5. _____.

6. _____.

7. _____.

8. _____.

TEXAS COMMISSION ON FIRE PROTECTION
Hazardous Materials Awareness
Performance Standards

Analyzing the Incident
Container Recognition
Skill # 2

PERFORMANCE STANDARD

Section 601

NFPA 472 4.2.1(6)

Awareness

OBJECTIVE

Given examples of containers, awareness level personnel shall be able to recognize typical container shapes that may indicate the possible presence of a hazardous materials/WMD.

4.2.1 (6)

Identify typical container shapes that can indicate the presence of a hazardous materials/WMD.

INSTRUCTIONS - procedures for achieving the objective

Given a scenario, worksheet, or audio/visual presentation you shall identify the type of container represented. You shall respond verbally or in the written form as may be appropriate. You will begin on my instruction to start. The skill will end when you state to me that you have completed all of the identified steps. Do you understand these instructions?

EXAMINERS NOTE:

The candidate will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

A worksheet or audio/visual presentation (i.e. PowerPoint Presentation) or an instructor prepared worksheet.

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION

Awareness

Performance Standards

Analyzing the Incident

Container Recognition

Skill # 2

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS AWARENESS SKILL #2	TEST		RETEST	
Analyzing the Incident	PASS	FAIL	PASS	FAIL
Detecting the Presence of Hazardous Materials/WMD				
Identify typical container shapes that can indicate the presence of a hazardous materials/WMD. 4.2.1 (6)				
The candidate shall:	S	U	S	U
a) Identify Non Bulk Containers <ul style="list-style-type: none"> • Dry Goods Container (i.e. Bag or Fiberboard Drum), or • Liquid Container (i.e. Steel or Poly Drum), or • Pressure Vessel/ Gas Cylinder, or • Cryogenic Container (i.e. Dewar), or • Radiation Container (Type A or Type B Packaging) 				
b) Identify Bulk Containers <ul style="list-style-type: none"> • Rail Cars (i.e. Pressure Car, Non Pressure Car, Special Purpose Car), or • Road Trailers (i.e. Non Pressure, Corrosive, Dry Bulk Trailers), or • Intermodal Containers 				
c) Identify Fixed Facility Storage Systems (i.e. Above Ground Storage Tanks)				
d) Identify Pipeline				
e) Identify Ships or Marine Vessels (i.e. Tankers, Cargo Vessels, Barges)				

Evaluator/Candidate Comments:

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Hazardous Materials Awareness
Performance Standards

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Hazardous Materials Awareness
Performance Standards

Analyzing the Incident
Hazard Recognition
Skill # 3

PERFORMANCE STANDARD

Section 601

NFPA 472 4.2.1(7), 4.2.1(8), 4.2.1(9)

Awareness

OBJECTIVE

Given facility/transportation markings that indicate the presence of hazardous materials/WMD, describe the significance of each marking system's colors, numbers, and special symbols used.

4.2.1 (7)

Identify facility and transportation markings and colors that indicate hazardous materials/WMD

4.2.1 (8)

Given an NFPA 704 marking, describe the significance of the colors, numbers, and special symbols

4.2.1 (9)

Identify U.S. and Canadian placards and labels that indicate hazardous materials/WMD

INSTRUCTIONS - procedures for achieving the objective

Given a scenario, worksheet, or audio/visual presentation you shall describe/identify the significance of the markings, colors, numbers, and special symbols used for facility and transportation hazard marking systems. You shall respond verbally or in the written form as may be appropriate. You will begin on my instruction to start. The skill will end when you state to me that you have completed all of the identified steps. Do you understand these instructions?

EXAMINERS NOTE:

The candidate will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

A worksheet or audio/visual presentation (i.e. PowerPoint Presentation) or an instructor prepared worksheet.

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION

Awareness

Performance Standards

Analyzing the Incident

Hazard Recognition

Skill # 3

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS AWARENESS SKILL #3	TEST		RETEST	
Analyzing the Incident	S	U	S	U
Identify facility and transportation markings and colors that indicate hazardous materials/WMD (4.2.1 (7))				
The candidate shall:	S	U	S	U
Describe the significance of the markings, colors, numbers, and special symbols used for:				
a) Transportation markings, including: <ul style="list-style-type: none"> • UN/NA identification number markings • Marine pollutant mark • Elevated temperature (hot) mark • Commodity markings • Inhalation hazard mark 				
b) NFPA 704, Standard System for the Identification of the Hazards of Materials for Emergency Response, markings				
c) Military hazardous materials/WMD markings				
d) Special hazard communication markings for each hazard class				
e) Pipeline markings				
f) Container Markings				
Given an NFPA 704 marking, describe the significance of the colors, numbers, and special symbols (4.2.1 (8))				
The candidate shall:	S	U	S	U
Describe the significance of the colors, numbers, and special symbols used for:				
a) The Blue/Health panel				
b) The Red/Flammability panel				
c) The Yellow/Reactive panel				
d) The White/Special Hazard panel				

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Hazardous Materials Awareness
Performance Standards

Identify U.S. and Canadian placards and labels that indicate hazardous materials/WMD (4.2.1 (9))				
The candidate shall:	S	U	S	U
Identify the placards and labels for:				
a) Class 1 - Explosives <ul style="list-style-type: none"> • Division 1.1 Explosives w/Mass Explosion Hazard • Division 1.2 Explosives w/Projectile Hazard • Division 1.3 Explosives w/Fire Hazard • Division 1.4 Explosives w/No Significant Blast Hazard • Division 1.5 Very Insensitive Explosives w/a Mass Explosion Hazard • Division 1.6 Extremely Insensitive Articles 				
b) Class 2 - Gases <ul style="list-style-type: none"> • Division 2.1 Flammable Gases • Division 2.2 Non Flammable/Non Toxic Gases • Division 2.3 Toxic Gases 				
c) Class 3 - Flammable and Combustible Liquids				
d) Class 4 - Flammable Solids; Spontaneously Combustible Liquids; and Dangerous when Wet Materials/Water Reactive Substances <ul style="list-style-type: none"> • Division 4.1 Flammable Solids • Division 4.2 Spontaneously Combustible Liquids • Division 4.3 Wet Materials/Water Reactive Substances 				
e) Class 5 - Oxidizing Substances and Organic Peroxides <ul style="list-style-type: none"> • Division 5.1 Oxidizing Substances • Division 5.2 Organic Peroxides 				
f) Class 6 - Toxic and Infectious Substances <ul style="list-style-type: none"> • Division 6.1 Toxic Gases • Division 6.2 Infectious Substances 				
g) Class 7 - Radioactive Materials				
h) Class 8 - Corrosive Substances				
i) Class 9 - Miscellaneous Hazardous Materials/Products/Substances, or Organisms				

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Awareness
Performance Standards

Evaluator/Candidate Comments:

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

Certifying Examiner

Date

Re-Test Certifying Examiner

Date

Overall Skill Sheet Score
Pass <input type="checkbox"/> Fail <input type="checkbox"/>
Overall Skill Sheet Re-Test Score
Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
Performance Standards

GENERAL

Analyze, Plan, Implement, and Evaluate Response Objectives

Skill #1

PERFORMANCE STANDARD

Section 602

NFPA 472 5.1.2.2

Operations

OBJECTIVE

When responding to hazardous materials/WMD incidents, operations level responders shall be able to perform the following tasks:

- (1) Analyze a hazardous materials/WMD incident to determine the scope of the problem and potential outcomes by completing the following tasks:
 - (a) Survey a hazardous materials/WMD incident to identify the containers and materials involved, determine whether hazardous materials/WMD have been released, and evaluate the surrounding conditions.
 - (b) Collect hazard and response information from MSDS; CHEMTREC/CANUTEC/SETIQ; local, state, and federal authorities; and shipper/manufacturer contacts.
 - (c) Predict the likely behavior of a hazardous material/WMD and its container.
 - (d) Estimate the potential harm at a hazardous materials/WMD incident.

- (2) Plan an initial response to a hazardous materials/WMD incident within the capabilities and competencies of available personnel and personal protective equipment by completing the following tasks:
 - (a) Describe the response objectives for the hazardous materials/WMD incident.
 - (b) Describe the response options available for each objective.
 - (c) Determine whether the personal protective equipment provided is appropriate for implementing each option.
 - (d) Describe emergency decontamination procedures.
 - (e) Develop a plan of action, including safety considerations.

- (3) Implement the planned response for a hazardous materials/WMD incident to favorably change the outcomes consistent with the emergency response plan and/or standard operating procedures by completing the following tasks:
 - (a) Establish and enforce scene control procedures, including control zones, emergency decontamination, and communications.

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
Performance Standards

- (b) Where criminal or terrorist acts are suspected, establish means of evidence preservation.
 - (c) Initiate an incident command system (ICS) for hazardous materials/WMD incidents.
 - (d) Perform tasks assigned as identified in the incident action plan.
 - (e) Demonstrate emergency decontamination.
- (4) Evaluate the progress of the actions taken at a hazardous materials/WMD incident to ensure that the response objectives are being met safely, effectively, and efficiently by completing the following tasks:
- (a) Evaluate the status of the actions taken in accomplishing the response objectives.
 - (b) Communicate the status of the planned response.

INSTRUCTIONS - procedures for achieving the objective

Given a scenario, emergency response and hazardous materials equipment to include reference sources and PPE/CPC, you will implement a planned response to favorably change the outcomes consistent with the local emergency response plan and the organization's standard operating procedures. You will also evaluate the progress of the actions taken to ensure that the response objectives are being met safely, effectively, and efficiently. You will be operating as part of a team. You will begin on my instruction to start. The skill will end when you state to me that you have completed all of the identified steps. Do you understand these instructions?

EXAMINERS NOTE

The candidate will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

Hazardous materials scenario

North American *Emergency Response Guidebook*, current edition

MSDS

Additional hazmat references per AHJ

Personal protective equipment

Chemical protective clothing (AHJ)

Local emergency response plan (AHJ)

Standard operating procedures (AHJ)

Emergency Response and Hazardous Materials Response Equipment per AHJ

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
 Performance Standards

GENERAL
 Analyze, Plan, Implement, and Evaluate Response Objectives
Skill #1

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS OPERATIONS	<u>TEST</u>		<u>RETEST</u>	
General - Skill Number #1	S	U	S	U
<p>When responding to hazardous materials/WMD incidents, operations level responders shall be able to perform the following tasks:</p> <p>(1) Analyze a hazardous materials/WMD incident to determine the scope of the problem and potential outcomes by completing the following tasks:</p> <p style="padding-left: 40px;">(a) Survey a hazardous materials/WMD incident to identify the containers and materials involved, determine whether hazardous materials/WMD have been released, and evaluate the surrounding conditions.</p> <p style="padding-left: 40px;">(b) Collect hazard and response information from MSDS; CHEMTREC/CANUTEC/SETIQ; local, state, and federal authorities; and shipper/manufacturer contacts.</p> <p style="padding-left: 40px;">(c) Predict the likely behavior of a hazardous material/WMD and its container.</p> <p style="padding-left: 40px;">(d) Estimate the potential harm at a hazardous materials/WMD incident.</p> <p>(2) Plan an initial response to a hazardous materials/WMD incident within the capabilities and competencies of available personnel and personal protective equipment by completing the following tasks:</p> <p style="padding-left: 40px;">(a) Describe the response objectives for the hazardous materials/WMD incident.</p> <p style="padding-left: 40px;">(b) Describe the response options available</p>				

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
Performance Standards

<p>for each objective.</p> <p>(c) Determine whether the personal protective equipment provided is appropriate for implementing each option.</p> <p>(d) Describe emergency decontamination procedures.</p> <p>(e) Develop a plan of action, including safety considerations.</p> <p>(3) Implement the planned response for a hazardous materials/WMD incident to favorably change the outcomes consistent with the emergency response plan and/or standard operating procedures by completing the following tasks:</p> <p>(a) Establish and enforce scene control procedures, including control zones, emergency decontamination, and communications.</p> <p>(b) Where criminal or terrorist acts are suspected, establish means of evidence preservation.</p> <p>(c) Initiate an incident command system (ICS) for hazardous materials/WMD incidents.</p> <p>(d) Perform tasks assigned as identified in the incident action plan.</p> <p>(e) Demonstrate emergency decontamination.</p> <p>(4) Evaluate the progress of the actions taken at a hazardous materials/WMD incident to ensure that the response objectives are being met safely, effectively, and efficiently by completing the following tasks:</p> <p>(a) Evaluate the status of the actions taken in accomplishing the response objectives.</p> <p>(b) Communicate the status of the planned response.</p> <p style="text-align: right;">(5.1.2.2)</p>				
The candidate shall:	S	U	S	U
(1) Analyze a hazardous materials/WMD incident to determine the scope of the problem and potential outcomes by completing the following tasks:				
(a) Survey a hazardous materials/WMD incident to identify the containers and				

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION

Operations

Performance Standards

materials involved, determine whether hazardous materials/WMD have been released, and evaluate the surrounding conditions.				
(b) Collect hazard and response information from MSDS; CHEMTREC /CANUTEC /SETIQ; local, state, and federal authorities; and shipper/manufacturer contacts.				
(c) Predict the likely behavior of a hazardous material/WMD and its container.				
(d) Estimate the potential harm at a hazardous materials/WMD incident.				
(2) Plan an initial response to a hazardous materials/WMD incident within the capabilities and competencies of available personnel and personal protective equipment by completing the following tasks:				
(a) Describe the response objectives for the hazardous materials/WMD incident.				
(b) Describe the response options available for each objective.				
(c) Determine whether the personal protective equipment provided is appropriate for implementing each option.				
(d) Describe emergency decontamination procedures.				
(e) Develop a plan of action, including safety considerations.				
(3) Implement the planned response for a hazardous materials/WMD incident to favorably change the outcomes consistent with the emergency response plan and/or standard operating procedures by completing the following tasks:				
(a) Establish and enforce scene control procedures, including control zones, emergency decontamination, and communications.				
(b) Where criminal or terrorist acts are suspected, establish means of evidence preservation.				
(c) Initiate an incident command system (ICS) for hazardous materials/WMD incidents.				

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
 Performance Standards

(d) Perform tasks assigned as identified in the incident action plan.				
(e) Demonstrate emergency decontamination.				
(4) Evaluate the progress of the actions taken at a hazardous materials/WMD incident to ensure that the response objectives are being met safely, effectively, and efficiently by completing the following tasks:				
(a) Evaluate the status of the actions taken in accomplishing the response objectives.				
(b) Communicate the status of the planned response.				

Evaluator/Candidate Comments:

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations

Performance Standards

ANALYZING THE INCIDENT

Container Identification

Skill #2

PERFORMANCE STANDARD

Section 602

**NFPA 472 5.2.1, 5.2.1.1.1, 5.2.1.1.2,
5.2.1.1.3, 5.2.1.1.4, 5.2.1.1.5, 5.2.1.1.6**

Operations

OBJECTIVE

Given scenarios involving hazardous materials/WMD incidents, the operations level responder shall survey the incident to identify the containers and materials involved, determine whether hazardous materials/WMD have been released, and evaluate the surrounding conditions .

Given three examples each of liquid, gas, and solid hazardous material or WMD, including various hazard classes, operations level personnel shall identify the general shapes of containers in which the hazardous materials/WMD are typically found.

Given examples of the following tank cars, the operations level responder shall identify each tank car by type, as follows:

- (1) Cryogenic liquid tank cars
- (2) Nonpressure tank cars (general service or low pressure cars)
- (3) Pressure tank cars

Given examples of the following intermodal tanks, the operations level responder shall identify each intermodal tank by type, as follows:

- (1) Nonpressure intermodal tanks
- (2) Pressure intermodal tanks
- (3) Specialized intermodal tanks, including the following:
 - (a) Cryogenic intermodal tanks
 - (b) Tube modules

Given examples of the following cargo tanks, the operations level responder shall identify each cargo tank by type, as follows:

- (1) Compressed gas tube trailers
- (2) Corrosive liquid tanks
- (3) Cryogenic liquid tanks
- (4) Dry bulk cargo tanks
- (5) High pressure tanks
- (6) Low pressure chemical tanks
- (7) Nonpressure liquid tanks

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
Performance Standards

Given examples of the following storage tanks, the operations level responder shall identify each tank by type, as follows:

- (1) Cryogenic liquid tank
- (2) Nonpressure tank
- (3) Pressure tank

Given examples of the following nonbulk packaging, the operations level responder shall identify each package by type, as follows:

- (1) Bags
- (2) Carboys
- (3) Cylinders
- (4) Drums
- (5) Dewar flask (cryogenic liquids)

Given examples of the following radioactive material packages, the operations level responder shall identify the characteristics of each container or package by type, as follows:

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

INSTRUCTIONS - procedures for achieving the objective

You will be presented images or diagrams of various container types and given a worksheet to complete. While doing the images/diagrams complete the worksheet by providing the following information concerning the containers: identify the container by name, by container type, by possible product class, by physical state of the product and any special features/considerations. You will begin on my instruction to start. The skill will end when you state to me that you have completed all of the identified steps. Do you understand these instructions?

EXAMINERS NOTE

The candidate will not be allowed to review the performance steps at the time of testing.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
Performance Standards

PREPARATION & EQUIPMENT

Several scenarios involving hazardous materials/WMD incidents and diagrams of the different types of containers of hazardous materials/WMD from the list below:

1. Images, diagrams, or multimedia presentation illustrating different types of containers to include:
 - a. Highway cargo tanks
 - b. Railcar tanks
 - c. Intermodal tanks
 - d. Fixed facility storage tanks
 - e. Non-bulk containers
 - f. Radioactive material packages
2. Container identification worksheet

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations

Performance Standards

ANALYZING THE INCIDENT

Container Identification

Skill #2

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS OPERATIONS	<u>TEST</u>		<u>RETEST</u>	
ANALYZING THE INCIDENT- Skill Number #2	S	U	S	U
Given scenarios involving hazardous materials/WMD incidents, the operations level responder shall survey the incident to identify the containers and materials involved, determine whether hazardous materials/WMD have been released, and evaluate the surrounding conditions. <p style="text-align: right;">(5.2.1)</p>				
Given three examples each of liquid, gas, and solid hazardous material or WMD, including various hazard classes, operations level personnel shall identify the general shapes of containers in which the hazardous materials/WMD are typically found. <p style="text-align: right;">(5.2.1.1)</p>				
The candidate shall:	S	U	S	U
a) Correctly identifies railcar tank examples				
b) Correctly identifies highway cargo tank examples				
c) Correctly identifies intermodal tank examples				
d) Correctly identifies non-bulk container examples				
e) Correctly identifies radioactive material package examples				
f) Correctly identifies fixed facility storage tank examples				

Evaluator/Candidate Comments:

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
Performance Standards

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

Operations

Container Identification Worksheet

RAILCAR TANK		
	Container Name	
1		
2		
3		
INTERMODAL TANK		
	Container Name	Type/Specification
1		
2		
3		
4		
5		
HIGHWAY CARGO TANK		
	Container Name.	MC/DOT Specification
1		
2		
3		
4		
5		
6		
7		
NON-BULK CONTAINER PACKAGING		
	Container Name/Type	
1		
2		
3		
4		
5		
FIXED FACILITY STORAGE TANK		
	Container Name	
1		
2		
3		
RADIOACTIVE MATERIAL PACKAGING		
	Container Name	Characteristics
1		
2		
3		
4		
5		

TEXAS COMMISSION ON FIRE PROTECTION
Operations

Performance Standards

ANALYZING THE INCIDENT

Identify Pesticide Label

Skill #3

PERFORMANCE STANDARD

Section 602

NFPA 472 5.2.1.3.2

Operations

OBJECTIVE

Given a pesticide label, the operations level responder shall identify each of the following pieces of information, and then match the piece of information to its significance in surveying hazardous materials incidents:

- (1) Active ingredient
- (2) Hazard statement
- (3) Name of pesticide
- (4) Pest control product (PCP) number (in Canada)
- (5) Precautionary statement
- (6) Signal word

INSTRUCTIONS - procedures for achieving the objective

Given a pesticide label and a worksheet, you shall complete the worksheet identifying the following information: 1) the Name of the pesticide, 2) its Active ingredient, 3) the Hazard statement, 4) the EPA registration number or Pest Control Product (PCP) number (in Canada), 5) the Precautionary statement, and 6) the Signal word. You will begin on my instruction to start. The skill will end when you state to me that you have completed all of the identified steps. Do you understand these instructions?

EXAMINERS NOTE

The candidate will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

Pesticide label

Pesticide label worksheet

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
 Performance Standards

ANALYZING THE INCIDENT
 Identify Pesticide Label
Skill #3

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS OPERATIONS	TEST		RETEST	
ANALYZING THE INCIDENT -Skill Number #3	S	U	S	U
Given a pesticide label, the operations level responder shall identify each of the following pieces of information, and then match the piece of information to its significance in surveying hazardous materials incidents: (1) Active ingredient (2) Hazard statement (3) Name of pesticide (4) Pest control product (PCP) number (in Canada) (5) Precautionary statement (6) Signal word <div style="text-align: right;">(5.2.1.3.2)</div>				
The candidate shall:	S	U	S	U
a) Identifies the Active ingredient				
b) Identifies the Hazard statement				
c) Identifies the Name of pesticide				
d) Identifies the EPA registration number or Pest Control Product (PCP) number				
e) Identifies the Precautionary statement				
f) Identifies the Signal word				
g) Describes appropriate response actions for dealing with the identified product.				

Evaluator/Candidate Comments:

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
Performance Standards

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

Pesticide Label Worksheet

Using the Pesticide label provided for _____ answer the following questions:

1. What is the Active ingredient in this pesticide? _____
2. What information is provided in the Hazard Statement? _____
3. What is the Name of pesticide? _____
4. What is the EPA Registration Number (or Pest Control Product (PCP) number in Canada)? _____

5. What information is provided in the Precautionary Statement?

6. What Signal Word is used on the label? What does it mean?

7. What are the appropriate response actions for dealing with the identified product?

TEXAS COMMISSION ON FIRE PROTECTION
Operations
Performance Standards

ANALYZING THE INCIDENT
Collect Hazard and Response Information using MSDS
Skill #4

PERFORMANCE STANDARD

Section 602

NFPA 472 5.2.2 (2), (3)

Operations

OBJECTIVE

Given scenarios involving known hazardous materials/WMD, the operations level responder shall collect hazard and response information using MSDS, CHEMTREC/CANUTEC/SETIQ, governmental authorities, and shippers and manufacturers and shall meet the following requirements:

- (2) Identify two ways to obtain an MSDS in an emergency.
- (3) Using an MSDS for a specified material, identify the following hazard and response information:
 - (a) Physical and chemical characteristics
 - (b) Physical hazards of the material
 - (c) Health hazards of the material
 - (d) Signs and symptoms of exposure
 - (e) Routes of entry
 - (f) Permissible exposure limits
 - (g) Responsible party contact
 - (h) Precautions for safe handling (including hygiene practices, protective measures, and procedures for cleanup of spills and leaks)
 - (i) Applicable control measures, including personal protective equipment
 - (j) Emergency and first-aid procedures

INSTRUCTIONS - procedures for achieving the objective

Given a material safety data sheet (MSDS) and a MSDS worksheet, you shall collect the following information and record it on the worksheet:

- (a) Physical and chemical characteristics
- (b) Physical hazards of the material
- (c) Health hazards of the material
- (d) Signs and symptoms of exposure
- (e) Routes of entry
- (f) Permissible exposure limits
- (g) Responsible party contact
- (h) Precautions for safe handling (including hygiene practices, protective measures, and procedures for cleanup of spills and leaks)
- (i) Applicable control measures, including personal protective equipment
- (j) Emergency and first-aid procedures

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
Performance Standards

You will begin on my instruction to start. The skill will end when you state to me that you have completed all of the identified steps. Do you understand these instructions?

EXAMINERS NOTE

The candidate will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

Various material safety data sheets
MSDS worksheet

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
Performance Standards

ANALYZING THE INCIDENT
Identify MSDS
Skill #4

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS OPERATIONS	<u>TEST</u>		<u>RETEST</u>	
	S	U	S	U
ANALYZING THE INCIDENT- Skill Number #4				
<p>Given scenarios involving known hazardous materials/WMD, the operations level responder shall collect hazard and response information using MSDS, CHEMTREC/CANUTEC/SETIQ, governmental authorities, and shippers and manufacturers and shall meet the following requirements:</p> <p>(2) Identify two ways to obtain an MSDS in an emergency.</p> <p>(3) Using an MSDS for a specified material, identify the following hazard and response information:</p> <p>(a) Physical and chemical characteristics</p> <p>(b) Physical hazards of the material</p> <p>(c) Health hazards of the material</p> <p>(d) Signs and symptoms of exposure</p> <p>(e) Routes of entry</p> <p>(f) Permissible exposure limits</p> <p>(g) Responsible party contact</p> <p>(h) Precautions for safe handling (including hygiene practices, protective measures, and procedures for cleanup of spills and leaks)</p> <p>(i) Applicable control measures, including personal protective equipment</p> <p>(j) Emergency and first-aid procedures</p> <p style="text-align: right;">(5.2.2)</p>				
The candidate shall:	S	U	S	U
a) Identify two ways to obtain an MSDS in an emergency				
b) Identify physical and chemical characteristics				
c) Identify physical hazards of the material				
d) Identify health hazards of the material				
e) Identify the signs and symptoms of exposure				

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
Performance Standards

f) Identify routes of entry				
g) Identify the permissible exposure limits				
h) Identify responsible party contact				
i) Identify the precautions for safe handling (including hygiene practices, protective measures, and procedures for cleanup of spills and leaks)				
j) Identify applicable control measures, including personal protective equipment				
k) Identify emergency and first-aid procedures				

Evaluator/Candidate Comments:

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____ Date

_____ Date

Overall Skill Sheet Score
Pass <input type="checkbox"/> Fail <input type="checkbox"/>
Overall Skill Sheet Re-Test Score
Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

Material Safety Data Sheet Worksheet

Using the Material Safety Data Sheet for _____
provided to answer the following questions:

1. What are two ways to obtain an MSDS during an emergency?

- _____
- _____

Identification

2. What other names or identities does this product ship as? _____

3. What is its CAS#? _____

4. What is the UN # and hazard class? _____

Physical and Chemical Characteristics

5. What is its appearance and odor? _____

6. What is its boiling point? _____

7. What is its freezing point? _____

8. What is its Specific Gravity? _____

9. Is that as a solid, liquid or gas? _____

10. What is its Vapor Density? _____

- Will it sink or float when released? _____

11. Is there an associated fire hazard? _____

- If so, describe it: _____

12. What is the flash point and ignition temperature of this product/chemical?

13. What is the expansion ratio of this product/chemical? _____

14. What is the pH? _____

Physical Hazards

15. What are the primary physical hazards associated with this product/chemical?

Health Hazards

16. Is this product/chemical a carcinogen? _____

17. Is this product/chemical a teratogen or mutagen? If so, which? _____

18. Is this product/chemical a radioactive? _____

19. Are there any special health safety precautions that must be observed? If so, what are they? _____

Signs & Symptoms of Exposure

20. What are the signs and symptoms of exposure to this product/chemical?

Routes of Entry

21. What are the primary routes of exposure? _____

Permissible Exposure Limits

22. What is the PEL? _____

23. What is the STEL? _____

24. What is the IDLH? _____

25. What is the LD₅₀ or LC₅₀? _____

Responsible Party Contact Information

26. Who is the shipper? _____

- What is their phone number? _____

27. Who is the manufacture? _____

- What is their phone number? _____

28. In case of emergency who do you call? _____

- What is their phone number? _____

Precautions

29. What materials are incompatible or reactive with this product/chemical?

Hygiene Practices

30. What hygiene practices are necessary when dealing with this product/chemical?

Protective Measures

31. What protective measures/actions should be followed with this product/chemical?

Cleanup Procedures

32. What cleanup protocols should be utilized when mitigating a release or spill of this product/chemical? _____

Control Measures

33. What control measures should be employed when there is a spill or release of this product/chemical? _____

34. What firefighting considerations are there when responding to a fire involving this product/chemical? _____

Protective Equipment

35. What is the recommended personal protective equipment recommendation for this product/chemical? _____

Emergency/First Aid Procedures

36. What first aid procedures should be used for an exposure to this product/chemical?

TEXAS COMMISSION ON FIRE PROTECTION
Operations
Performance Standards

ANALYZING THE INCIDENT
Estimating the Size of an Endangered Area
Skill #5

PERFORMANCE STANDARD

Section 602

NFPA 472 5.2.4 (1), (2)

Operations

OBJECTIVE

Given scenarios involving hazardous materials/WMD incidents, the operations level responder shall estimate the potential harm within the endangered area at each incident and shall meet the following requirements:

- (1) Identify a resource for determining the size of an endangered area of a hazardous materials/WMD incident.
- (2) Given the dimensions of the endangered area and the surrounding conditions at a hazardous materials/WMD incident, estimate the number and type of exposures within that endangered area.

INSTRUCTIONS - procedures for achieving the objective

Given the most current edition of the *Emergency Response Guidebook*, a map or area description and a scenario involving a hazardous materials incident, you shall identify the size of an endangered area and estimate the number and type of exposures within that endangered area. You will begin on my instruction to start. The skill will end when you state to me that you have completed all of the identified steps. Do you understand these instructions?

EXAMINERS NOTE

The candidate will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

Emergency Response Guidebook, most current edition

Map or narrative description of an incident area

A scenario involving a hazardous materials incident

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
 Performance Standards

ANALYZING THE INCIDENT
 Estimating the Size of an Endangered Area
Skill #5

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS OPERATIONS	<u>TEST</u>		<u>RETEST</u>	
	S	U	S	U
ANALYZING THE INCIDENT-Skill Number #5				
Given scenarios involving hazardous materials/WMD incidents, the operations level responder shall estimate the potential harm within the endangered area at each incident and shall meet the following requirements: (1) Identify a resource for determining the size of an endangered area of a hazardous materials/WMD incident. (2) Given the dimensions of the endangered area and the surrounding conditions at a hazardous materials/WMD incident, estimate the number and type of exposures within that endangered area. (5.2.4)				
The candidate shall:	S	U	S	U
a) Using the <i>Emergency Response Guidebook</i> , identify the size of the endangered area for the hazardous materials incident in the scenario				
b) Estimate the number of people located in the endangered area				
c) Identify type of environment (lakes, rivers and streams; urban, rural, etc.)				
d) Identify the type of property within the endangered area based on the scenario or map/area provided (schools, hospital, dwellings, nursing homes, etc.)				
e) Identify the significance the time of day or weather may play if applicable				

Evaluator/Candidate Comments:

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
Performance Standards

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations

Performance Standards

IMPLEMENTING THE PLANNED RESPONSE

Establishing Scene Control Zones and Implementing Public Protective Actions

Skill #6

PERFORMANCE STANDARD

Section 602

NFPA 472 5.4.1 (1), (2), (3), (4), (5), (6)

Operations

OBJECTIVE

Given two scenarios involving hazardous materials/WMD incidents, the operations level responder shall identify how to establish and enforce scene control, including control zones and emergency decontamination, and communications between responders and to the public and shall meet the following requirements:

- (1) Identify the procedures for establishing scene control through control zones.
- (2) Identify the criteria for determining the locations of the control zones at hazardous materials/WMD incidents.
- (3) Identify the basic techniques for the following protective actions at hazardous materials/WMD incidents:
 - (a) Evacuation
 - (b) Sheltering-in-place
- (4) Demonstrate the ability to perform emergency decontamination.
- (5) Identify the items to be considered in a safety briefing prior to allowing personnel to work at the following:
 - (a) Hazardous material incidents
 - (b) Hazardous materials/WMD incidents involving criminal activities
- (6) Identify the procedures for ensuring coordinated communication between responders and to the public.

INSTRUCTIONS - procedures for achieving the objective

Given a scenario involving a hazardous materials/WMD incident, an *Emergency Response Guidebook*, and a MSDS, you shall establish scene control zones and implement public protective actions. Additionally, using provided emergency response and hazardous materials response equipment, establish emergency decontamination capability. You must conduct a safety briefing with response personnel and communicate with the public concerning protective actions. You will begin on my instruction to start. The skill will end when you state to me that you have completed all of the identified steps. Do you understand these instructions?

EXAMINERS NOTE

The candidate will not be allowed to review the performance steps at the time of testing. The candidate must participate in at least two scenario evolutions.

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
Performance Standards

PREPARATION & EQUIPMENT

Emergency Response Guidebook

MSDS

Emergency response and hazardous materials response equipment

Incident action plan

Site safety plan

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
 Performance Standards

IMPLEMENTING THE PLANNED RESPONSE
 Establishing Scene Control Zones and Implementing Public Protective Actions
Skill #6

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS OPERATIONS	<u>TEST</u>		<u>RETEST</u>	
IMPLEMENTING THE PLANNED RESPONSE Skill Number #6	S	U	S	U
<p>Given two scenarios involving hazardous materials /WMD incidents, the operations level responder shall identify how to establish and enforce scene control, including control zones and emergency decontamination, and communications between responders and to the public and shall meet the following requirements:</p> <ol style="list-style-type: none"> (1) Identify the procedures for establishing scene control through control zones. (2) Identify the criteria for determining the locations of the control zones at hazardous materials/WMD incidents. (3) Identify the basic techniques for the following protective actions at hazardous materials/WMD incidents: <ol style="list-style-type: none"> (a) Evacuation (b) Sheltering-in-place (4) Demonstrate the ability to perform emergency decontamination. (5) Identify the items to be considered in a safety briefing prior to allowing personnel to work at the following: <ol style="list-style-type: none"> (a) Hazardous material incidents (b) Hazardous materials/WMD incidents involving criminal activities (6) Identify the procedures for ensuring coordinated communication between responders and to the public. <p style="text-align: right;">(5.4.1)</p>				

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
Performance Standards

The candidate shall:	S	U	S	U
a) Identify and establish scene control zones: <ul style="list-style-type: none"> • Hot zone • Warm zone • Cold zone 				
b) Determine appropriate public protective actions to be implemented				
c) Implement public protective actions: <ul style="list-style-type: none"> • Evacuation and/or shelter-in-place 				
d) Establish emergency decontamination capability				
e) Using an incident action plan and a site safety plan, conduct a safety briefing				
f) Communicate information concerning public protective actions with the public				

Evaluator/Candidate Comments:

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

<hr/> Certifying Examiner	<hr/> Date	Overall Skill Sheet Score Pass <input type="checkbox"/> Fail <input type="checkbox"/>
<hr/> Re-Test Certifying Examiner	<hr/> Date	Overall Skill Sheet Re-Test Score Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
Performance Standards

EVALUATING PROGRESS
Communicating the Status of the Planned Response
Skill # 7

PERFORMANCE STANDARD

Section 602

NFPA 472 5.5.2 (1), (2)

Operations

OBJECTIVE

Given two scenarios involving hazardous materials/WMD incidents, including the incident action plan, the operations level responder shall communicate the status of the planned response through the normal chain of command and shall meet the following requirements:

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

INSTRUCTIONS - procedures for achieving the objective

Given scenarios involving hazardous materials/WMD incidents, including the incident action plan; you shall communicate the status of the planned response through the normal chain of command and identify the methods for immediate notification of the incident commander and other response personnel about critical emergency conditions at the incident. You will begin on my instruction to start. The skill will end when you state to me that you have completed all of the identified steps. Do you understand these instructions?

EXAMINERS NOTE

The candidate will not be allowed to review the performance steps at the time of testing. The candidate must participate in at least two scenario evolutions.

PREPARATION & EQUIPMENT

Hazardous materials incident scenarios
Standard Operating Procedures per AHJ

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
 Performance Standards

EVALUATING PROGRESS
 Communicating the Status of the Planned Response
Skill #7

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS OPERATIONS	<u>TEST</u>		<u>RETEST</u>	
Evaluating Progress -Skill Number #7	S	U	S	U
Given two scenarios involving hazardous materials/WMD incidents, including the incident action plan, the operations level responder shall communicate the status of the planned response through the normal chain of command and shall meet the following requirements: (1) Identify the methods for communicating the status of the planned response through the normal chain of command. (2) Identify the methods for immediate notification of the incident commander and other response personnel about critical emergency conditions at the incident. (5.5.2)				
The candidate shall:	S	U	S	U
a) Verbally identifies the methods for communicating the status of the planned response to the incident commander through the normal chain of command				
b) Verbally identifies the methods for immediate notification of the incident commander and other response personnel about critical emergency conditions at the incident				

Evaluator/Candidate Comments:

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
Performance Standards

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Hazardous Materials Operations – Mission Specific Competencies
Performance Standards

Implementing the Planned Response
Donning, Working in, and Doffing Personal Protective Equipment
Skill #1

PERFORMANCE STANDARD

Section 603

**NFPA 472 6.2.1.2(1), (3); 6.2.4.1 (1), (2), (3), (5);
6.2.5.1**

Operations-Mission Specific

OBJECTIVE

6.2.1.2 The goal of the competencies in this section shall be to provide the operations level responder assigned to use personal protective equipment with the knowledge and skills to perform the following tasks safely and effectively:

- (1) Plan a response within the capabilities of personal protective equipment provided by the AHJ in order to perform mission specific tasks assigned.
- (3) Terminate the incident by completing the reports and documentation pertaining to personal protective equipment.

6.2.4.1 Given the personal protective equipment provided by the AHJ, the operations level responder assigned to use personal protective equipment shall demonstrate the ability to don, work in, and doff the equipment provided to support mission-specific tasks and shall meet the following requirements:

- (1) Describe at least three safety procedures for personnel wearing protective clothing.
- (2) Describe at least three emergency procedures for personnel wearing protective clothing.
- (3) Demonstrate the ability to don, work in, and doff personal protective equipment provided by the AHJ.
- (5) Describe the maintenance, testing, inspection, storage, and documentation procedures for personal protective equipment provided by the AHJ according to the manufacturer's specifications and recommendations.

6.2.5.1 Given a scenario involving a hazardous materials/WMD incident, the operations level responder assigned to use personal protective equipment shall identify and complete the reporting and documentation requirements consistent with the emergency response plan or standard operating procedures regarding personal protective equipment.

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
Performance Standards

INSTRUCTIONS - procedures for achieving the objective

Given the personal protective equipment provided by the AHJ, you shall perform the following tasks:

- (1) Describe at least three safety procedures for personnel wearing protective clothing.
- (2) Describe at least three emergency procedures for personnel wearing protective clothing.
- (3) Demonstrate the ability to don, work in, and doff personal protective equipment provided by the AHJ.
- (4) Describe the maintenance, testing, inspection, storage, and documentation procedures for personal protective equipment provided by the AHJ according to the manufacturer's specifications and recommendations.

You will begin on my instruction to start. The skill will end when you state to me that you have completed all of the identified steps. Do you understand these instructions?

EXAMINERS NOTE

The candidate will not be allowed to review the performance steps at the time of testing. Programs must perform the inspection of all ensembles in their current inventory. If a program doesn't require Level A suits, then they only need to meet the requirements for Level B, C & D ensembles.

PREPARATION & EQUIPMENT

Personal protective equipment provided by the AHJ
Structural firefighter protective clothing
Splash protective chemical clothing/equipment
Vapor protective clothing/equipment (AHJ)
Positive pressure self contained breathing apparatus
Air purifying respirators (AHJ)
Supplied air respirators (AHJ)

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Hazardous Materials Operations – Mission Specific Competencies
 Performance Standards

Implementing the Planned Response
 Donning, Working in, and Doffing Personal Protective Equipment
Skill #1

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS OPERATIONS – MISSION SPECIFIC COMPETENCIES	<u>TEST</u>		<u>RETEST</u>	
Implementing the Planned Response-Skill Number #1	S	U	S	U
<p>The goal of the competencies in this section shall be to provide the operations level responder assigned to use personal protective equipment with the knowledge and skills to perform the following tasks safely and effectively:</p> <ul style="list-style-type: none"> (1) Plan a response within the capabilities of personal protective equipment provided by the AHJ in order to perform mission specific tasks assigned. (3) Terminate the incident by completing the reports and documentation pertaining to personal protective equipment <p style="text-align: right;">(6.2.1.2)</p> <p>Given the personal protective equipment provided by the AHJ, the operations level responder assigned to use personal protective equipment shall demonstrate the ability to don, work in, and doff the equipment provided to support mission-specific tasks and shall meet the following requirements:</p> <ul style="list-style-type: none"> (1) Describe at least three safety procedures for personnel wearing protective clothing. (2) Describe at least three emergency procedures for personnel wearing protective clothing. (3) Demonstrate the ability to don, work in, and doff personal protective equipment provided by the AHJ. (5) Describe the maintenance, testing, inspection, storage, and documentation procedures for personal protective equipment provided by the AHJ according to the manufacturer's specifications and recommendations. <p style="text-align: right;">(6.2.4.1)</p>				

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
Performance Standards

Given a scenario involving a hazardous materials/WMD incident, the operations level responder assigned to use personal protective equipment shall identify and complete the reporting and documentation requirements consistent with the emergency response plan or standard operating procedures regarding personal protective equipment. (6.2.5.1)				
	S	U	S	U
a) Describe at least three safety procedures for personnel wearing protective clothing.				
b) Describe at least three emergency procedures for personnel wearing protective clothing.				
c) Demonstrate the ability to don, work in, and doff personal protective equipment provided by the AHJ.				
• Level A protective ensemble (if applicable, per AHJ)				
• Level B protective ensemble				
• Level C protective ensemble				
• Level D protective ensemble				
d) Describe the maintenance, testing, inspection, storage, and documentation procedures for personal protective equipment provided by the AHJ according to the manufacturer's specifications and recommendations.				
e) Identify and complete the reporting and documentation requirements consistent with the emergency response plan or standard operating procedures regarding personal protective equipment.				

Evaluator/Candidate Comments:

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Hazardous Materials Operations – Mission Specific Competencies
Performance Standards

Certifying Examiner	Date	Overall Skill Sheet Score
		Pass <input type="checkbox"/> Fail <input type="checkbox"/>
Re-Test Certifying Examiner	Date	Overall Skill Sheet Re-Test Score
		Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Hazardous Materials Operations – Mission Specific Competencies
Performance Standards

Implementing the Planned Response
Establishing and Utilizing a Technical Decontamination Corridor
Skill #2

PERFORMANCE STANDARD

Section 603

NFPA 472 6.2.1.2(2); 6.2.4.1(4); 6.6.4.2

Operations-Mission Specific

OBJECTIVE

6.2.1.2 The goal of the competencies in this section shall be to provide the operations level responder assigned to use personal protective equipment with the knowledge and skills to perform the following tasks safely and effectively:

- (2) Implement the planned response consistent with the standard operating procedures and site safety and control plan by donning, working in, and doffing personal protective equipment provided by the AHJ.

6.2.4.1 Given the personal protective equipment provided by the AHJ, the operations level responder assigned to use personal protective equipment shall demonstrate the ability to don, work in, and doff the equipment provided to support mission-specific tasks and shall meet the following requirements:

- (4) Demonstrate local procedures for responders undergoing the technical decontamination process.

6.6.4.2 The operations level responder assigned to perform product control shall describe local procedures for going through the technical decontamination process.

INSTRUCTIONS - procedures for achieving the objective

Given a scenario and the personal protective equipment, emergency response and hazardous materials response equipment including decontamination equipment provided by the AHJ, you shall demonstrate local procedures for responders undergoing the technical decontamination process. You will begin on my instruction to start. The skill will end when you state to me that you have completed all of the identified steps. Do you understand these instructions?

EXAMINERS NOTE

The candidate will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

Hazardous materials incident scenario

Personal protective equipment provided by the AHJ

Emergency response and hazardous materials response equipment

Decontamination equipment

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
Performance Standards

Implementing the Planned Response
Establishing and Utilizing a Technical Decontamination Corridor
Skill #2

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS OPERATIONS – MISSION SPECIFIC COMPETENCIES	<u>TEST</u>		<u>RETEST</u>	
	S	U	S	U
Implementing the Planned Response -Skill Number #2				
<p>The goal of the competencies in this section shall be to provide the operations level responder assigned to use personal protective equipment with the knowledge and skills to perform the following tasks safely and effectively:</p> <p style="padding-left: 40px;">(2) Implement the planned response consistent with the standard operating procedures and site safety and control plan by donning, working in, and doffing personal protective equipment provided by the AHJ. (6.2.1.2)</p> <p>Given the personal protective equipment provided by the AHJ, the operations level responder assigned to use personal protective equipment shall demonstrate the ability to don, work in, and doff the equipment provided to support mission-specific tasks and shall meet the following requirements:</p> <p style="padding-left: 40px;">(4) Demonstrate local procedures for responders undergoing the technical decontamination process. (6.2.4.1)</p> <p>The Operations level responder assigned to perform product control shall describe local procedures for going through the technical decontamination process. (6.6.4.2)</p>				
Based on the given scenario, the candidate shall:	S	U	S	U
a) Select the appropriate decontamination protocol				
b) Properly set up a decontamination corridor				

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Hazardous Materials Operations – Mission Specific Competencies
 Performance Standards

c) Select the appropriate PPE/CPC for the decontamination team				
d) Conduct the technical decontamination process				
e) Maintain proper safety control measures at all times				
f) Implement local policies and procedures per AHJ				

Evaluator/Candidate Comments:

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Hazardous Materials Operations – Mission Specific Competencies
Performance Standards

Planning the Response
Identifying Product Control Options
Skill #3

PERFORMANCE STANDARD

Section 603

NFPA 472 6.6.3.1 (1), (2); 6.6.1.2.2 (1)

Operations-Mission Specific

OBJECTIVE

Given examples of hazardous materials/WMD incidents, the operations level responder assigned to perform product control shall identify the options for each response objective and shall meet the following requirements as prescribed by the AHJ:

- (1) Identify the options to accomplish a given response objective.
- (2) Identify the purpose for and the procedures, equipment, and safety precautions associated with each of the following control techniques:
 - (a) Absorption
 - (b) Adsorption
 - (c) Damming
 - (d) Diking
 - (e) Dilution
 - (f) Diversion
 - (g) Remote valve shutoff
 - (h) Retention
 - (i) Vapor dispersion
 - (j) Vapor suppression

When responding to hazardous materials/WMD incidents, the operations level responder assigned to perform product control shall be able to perform the following tasks:

- (1) Plan an initial response within the capabilities and competencies of available personnel, personal protective equipment, and control equipment and in accordance with the emergency response plan or standard operating procedures by completing the following tasks:
 - (a) Describe the control options available to the operations level responder.
 - (b) Describe the control options available for flammable liquid and flammable gas incidents.

INSTRUCTIONS - procedures for achieving the objective

I will give you examples of hazardous materials/WMD incidents; you shall identify the options for product control for each response objective according to the following requirements as prescribed by the AHJ:

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
Performance Standards

- (1) Identify the options to accomplish a given response objective.
- (2) Identify the purpose for and the procedures, equipment, and safety precautions associated with each of the following control techniques:
 - (a) Absorption
 - (b) Adsorption
 - (c) Damming
 - (d) Diking
 - (e) Dilution
 - (f) Diversion
 - (g) Remote valve shutoff
 - (h) Retention
 - (i) Vapor dispersion
 - (j) Vapor suppression
- (3) Plan an initial response within the capabilities and competencies of available personnel, personal protective equipment, and control equipment and in accordance with the emergency response plan or standard operating procedures by completing the following tasks:
 - (a) Describe the control options available to the operations level responder.
 - (b) Describe the control options available for flammable liquid and flammable gas incidents.

Given a hazardous materials incident scenario you will identify the most appropriate method or methods to safely control the release in a defensive fashion. Additionally, describe the procedures, equipment, and safety precautions required to perform those procedures. You will begin on my instruction to start. The skill will end when you state to me that you have completed all of the identified steps. Do you understand these instructions?

EXAMINERS NOTE

The candidate will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

Hazardous materials incident scenarios

TEXAS COMMISSION ON FIRE PROTECTION
Hazardous Materials Operations – Mission Specific Competencies
 Performance Standards

Planning the Response
 Identifying Product Control Options
Skill #3

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS OPERATIONS – MISSION SPECIFIC COMPETENCIES	TEST		RETEST	
	S	U	S	U
Planning the Response -Skill Number #3				
<p>Given examples of hazardous materials/WMD incidents, the operations level responder assigned to perform product control shall identify the options for each response objective and shall meet the following requirements as prescribed by the AHJ:</p> <ul style="list-style-type: none"> (1) Identify the options to accomplish a given response objective. (2) Identify the purpose for and the procedures, equipment, and safety precautions associated with each of the following control techniques: <ul style="list-style-type: none"> (a) Absorption (b) Adsorption (c) Damming (d) Diking (e) Dilution (f) Diversion (g) Remote valve shutoff (h) Retention (i) Vapor dispersion (j) Vapor suppression <p style="text-align: right;">(6.6.3.1)</p> <p>When responding to hazardous materials/WMD incidents, the operations level responder assigned to perform product control shall be able to perform the following tasks:</p> <ul style="list-style-type: none"> (3) Plan an initial response within the capabilities and competencies of available personnel, personal protective equipment, and control equipment and in accordance with the emergency response plan or standard operating procedures by completing the 				

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
Performance Standards

following tasks: (a) Describe the control options available to the operations level responder. (b) Describe the control options available for flammable liquid and flammable gas incidents. <div style="text-align: right;">(6.6.1.2.2)</div>				
Based on the given scenario, the candidate shall:	S	U	S	U
a) Identify the most appropriate method or methods of product control				
b) Describe the procedures for implementing the method or methods of product control				
c) Identify the equipment required to implement the method or methods of product control				
d) Describe the safety precautions pertinent to implementing the method or methods of product control				

Evaluator/Candidate Comments:

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Hazardous Materials Operations- Mission Specific Competencies
Performance Standards

Implementing the Planned Response
Implementing Product Control Options – Foam Operations

Skill # 4

PERFORMANCE STANDARD

Section 603

NFPA 472 6.6.4.1(1), (2)

Operations-Mission Specific

OBJECTIVE

Given an incident action plan for a hazardous materials/WMD incident, within the capabilities and equipment provided by the AHJ, the operations level responder assigned to perform product control shall demonstrate control functions set out in the plan and shall meet the following requirements as prescribed by the AHJ:

- (1) Using the type of special purpose or hazard suppressing foams or agents and foam equipment furnished by the AHJ, demonstrate the application of the foam(s) or agent(s) on a spill or fire involving hazardous materials/WMD.
- (2) Identify the characteristics and applicability of the following Class B foams if supplied by the AHJ:
 - (a) Aqueous film-forming foam (AFFF)
 - (b) Alcohol-resistant concentrates
 - (c) Fluoroprotein
 - (d) High-expansion foam

INSTRUCTIONS - procedures for achieving the objective

Given firefighting foam or training foam and foam generating equipment, develop and apply firefighting foam or foam agents to a spill or fire involving hazardous materials. You will be operating as part of a team and be responsible for maintaining a safe operational environment at all times. You will begin on my instruction to start. The skill will end when you state to me that you have completed all of the identified steps. Do you understand these instructions?

EXAMINERS NOTE

The candidate will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

Firefighting foam or training foam provided by the AHJ

Foam agents (i.e. Microblaze) provided by the AHJ if applicable

Foam generation equipment (i.e. pumping apparatus, hose, foam eductors, nozzles, expansion tubes, etc.)

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Operations
 Performance Standards

Implementing the Planned Response
 Implementing Product Control Options – Foam Operations
Skill # 4

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS OPERATIONS- MISSION SPECIFIC COMPETENCIES	TEST		RETEST	
	S	U	S	U
Implementing the Planned Response - Skill Number #4	S	U	S	U
Given an incident action plan for a hazardous materials/WMD incident, within the capabilities and equipment provided by the AHJ, the operations level responder assigned to perform product control shall demonstrate control functions set out in the plan and shall meet the following requirements as prescribed by the AHJ: (1) Using the type of special purpose or hazard suppressing foams or agents and foam equipment furnished by the AHJ, demonstrate the application of the foam(s) or agent(s) on a spill or fire involving hazardous materials/WMD. (2) Identify the characteristics and applicability of the following Class B foams <u>if</u> supplied by the AHJ: (a) Aqueous film-forming foam (AFFF) (b) Alcohol-resistant concentrates (c) Fluoroprotein (d) High-expansion foam (6.6.4.1)				
The candidate shall:	S	U	S	U
a) Select the foam or agent to be applied and describe why the selection is the most appropriate				
b) Select the appropriate foam generating tools and equipment to generate foam streams				
c) Properly assemble the foam agent, tools, and equipment to generate foam streams				
d) Generate and apply foam streams				
e) Operate as part of a team				
f) Maintains safe operating environment				

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Hazardous Materials Operations- Mission Specific Competencies
Performance Standards

Evaluator/Candidate Comments:

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Hazardous Materials Operations - Mission Specific Competencies
Performance Standards

Implementing the Planned Response
Implementing Product Control Options
Skill #5

PERFORMANCE STANDARD

Section 603

NFPA 472 6.6.4.1(3)

Operations-Mission Specific

OBJECTIVE

Given an incident action plan for a hazardous materials/WMD incident, within the capabilities and equipment provided by the AHJ, the operations level responder assigned to perform product control shall demonstrate control functions set out in the plan and shall meet the following requirements as prescribed by the AHJ:

- (3) Given the required tools and equipment, demonstrate how to perform the following control activities:
- (a) Absorption
 - (b) Adsorption
 - (c) Damming
 - (d) Diking
 - (e) Dilution
 - (f) Diversion
 - (g) Retention
 - (h) Remote valve shutoff
 - (i) Vapor dispersion
 - (j) Vapor suppression

INSTRUCTIONS - procedures for achieving the objective

Given a scenario and various tools and equipment, select and implement the most appropriate product control method based on the identified response objectives. You will be provided with tools and equipment and a team of responders to assist in implementing the product control method. You will begin on my instruction to start. The skill will end when you state to me that you have completed all of the identified steps. Do you understand these instructions?

EXAMINERS NOTE

The candidate will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

Hazardous materials incident scenario

Hazardous materials tools and equipment as supplied by the AHJ for implementation of hazardous materials product control measures.

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Hazardous Materials Operations - Mission Specific Competencies
 Performance Standards

Implementing the Planned Response
 Implementing Product Control Options
Skill #5

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS OPERATIONS - MISSION SPECIFIC COMPETENCIES	<u>TEST</u>		<u>RETEST</u>	
Implementing the Planned Response - Skill Number #5	S	U	S	U
Given an incident action plan for a hazardous materials/WMD incident, within the capabilities and equipment provided by the AHJ, the operations level responder assigned to perform product control shall demonstrate control functions set out in the plan and shall meet the following requirements as prescribed by the AHJ: (3) Given the required tools and equipment, demonstrate how to perform the following control activities: (a) Absorption (b) Adsorption (c) Damming (d) Diking (e) Dilution (f) Diversion (g) Retention (h) Remote valve shutoff (i) Vapor dispersion (j) Vapor suppression (6.6.4.1)				
The candidate shall:	S	U	S	U
a) Identify the appropriate product control method(s)				
b) Select the appropriate tools and equipment required				
c) Implement the appropriate product control method(s)				
d) Operates as part of a team				
e) Utilize standard safety practices				

Evaluator/Candidate Comments:

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Hazardous Materials Operations - Mission Specific Competencies
Performance Standards

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Hazardous Materials Operations - Mission Specific Competencies
Performance Standards

Implementing the Planned Response
Implementing Product Control Options – Highway Cargo Tanks Remote Shut-off
Skill #6

PERFORMANCE STANDARD

Section 603

NFPA 472 6.6.4.1(4)

Operations-Mission Specific

OBJECTIVE

Given an incident action plan for a hazardous materials/WMD incident, within the capabilities and equipment provided by the AHJ, the operations level responder assigned to perform product control shall demonstrate control functions set out in the plan and shall meet the following requirements as prescribed by the AHJ:

- (4) Identify the location and describe the use of emergency remote shutoff devices on MC/DOT-306/406, MC/DOT-307/407, and MC-331 cargo tanks containing flammable liquids or gases.

INSTRUCTIONS - procedures for achieving the objective

Given diagrams or images of MC-306/DOT-406, MC-307/DOT-407 and MC-331 cargo tanks you shall identify the location and describe the use of the mechanical, hydraulic, and air emergency remote shutoff devices on each of the cargo tanks. You will begin on my instruction to start. The skill will end when you state to me that you have completed all of the identified steps. Do you understand these instructions?

EXAMINERS NOTE

The candidate will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

Images or diagrams of:

1. MC-306/DOT-406 (Nonpressure) cargo tanks and remote shut-off devices
2. MC-307/DOT-407 (Low pressure) cargo tanks and remote shut-off devices
3. MC-331 (High pressure) cargo tanks and remote shut-off devices

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Hazardous Materials Operations - Mission Specific Competencies
 Performance Standards

Implementing the Planned Response
 Implementing Product Control Options – Highway Cargo Tanks Remote Shut-off
Skill #6

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS OPERATIONS - MISSION SPECIFIC COMPETENCIES	<u>TEST</u>		<u>RETEST</u>	
	S	U	S	U
Implementing the Planned Response - Skill Number #6	S	U	S	U
Given an incident action plan for a hazardous materials/WMD incident, within the capabilities and equipment provided by the AHJ, the operations level responder assigned to perform product control shall demonstrate control functions set out in the plan and shall meet the following requirements as prescribed by the AHJ: (4) Identify the location and describe the use of emergency remote shutoff devices on MC/DOT-306/406, MC/DOT-307/407, and MC-331 cargo tanks containing flammable liquids or gases. (6.6.4.1)				
The candidate shall:	S	U	S	U
a) Identify the location of remote shut-off devices on MC-306/DOT-406 (Nonpressure) cargo tanks				
b) Identify the location of remote shut-off devices on MC-307/DOT-407 (Low pressure) cargo tanks				
c) Identify the location of remote shut-off devices on MC-331 (High pressure) cargo tanks				

Evaluator/Candidate Comments:

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Hazardous Materials Operations - Mission Specific Competencies
Performance Standards

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Hazardous Materials Operations - Mission Specific Competencies
Performance Standards

Implementing the Planned Response
Implementing Product Control Options – Fixed Facility Remote Shut-off Devices
Skill #7

PERFORMANCE STANDARD

Section 603

NFPA 472 6.6.4.1(5)

Operations-Mission Specific

OBJECTIVE

Given an incident action plan for a hazardous materials/WMD incident, within the capabilities and equipment provided by the AHJ, the operations level responder assigned to perform product control shall demonstrate control functions set out in the plan and shall meet the following requirements as prescribed by the AHJ:

(5) Describe the use of emergency remote shutoff devices at fixed facilities.

INSTRUCTIONS - procedures for achieving the objective

Given a diagram of a fixed facility remote shut-off device, describe its operation and use. You will begin on my instruction to start. The skill will end when you state to me that you have completed all of the identified steps. Do you understand these instructions?

EXAMINERS NOTE

The candidate will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

Diagrams or images of fixed facility remote shut-off devices

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Hazardous Materials Operations - Mission Specific Competencies
 Performance Standards

Implementing the Planned Response
 Implementing Product Control Options – Fixed Facility Remote Shut-off Devices
Skill #7

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS OPERATIONS - MISSION SPECIFIC COMPETENCIES	<u>TEST</u>		<u>RETEST</u>	
	S	U	S	U
Implementing the Planned Response - Skill Number #7	S	U	S	U
Given an incident action plan for a hazardous materials/WMD incident, within the capabilities and equipment provided by the AHJ, the operations level responder assigned to perform product control shall demonstrate control functions set out in the plan and shall meet the following requirements as prescribed by the AHJ: (5) Describe the use of emergency remote shutoff devices at fixed facilities. (6.6.4.1)				
The candidate shall:	S	U	S	U
a) Identify fixed facility remote shut-off device				
b) Describe fixed facility remote shut-off device operation				

Evaluator/Candidate Comments:

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
Hazardous Materials Operations - Mission Specific Competencies
Performance Standards

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN**

Performance Standards

Analyzing the Incident

Containers Identification

Skill #1

PERFORMANCE STANDARD

Section 604

NFPA 472 7.2.1

TECHNICIAN

OBJECTIVE

Given examples of various containers for hazardous materials/WMD, the hazardous materials technician shall identify each container by name and specification and identify the typical contents by name and hazard class.

Given examples of the following railroad cars, the hazardous materials technician shall identify the container by name and specification and identify the typical contents by name and hazard class:

- (1) Cryogenic liquid tank cars
- (2) Nonpressure tank cars
- (3) Pneumatically unloaded hopper cars
- (4) Pressure tank cars

Given examples of the following intermodal tanks, the hazardous materials technician shall identify the container by name and specification and identify the typical contents by name and hazard class:

- (1) Nonpressure intermodal tanks
 - (a) IM-101 portable tanks (IMO Type 1 internationally)
 - (b) IM-102 portable tanks (IMO Type 2 internationally)
- (2) Pressure intermodal tank (DOT Specification 51; IMO Type 5 internationally)
- (3) Specialized intermodal tanks
 - (a) Cryogenic intermodal tanks (DOT Specification 51; IMO Type 7 internationally)
 - (b) Tube modules

Given examples of the following cargo tanks, the hazardous materials technician shall identify the container by name and specification and identify the typical contents by name and hazard class:

- (1) Compressed gas tube trailers
- (2) Corrosive liquid tanks
- (3) Cryogenic liquid tanks
- (4) Dry bulk cargo tanks
- (5) High-pressure tanks
- (6) Low-pressure chemical tanks

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION HAZARDOUS MATERIALS TECHNICIAN

Performance Standards

(7) Nonpressure liquid tanks

Given examples of the following facility storage tanks, the hazardous materials technician shall identify the container by name and identify the typical contents by name and hazard class:

- (1) Cryogenic liquid tank
- (2) Nonpressure tank
- (3) Pressure tank

Given examples of the following nonbulk packaging, the hazardous materials technician shall identify the package by name and identify the typical contents by name and hazard class:

- (1) Bags
- (2) Carboys
- (3) Cylinders
- (4) Drums

Given examples of the following radioactive materials packages, the hazardous materials technician shall identify the container/package by name and identify the typical contents by name:

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

Given examples of three facility and three transportation containers, the hazardous materials technician shall identify the approximate capacity of each container.

Using the markings on the container, the hazardous materials technician shall identify the capacity (by weight or volume) of the following examples of transportation vehicles:

- (1) Cargo tanks
- (2) Tank cars
- (3) Tank containers

Using the markings on the container and other available resources, the hazardous materials technician shall identify the capacity (by weight or volume) of each of the following facility containers:

- (1) Cryogenic liquid tank
- (2) Nonpressure tank (general service or low-pressure tank)
- (3) Pressure tank

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
Performance Standards

INSTRUCTIONS - procedures for achieving the objective

Given a worksheet or audio/visual presentation you shall identify the name of, type, capacity, and typical contents of each container represented. You will begin on my instructions to start. The skill will end when you state or indicate to me that you have completed all the identified steps. Do you understand these instructions?

EXAMINERS NOTE

The hazardous materials technician trainee will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

A worksheet or audio/visual presentation (i.e. PowerPoint Presentation) or an instructor prepared worksheet.

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN**

Performance Standards

Analyzing the Incident

Containers Identification

Skill #1

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS TECHNICIAN		<u>TEST</u>		<u>RETEST</u>	
Analyzing the Incident -Skill Number #1		S	U	S	U
<p>Given examples of various containers for hazardous materials/WMD, the hazardous materials technician shall identify each container by name and specification and identify the typical contents by name and hazard class.</p> <p>Given examples of the following railroad cars, the hazardous materials technician shall identify the container by name and specification and identify the typical contents by name and hazard class:</p> <ul style="list-style-type: none"> (1) Cryogenic liquid tank cars (2) Nonpressure tank cars (3) Pneumatically unloaded hopper cars (4) Pressure tank cars <p>Given examples of the following intermodal tanks, the hazardous materials technician shall identify the container by name and specification and identify the typical contents by name and hazard class:</p> <ul style="list-style-type: none"> (1) Nonpressure intermodal tanks <ul style="list-style-type: none"> (a) IM-101 portable tanks (IMO Type 1 internationally) (b) IM-102 portable tanks (IMO Type 2 internationally) (2) Pressure intermodal tank (DOT Specification 51; IMO Type 5 internationally) (3) Specialized intermodal tanks <ul style="list-style-type: none"> (a) Cryogenic intermodal tanks (DOT Specification 51; IMO Type 7 internationally) (b) Tube modules <p>Given examples of the following cargo tanks, the hazardous</p>					

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN**

Performance Standards

<p>materials technician shall identify the container by name and specification and identify the typical contents by name and hazard class:</p> <ul style="list-style-type: none"> (1) Compressed gas tube trailers (2) Corrosive liquid tanks (3) Cryogenic liquid tanks (4) Dry bulk cargo tanks (5) High-pressure tanks (6) Low-pressure chemical tanks (7) Nonpressure liquid tanks <p>Given examples of the following facility storage tanks, the hazardous materials technician shall identify the container by name and identify the typical contents by name and hazard class:</p> <ul style="list-style-type: none"> (1) Cryogenic liquid tank (2) Nonpressure tank (3) Pressure tank <p>Given examples of the following nonbulk packaging, the hazardous materials technician shall identify the package by name and identify the typical contents by name and hazard class:</p> <ul style="list-style-type: none"> (1) Bags (2) Carboys (3) Cylinders (4) Drums <p>Given examples of the following radioactive materials packages, the hazardous materials technician shall identify the container/package by name and identify the typical contents by name:</p> <ul style="list-style-type: none"> (1) Excepted (2) Industrial (3) Type A (4) Type B (5) Type C <p>Given examples of three facility and three transportation containers, the hazardous materials technician shall identify the approximate capacity of each container. Using the markings on the container, the hazardous</p>				
--	--	--	--	--

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN**

Performance Standards

<p>materials technician shall identify the capacity (by weight or volume) of the following examples of transportation vehicles:</p> <ul style="list-style-type: none"> (1) Cargo tanks (2) Tank cars (3) Tank containers <p>Using the markings on the container and other available resources, the hazardous materials technician shall identify the capacity (by weight or volume) of each of the following facility containers:</p> <ul style="list-style-type: none"> (1) Cryogenic liquid tank (2) Nonpressure tank (general service or low-pressure tank) (3) Pressure tank <p style="text-align: right;">(7.2.1)</p>				
<p>The candidate shall:</p>	S	U	S	U
<p><u>Railroad Cars</u></p> <ul style="list-style-type: none"> 1. Identify the railcar examples provided 2. Identify the approximate capacity of the railcar examples 3. Identify a material(s) and hazard class(s) commonly transported in the railcar examples 				
<p><u>Intermodal</u></p> <ul style="list-style-type: none"> 1. Identify the intermodal container examples provided 2. Identify the approximate capacity of the container examples 3. Identify a material(s) and hazard class(s) commonly transported in the container examples 				
<p><u>Cargo Tank</u></p> <ul style="list-style-type: none"> 1. Identify the Highway Cargo Tanks provided 2. Identify the approximate capacity of the cargo tank examples 3. Identify a material(s) and hazard class(s) commonly transported in the cargo tank examples 				
<p><u>Fixed Facility</u></p> <ul style="list-style-type: none"> 1. Identify the fixed facility storage tanks provided 2. Identify a material(s) and hazard class(s) commonly stored in the storage tank examples 				
<p><u>Non-Bulk Packaging</u></p> <ul style="list-style-type: none"> 1. Identify the nonbulk container packaging provided 2. Identify the approximate capacity of the nonbulk container packaging 3. Identify a material(s) and hazard class(s) commonly 				

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

Technician Container Identification Worksheet

RAILCAR TANK				
	Container Name	Container Capacity	Common Materials	Common Hazard Classes
1				
2				
3				
4				
5				
INTERMODAL TANK				
	Container Name/Spec.	Container Capacity	Common Materials	Common Hazard Classes
1				
2				
3				
4				
5				
HIGHWAY CARGO TANK				
	Container Name/Spec.	Container Capacity	Common Materials	Common Hazard Classes
1				
2				
3				
4				
5				
6				
7				
NON-BULK CONTAINER PACKAGING				
	Container Name	Container Capacity	Common Materials	Common Hazard Classes
1				
2				
3				
4				
5				
FIXED FACILITY STORAGE TANK				
	Container Name	Typical Contents		
1				
2				
3				
RADIOACTIVE MATERIAL PACKAGING				
	Container Name	Typical Contents		
1				
2				
3				
4				
5				

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN**

Performance Standards

Analyzing the Incident

Sampling and Monitoring/Surveying Equipment

Skill #2

PERFORMANCE STANDARD

Section 604

NFPA 472 7.2.1.3.5, 7.2.1.5

TECHNICIAN

OBJECTIVE

Given three hazardous materials/WMD, one of which is a solid, one a liquid, and one a gas, and using the following monitoring equipment, test strips, and reagents, the hazardous materials technician shall select from the following equipment and demonstrate the correct techniques to identify the hazards (Corrosivity, flammability, oxidation potential, oxygen deficiency, radioactivity, toxicity, and pathogenicity):

- (1) Carbon monoxide meter
- (2) Colorimetric tubes
- (3) Combustible gas indicator
- (4) Oxygen meter
- (5) Passive dosimeters
- (6) pH indicators and pH meters
- (7) Photoionization and flame ionization detectors
- (8) Radiation detection instruments
- (9) Reagents
- (10) Test strips
- (11) WMD detectors (chemical and biological)
- (12) Other equipment provided by the AHJ

The hazardous materials technician shall demonstrate methods for collecting samples of the following:

- (1) Gas
- (2) Liquid
- (3) Solid

INSTRUCTIONS - procedures for achieving the objective

Given a solid, a liquid, and a gas, you will demonstrate the appropriate method for collecting a sample for evaluation. You will select the appropriate type of monitoring equipment to classify or identify the material by using the instruments, reagents and test strips as provided by the AHJ. *(Example: if a sample is a liquid and has a pH of 2, it would be an acid. If it also had a LEL of 12%, it would also be a flammable liquid).* You will begin on my instruction to start. The skill will end when you state or indicate to me that you have completed all the identified steps. Do you understand these instructions?

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
Performance Standards

EXAMINERS NOTE:

The hazardous materials technician trainee will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

1. Carbon monoxide meter*
2. Oxygen meter*
3. Combustible gas indicator*
4. Gas specific meters (AHJ)
5. Photoionization detector
6. Colorimetric tubes and pump
7. pH paper or electronic pH meter
8. Radiation detection instruments
9. Reagents (AHJ)
10. Test strips (AHJ)
11. Other monitoring detection equipment as provided by AHJ
12. Samples of hazardous materials (liquids, gases, and solids)
13. Sampling equipment (i.e. pipettes, spatulas, jars, vials, etc.)

*These can be single gas monitors or multi-gas monitors

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
 Performance Standards

Analyzing the Incident
 Sampling and Monitoring/Surveying Equipment
Skill #2

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS TECHNICIAN	<u>TEST</u>		<u>RETEST</u>	
Analyzing the Incident - Skill Number #2	S	U	S	U
Given three hazardous materials/WMD, one of which is a solid, one a liquid, and one a gas, and using the following monitoring equipment, test strips, and reagents, the hazardous materials technician shall select from the following equipment and demonstrate the correct techniques to identify the hazards (Corrosivity, flammability, oxidation potential, oxygen deficiency, radioactivity, toxicity, and pathogenicity): <ul style="list-style-type: none"> (1) Carbon monoxide meter (2) Colorimetric tubes (3) Combustible gas indicator (4) Oxygen meter (5) Passive dosimeters (6) pH indicators and pH meters (7) Photoionization and flame ionization detectors (8) Radiation detection instruments (9) Reagents (10) Test strips (11) WMD detectors (chemical and biological) (12) Other equipment provided by the AHJ <p style="text-align: right;">(7.2.1.3.5, 7.2.1.5)</p>				
The candidate shall perform:	S	U	S	U
SAMPLE #1 (Liquid)				
1. Appropriately collect sample of material.				
2. Choose the correct instrument or instruments to survey/test the sample. List instrument(s) chosen: _____				

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
 Performance Standards

<p>3. Correctly classifies and/or identifies and quantifies the sample.</p> <p>Classification/identification of sample:_____</p> <p>Quantified results:_____</p>				
SAMPLE #2 (Solid)				
<p>1. Appropriately collect sample of material.</p>				
<p>2. Choose the correct instrument or instruments to survey/test the sample.</p> <p>List instrument(s) chosen:_____</p>				
<p>3. Correctly classifies and/or identifies and quantifies the sample.</p> <p>Classification/identification of sample:_____</p> <p>Quantified results:_____</p>				
SAMPLE #3 (Gas)				
<p>1. Appropriately collect sample of material.</p>				
<p>2. Choose the correct instrument or instruments to survey/test the sample.</p> <p>List instrument(s) chosen:_____</p>				
<p>3. Correctly classifies and/or identifies and quantifies the sample.</p> <p>Classification/identification of sample:_____</p> <p>Quantified results:_____</p>				

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
Performance Standards**

Evaluator/Candidate Comments:

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN**

Performance Standards

Analyzing the Incident

Monitoring/Surveying/Detection Equipment Maintenance and Use

Skill #3

PERFORMANCE STANDARD

Section 604

NFPA 472 7.2.1.3.6

TECHNICIAN

OBJECTIVE

Given monitoring equipment, test strips, and reagents provided by the AHJ, the hazardous materials technician shall demonstrate the field maintenance and testing procedures for those items.

INSTRUCTIONS - Procedures for achieving the objective

Given various monitoring, surveying and detection instruments/equipment, you will demonstrate the procedures for calibrating the instruments or verifying their calibration. You will also demonstrate how to use each instrument or type of test equipment provided. You will begin on my instructions to start. The skill will end when you state or indicate to me that you have completed all the identified steps. Do you understand these instructions?

EXAMINER NOTE:

The hazardous materials technician trainee will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

1. Carbon monoxide monitor*
2. Combustible gas indicator*
3. Oxygen monitor*
4. Gas specific monitors
5. Photoionization detector
6. Colorimetric tubes
7. Radiation survey equipment
8. Radiation dosimeters
9. pH papers/pH meters
10. Test strips
11. Reagents
12. Equipment to calibrate or verify calibration
13. Other instruments/equipment provided by AHJ

***These may be single gas or multi-gas monitors**

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN**

Performance Standards

Analyzing the Incident

Monitoring/Surveying/Detection Equipment Maintenance and Use

Skill #3

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS TECHNICIAN	<u>TEST</u>		<u>RETEST</u>	
Analyzing the Incident - Skill Number #3	S	U	S	U
Given monitoring equipment, test strips, and reagents provided by the AHJ, the hazardous materials technician shall demonstrate the field maintenance and testing procedures for those items. <p style="text-align: right;">(7.2.1.3.6)</p>				
The candidate shall perform:	S	U	S	U
1. Oxygen monitor a) In accordance with the manufacturer's instructions, calibrates monitor or verifies calibration b) Demonstrate proper use of the device				
2. Combustible Gas Indicator a) In accordance with the manufacturer's instructions, calibrates monitor or verifies calibration b) Demonstrate proper use of the device				
3. Carbon monoxide monitor a) In accordance with the manufacturer's instructions, calibrates monitor or verifies calibration b) Demonstrate proper use of the device				
4. Gas specific monitor (i.e. hydrogen sulfide detector) a) In accordance with the manufacturer's instructions, calibrates monitor or verifies calibration b) Demonstrate proper use of the device				
5. Radiation survey instrument (i.e. Ludlum 2241-2 or CDV700 or CDV715) a) In accordance with the manufacturer's instructions, calibrates monitor or verifies calibration				

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
 Performance Standards

b) Demonstrate proper use of the device				
6. Radiation dosimeter a) In accordance with the manufacturer's instructions, calibrates monitor or verifies calibration b) Demonstrate proper use of the device				
7. pH paper and/or pH meter a) In accordance with the manufacturer's instructions, calibrates monitor or verifies calibration (for pH meter only) b) Demonstrate proper use of the device				
8. Colorimetric tubes/devices (i.e. Drager tubes) a) Use in accordance with the manufacturer's instructions b) Demonstrate proper use of the device				
9. Test strips or reagents a) Use in accordance with the manufacturer's instructions b) Demonstrate proper use of the device				
10. Photoionization detector a) In accordance with the manufacturer's instructions, calibrates monitor or verifies calibration b) Demonstrate proper use of the device				
11. Other monitoring, detection or survey equipment provided by the AHJ a) In accordance with the manufacturer's instructions, calibrates monitor or verifies calibration b) Demonstrate proper use of the device				

Evaluator/Candidate Comments:

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
Performance Standards

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN**

Performance Standards

Analyzing the Incident

Determining the Integrity of a Container of Radioactive Material

Skill #3.5

PERFORMANCE STANDARD

Section 604

NFPA 472 7.2.3.5

TECHNICIAN

OBJECTIVE

Given a scenario involving radioactive materials, the hazardous materials technician, using available survey and monitoring equipment, shall determine if the integrity of any container has been breached.

INSTRUCTIONS - Procedures for achieving the objective

Given radiation monitoring, surveying and detection instruments/equipment, and a suspect package, you will demonstrate the procedure for surveying the package to determine if it has been breached. You will also provide an analysis of your surveying and monitoring actions. You will begin on my instructions to start. The skill will end when you state or indicate to me that you have completed all the identified steps. Do you understand these instructions?

EXAMINER NOTE:

The hazardous materials technician trainee will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

1. Radiation survey equipment
2. Radiation dosimeters
3. A "suspect" package with or without a radiation source suitable for analysis

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN**

Performance Standards

Analyzing the Incident

Determining the Integrity of a Container of Radioactive Material

Skill #3.5

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS TECHNICIAN		<u>TEST</u>		<u>RETEST</u>	
Analyzing the Incident - Skill Number #3.5		S	U	S	U
Given a scenario involving radioactive materials, the hazardous materials technician, using available survey and monitoring equipment, shall determine if the integrity of any container has been breached. <p align="right">(7.2.3.5)</p>					
The candidate shall perform:		S	U	S	U
1. Selected the appropriate radiation survey instrument to perform the required task.					
2. In accordance with the manufacturer's instructions, placed the radiation survey device into operation.					
3. Properly surveyed the container.					
4. Correctly determined if the container has been breached or not.					

Evaluator/Candidate Comments:

All steps of the skill objective are mandatory and must be scored as "Satisfactory" to pass the skill.

Certifying Examiner

Date

Re-Test Certifying Examiner

Date

Overall Skill Sheet Score	
Pass <input type="checkbox"/>	Fail <input type="checkbox"/>
Overall Skill Sheet Re-Test Score	
Pass <input type="checkbox"/>	Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN**

Performance Standards

Analyzing the Incident

Collecting and Interpreting Hazard and Response Information

Skill #4

PERFORMANCE STANDARD

Section 604

NFPA 472 7.2.2, 7.2.2.4, 7.1.2.2(1)(e)

TECHNICIAN

OBJECTIVE

Given access to printed and technical resources, computer databases, and monitoring equipment, the hazardous materials technician shall collect and interpret hazard and response information not available from the current edition of the DOT *Emergency Response Guidebook* or an MSDS.

Given a hazardous materials/WMD scenario and the associated reference materials, the hazardous materials technician shall identify the signs and symptoms of exposure to each material and the target organ effects of exposure to that material.

Additionally, the hazardous materials technician shall analyze a hazardous materials/WMD incident to determine the complexity of the problem and potential outcomes by estimating the size of an endangered area using computer modeling, monitoring equipment, or specialists in this field.

INSTRUCTIONS - procedures for achieving the objective

Given a hazardous materials incident/WMD scenario, you will collect and interpret hazard and response information utilizing provided printed and technical reference resources, computer databases and monitoring results. You shall identify the signs and symptoms of exposure for each material identified and the target organ effects of an exposure to that material. You will also analyze the incident to determine the complexity of the problem and potential outcomes by estimating the size of an endangered area using computer modeling, monitoring equipment, or specialists in this field. Given the data provided and using the information you have interpreted, you will develop an incident site safety plan and complete a product data sheet. You will begin on my instructions to start. The skill will end when you state or indicate to me that you have completed all the identified steps. Do you understand these instructions?

EXAMINERS NOTE

The hazardous materials technician trainee will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

1. Various hazardous materials/WMD incident scenarios

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
Performance Standards

2. Various hazardous materials printed reference text (see reference list and equipment list).
3. Various hazardous materials electronic databases as provided by AHJ (i.e. WISER and/or CAMEO)
4. Access to a computer modeling specialist (this may be simulated by role play or a prepared narrative inject.)
5. Chemical data worksheet
6. Site safety plan worksheet (i.e. ICS form 208HM)

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN**

Performance Standards

Analyzing the Incident

Collecting and Interpreting Hazard and Response Information

Skill #4

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS TECHNICIAN	<u>TEST</u>		<u>RETEST</u>	
Analyzing the Incident- Skill Number #4	S	U	S	U
Given five hazardous materials/WMD scenarios and the associated reference materials, the hazardous materials technician shall identify the signs and symptoms of exposure to each material and the target organ effects of exposure to that material. 7.2.2, 7.2.2.4				
The hazardous materials technician shall analyze a hazardous materials/WMD incident to determine the complexity of the problem and potential outcomes by estimating the size of an endangered area using computer modeling, monitoring equipment, or specialists in this field. 7.1.2.2(1)(e)				
The candidate shall:	S	U	S	U
a) Uses a minimum of three reference sources				
b) Identifies signs and symptoms of exposure				
c) Identifies target organs affected				
d) Complete a chemical data worksheet for each chemical identified				
e) Using all data collected, complete a site safety plan*				

***At a minimum, the site safety plan should include the following information:**

1. Maximum exposure limits
2. Identifies hazards or conditions present
3. Level of PPE needed
4. Hazardous substance safe handling procedures
5. Identifies the need for a site map
6. Use of the "buddy system"
7. Backup personnel
8. Medical support
9. Safety officer

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN**

Performance Standards

Analyzing the Incident

Identifying Areas of Concern for PPA

Skill #5

PERFORMANCE STANDARD

Section 604

NFPA 472 7.2.5.4

TECHNICIAN

OBJECTIVE

Given examples involving a hazardous materials/WMD release and the corresponding instrument monitoring readings, the hazardous materials technician shall determine the applicable public protective response options and the areas to be protected.

INSTRUCTIONS - procedures for achieving the objective

Given direct monitoring survey data and a map, you shall plot the coordinates of the readings on the map. After plotting the coordinates you will identify the area of greatest concern for implementing public protective actions. You shall also clearly determine the control zones (hot, warm, and cold) based on the information obtained if possible. The skill will end when you state or indicate to me that you have completed all the identified steps. You will begin on my instruction to start. Do you understand these instructions?

EXAMINERS NOTE:

The hazardous materials technician trainee will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

Hazardous materials/WMD incident scenario/response monitoring data

Grid map of area surrounding incident site

MSDS

Various hazardous materials printed reference text (see reference list and equipment list)

Various hazardous materials electronic databases as provided by AHJ (i.e. WISER and/or CAMEO)

Pencils, ruler, protractor

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
 Performance Standards

Analyzing the Incident
 Identifying Areas of Concern for PPA
Skill #5

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS TECHNICIAN	<u>TEST</u>		<u>RETEST</u>	
Analyzing the Incident - Skill Number #5	S	U	S	U
Given three examples involving a hazardous materials/WMD release and the corresponding instrument monitoring readings, the hazardous materials technician shall determine the applicable public protective response options and the areas to be protected. <p style="text-align: right;">(7.2.5.4)</p>				
The candidate shall:	S	U	S	U
a) Properly plot instrumentation readings on a map based on the provided data				
b) Identify the area of concern for implementation of public protective actions				
c) If applicable, plot control zones for emergency response activities based on the data provided to include the: <ul style="list-style-type: none"> • Hot Zone • Warm Zone • Cold Zone 				

Evaluator/Candidate Comments:

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
Performance Standards

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN**

Performance Standards

Planning the Response
Identifying Response Objectives
Skill #6

PERFORMANCE STANDARD

Section 604

NFPA 472 7.3.1, 7.3.2

TECHNICIAN

OBJECTIVE

Given scenarios involving hazardous materials/WMD incidents, the hazardous materials technician shall describe the response objectives for each problem.

Given an analysis of a hazardous materials/WMD incident, the hazardous materials technician shall be able to describe the steps for determining response objectives (defensive, offensive, and nonintervention).

Given scenarios involving hazardous materials/WMD incidents, the hazardous materials technician shall identify the possible response options (defensive, offensive, and nonintervention) by response objective for each problem.

The hazardous materials technician shall be able to identify the possible response options to accomplish a given response objective.

INSTRUCTIONS - Procedures for achieving the objective

Given at least two (2) simulated hazardous materials incidents, one a facility incident and one a transportation incident, the technician trainee shall:

- 1) Describe the response objectives for each incident,
- 2) Describe the steps for determining response objectives when given an analysis of an incident,
- 3) Identify the possible response options by response objective for each problem (defensive, offensive and nonintervention), including safety considerations.
- 4) Identify possible response options to accomplish a given response objective

You will begin on my instructions to start. When you indicate completion of your analysis and response planning, I will ask you a series of questions. The skill will end when you state or indicate to me that you have completed your verbal response to the questions asked. Do you understand these instructions?

EXAMINER NOTE

The hazardous materials technician trainee will not be allowed to review the performance steps at the time of testing. When the examinee indicates completion of

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
Performance Standards

the preparation tasks, ask the evaluation questions given on page two of this document. In the appropriate column, record your evaluation of the examinee's responses as either satisfactory (S) or unsatisfactory (U).

PREPARATION & EQUIPMENT

1. Hazardous materials/WMD incident scenarios (at least one scenario each must involve a facility incident or a transportation-related incident).
2. One "Response Objective Analysis Form" for each simulated incident.

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
 Performance Standards

Planning the Response
 Identifying Response Objectives
Skill #6

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS TECHNICIAN	TEST		RETEST	
Planning the Response - Skill Number #6	S	U	S	U
<p>Given scenarios involving hazardous materials/WMD incidents, the hazardous materials technician shall describe the response objectives for each problem.</p> <p>Given an analysis of a hazardous materials/WMD incident, the hazardous materials technician shall be able to describe the steps for determining response objectives (defensive, offensive, and nonintervention).</p> <p>Given scenarios involving hazardous materials/WMD incidents, the hazardous materials technician shall identify the possible response options (defensive, offensive, and nonintervention) by response objective for each problem.</p> <p>The hazardous materials technician shall be able to identify the possible response options to accomplish a given response objective.</p> <p style="text-align: right;">(7.3.1, 7.3.2)</p>				
The trainee shall describe for the transportation incident:	S	U	S	U
a) Would you describe for me the response objective(s) for this incident?				
b) Would you describe the steps taken to determine the response objectives?				
c) Will this be a defensive, offensive, or nonintervention response?				
d) What possible action items have you identified to accomplish each response objective, including safety considerations?				
e) What possible response options will be required to accomplish your given response objectives?				

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
 Performance Standards

The trainee shall describe for the facility incident:	S	U	S	U
a) Would you describe for me the response objective(s) for this incident?				
b) Would you describe the steps taken to determine the response objectives?				
c) Will this be a defensive, offensive, or nonintervention response?				
d) What possible action items have you identified to accomplish each response objective, including safety considerations?				
e) What possible response options will be required to accomplish your given response objectives?				

Evaluator/Candidate Comments:

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____
Certifying Examiner	Date
_____	_____
Re-Test Certifying Examiner	Date

Overall Skill Sheet Score
Pass <input type="checkbox"/> Fail <input type="checkbox"/>
Overall Skill Sheet Re-Test Score
Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN**

Performance Standards

HazMat Technician #6

Response Objective Analysis Form
(Examinee Worksheet)

This worksheet is provided to the **EXAMINEE** to assist in identifying the stage of the incident and appropriate response objectives. Record the possible action options to accomplish each identified response objective.

TYPE OF INCIDENT: FACILITY TRANSPORTATION

CONTAINMENT SYSTEM ID: _____ MATERIAL: _____

INCIDENT STAGE (EVENT SEQUENCE)

STRESS	BREACH	RELEASE	ENGULF	CONTACT	HARM
--------	--------	---------	--------	---------	------

RESPONSE OBJECTIVES

CHANGE APPLIED STRESSES	CHANGE BREACH SIZE	CHANGE QUANTITY RELEASE	CHANGE DANGER ZONE SIZE	CHANGE EXPOSURES CONTACTED	CHANGE SEVERITY OF HARM
-------------------------	--------------------	-------------------------	-------------------------	----------------------------	-------------------------

RESPONSE OPTIONS AND SAFETY CONSIDERATIONS

--	--	--	--	--	--

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
 Performance Standards

HazMat Technician #6

Response Objective Analysis Form
 (Examinee Worksheet)

This worksheet is provided to the **EXAMINEE** to assist in identifying the stage of the incident and appropriate response objectives. Record the possible action options to accomplish each identified response objective.

TYPE OF INCIDENT: FACILITY TRANSPORTATION

CONTAINMENT SYSTEM ID: _____ MATERIAL: _____

INCIDENT STAGE (EVENT SEQUENCE)

STRESS	BREACH	RELEASE	ENGULF	CONTACT	HARM
--------	--------	---------	--------	---------	------

RESPONSE OBJECTIVES

CHANGE APPLIED STRESSES	CHANGE BREACH SIZE	CHANGE QUANTITY RELEASE	CHANGE DANGER ZONE SIZE	CHANGE EXPOSURES CONTACTED	CHANGE SEVERITY OF HARM
-------------------------	--------------------	-------------------------	-------------------------	----------------------------	-------------------------

RESPONSE OPTIONS AND SAFETY CONSIDERATIONS

--	--	--	--	--	--

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN**

Performance Standards

Planning the Response
Selecting Chemical Protective Clothing
Skill #7

PERFORMANCE STANDARD

Section 604

NFPA 472 7.3.3, 7.3.3.4.6

TECHNICIAN

OBJECTIVE

Given scenarios of hazardous materials/WMD incidents with known and unknown hazardous materials/WMD, the hazardous materials technician shall determine the personal protective equipment for the response options specified in the incident action plan in each situation.

Given three examples of various hazardous materials, the hazardous materials technician shall determine the protective clothing construction materials for a given action option using chemical compatibility charts.

INSTRUCTIONS - procedures for achieving the objective

You will be provided the name of three hazardous materials, a selection of Chemical Protective Clothing (CPC), chemical compatibility charts and/or CPC Selection Guides, hazardous materials reference texts, and a CPC worksheet. Using the materials provided, determine the CPC compatibility with the hazardous materials, and identify the breakthrough time (in minutes). You will begin on my instructions to start. The skill will end when you state or indicate to me that you have completed all the identified steps. Do you understand these instructions?

EXAMINERS NOTE

The hazardous materials technician trainee will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

1. A list of Hazardous Materials/WMD Agents
2. A list of CPC Material
3. CPC Chemical compatibility charts
4. CPC Selection Guide(s)
5. Hazardous Materials reference texts
6. CPC Worksheets

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
 Performance Standards

Planning the Response
 Selecting Chemical Protective Clothing
Skill #7

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS TECHNICIAN	<u>TEST</u>		<u>RETEST</u>	
Planning the Response - Skill Number #7	S	U	S	U
Given scenarios of hazardous materials/WMD incidents with known and unknown hazardous materials/WMD, the hazardous materials technician shall determine the personal protective equipment for the response options specified in the incident action plan. <div style="text-align: right;">(7.3.3)</div>				
Given three examples of various hazardous materials, the hazardous materials technician shall determine the protective clothing construction materials for a given action option using chemical compatibility charts. <div style="text-align: right;">(7.3.3.4.6)</div>				
The candidate shall:	S	U	S	U
1. Chemical #1 Name _____ a. Identifies breakthrough time (in minutes) b. Determined best CPC compatibility				
2. Chemical #2 Name _____ a. Identifies breakthrough time (in minutes) b. Determined best CPC compatibility				
3. Chemical #3 Name _____ a. Identifies breakthrough time (in minutes) b. Determined best CPC compatibility				

Evaluator/Candidate Comments:

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
Performance Standards

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
 Performance Standards

Chemical Protective Clothing
Selection Worksheet

Name: _____

Date: _____

Hazardous Material/WMD	CPC Materials/Garment	CPC Breakthrough Time in Min.	CPC Selected for Use (Yes or No)
#1: _____	1.	Min.	
	2.	Min.	
	3.	Min.	
#2: _____	1.	Min.	
	2.	Min.	
	3.	Min.	
#3: _____	1.	Min.	
	2.	Min.	
	3.	Min.	

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN**

Performance Standards

Planning the Response

Incident Action Plan

Skill #8

PERFORMANCE STANDARD

Section 604

**NFPA 472 7.3.5, 7.3.5.2, 7.3.5.2.1, 7.3.5.2.2, 7.6.3(1),
7.6.3(2), 7.6.3(8)**

TECHNICIAN

OBJECTIVE

Given scenarios involving hazardous materials/WMD incidents, the hazardous materials technician shall develop a plan of action, including site safety and a control plan that is consistent with the emergency response plan and standard operating procedures and within the capability of available personnel, personal protective equipment, and control equipment for that incident.

Given a scenario involving a hazardous materials/WMD incident, the hazardous materials technician shall develop the site safety and control plan that must be included as part of the incident action plan.

The hazardous materials technician shall list and describe the safety considerations to be included.

The hazardous materials technician shall identify the points that should be made in a safety briefing prior to working at the scene.

Given a scenario involving a hazardous materials/WMD incident, the hazardous materials technician shall complete the reporting and documentation requirements consistent with the emergency response plan and standard operating procedures and shall meet the following requirements:

- Identify the reports and supporting documentation required by the emergency response plan or standard operating procedures.
- Demonstrate completion of the reports required by the emergency response plan or standard operating procedures.
- Identify the requirements for compiling hot zone entry and exit logs.

INSTRUCTIONS - Procedures for achieving the objective

Given a simulated hazardous materials/WMD incident or scenario involving a facility or transportation setting, the technician shall develop a complete incident action plan (IAP) including a site safety plan. The plan shall be consistent with the local emergency response plan and the organization's standard operating procedures and thoroughly

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
Performance Standards

document responder actions. You will begin on my instruction to start. Do you understand these instructions?

EXAMINER NOTE

The hazardous materials technician trainee will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

Simulated hazardous materials/WMD incident or scenario involving a facility or transportation setting
ICS forms or ICS worksheet

Note: Standard ICS forms would include:

- ICS 201 Incident Briefing Form
- ICS 202 Incident Objectives Worksheet
- ICS 203 Organization Assignment List
- ICS 204 Division Assignment List
- ICS 205 Communications Plan
- ICS 206 Medical Plan
- ICS 208HM Site Safety and Control Plan

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
 Performance Standards

Planning the Response
 Incident Action Plan
Skill #8

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS TECHNICIAN	<u>TEST</u>		<u>RETEST</u>	
Planning the Response -Skill Number #8	S	U	S	U
<p>Given scenarios involving hazardous materials/WMD incidents, the hazardous materials technician shall develop a plan of action, including site safety and a control plan that is consistent with the emergency response plan and standard operating procedures and within the capability of available personnel, personal protective equipment, and control equipment for that incident.</p> <p style="text-align: right;">(7.3.5)</p> <p>Given a scenario involving a hazardous materials/WMD incident, the hazardous materials technician shall develop the site safety and control plan that must be included as part of the incident action plan.</p> <p style="text-align: right;">(7.3.5.2)</p> <p>The hazardous materials technician shall list and describe the safety considerations to be included.</p> <p style="text-align: right;">(7.3.5.2.1)</p> <p>The hazardous materials technician shall identify the points that should be made in a safety briefing prior to working at the scene.</p> <p style="text-align: right;">(7.3.5.2.2)</p> <p>Given a scenario involving a hazardous materials/WMD incident, the hazardous materials technician shall complete the reporting and documentation requirements consistent with the emergency response plan and standard operating procedures and shall meet the following requirements: (7.6.3)</p> <ul style="list-style-type: none"> • Identify the reports and supporting documentation required by the emergency response plan or standard operating procedures. <p style="text-align: right;">(7.6.3(1))</p>				

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN**

Performance Standards

<ul style="list-style-type: none"> • Demonstrate completion of the reports required by the emergency response plan or standard operating procedures. (7.6.3(2)) • Identify the requirements for compiling hot zone entry and exit logs. (7.6.3(8)) 				
The trainee shall:	S	U	S	U
a) Analyze the incident				
b) Develop a complete incident action plan				
c) Develop a site safety plan				
d) Conduct a pre-entry safety briefing				
e) Log all entries and exits to and from the hot zone				

Evaluator/Candidate Comments:

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

Incident Command Worksheet

Date: _____
 Incident Name: _____
 Incident Address/Location: _____
 Incident Command Post Location: _____
 Staging Area Location: _____
 Dispatch Time: _____
 On-Scene Time: _____
 Controlled: _____
 Extinguishment: _____

Incident Commander(s)	
Name	Date/Time

Scene Sketch

1st Alarm	
Unit	
Engine	
Engine	
Ladder	
EMS	

2nd Alarm	

3rd Alarm	

Mutual Aid	
Dept	Resource

Side C

Side B Side D

Side A

Assignments					
Division/Group	Division/Group	Division/Group	Division/Group	Division/Group	Division/Group

Incident Command Worksheet

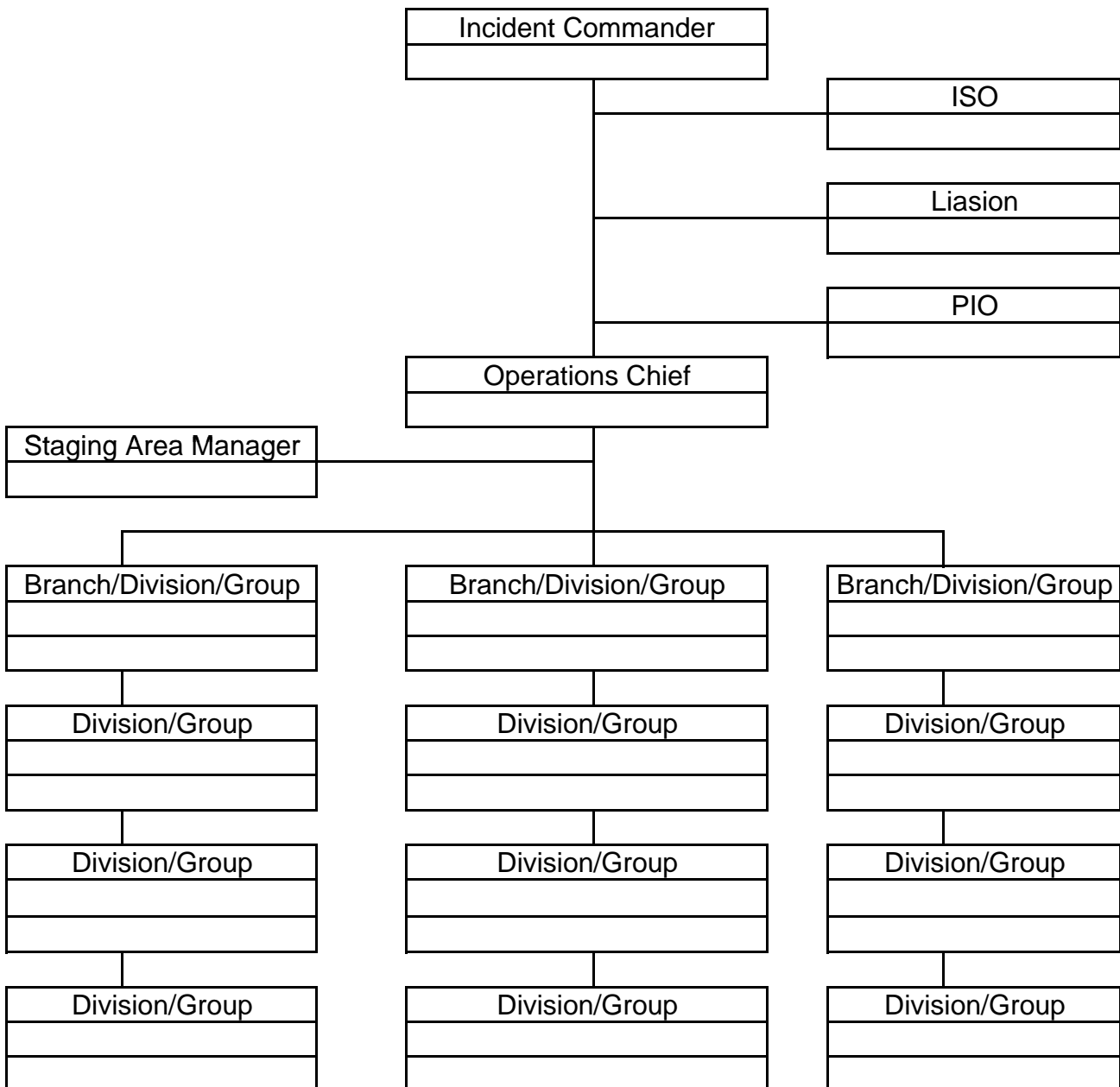
Summary of Resources							
	Resource Ordered	Resource ID	ETA	OS	# of Personnel	Location	Released
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							

Incident Command Worksheet

Response Objectives
Life Safety
Incident Stabilization
Environmental Protection
Property Preservation

Tactical Priorities
Rescue
Exposures
Confinement
Extinguishment
Overhaul
Ventilation
Salvage

8 Step Hazmat Mgmt Process
Site Management & Control
Identify the Material Involved
Identify the Hazards and Risks
Select Proper PPE/CPC
Coordinate Info & Resources
Develop & Implement Objs
Decontamination
Termination Activities

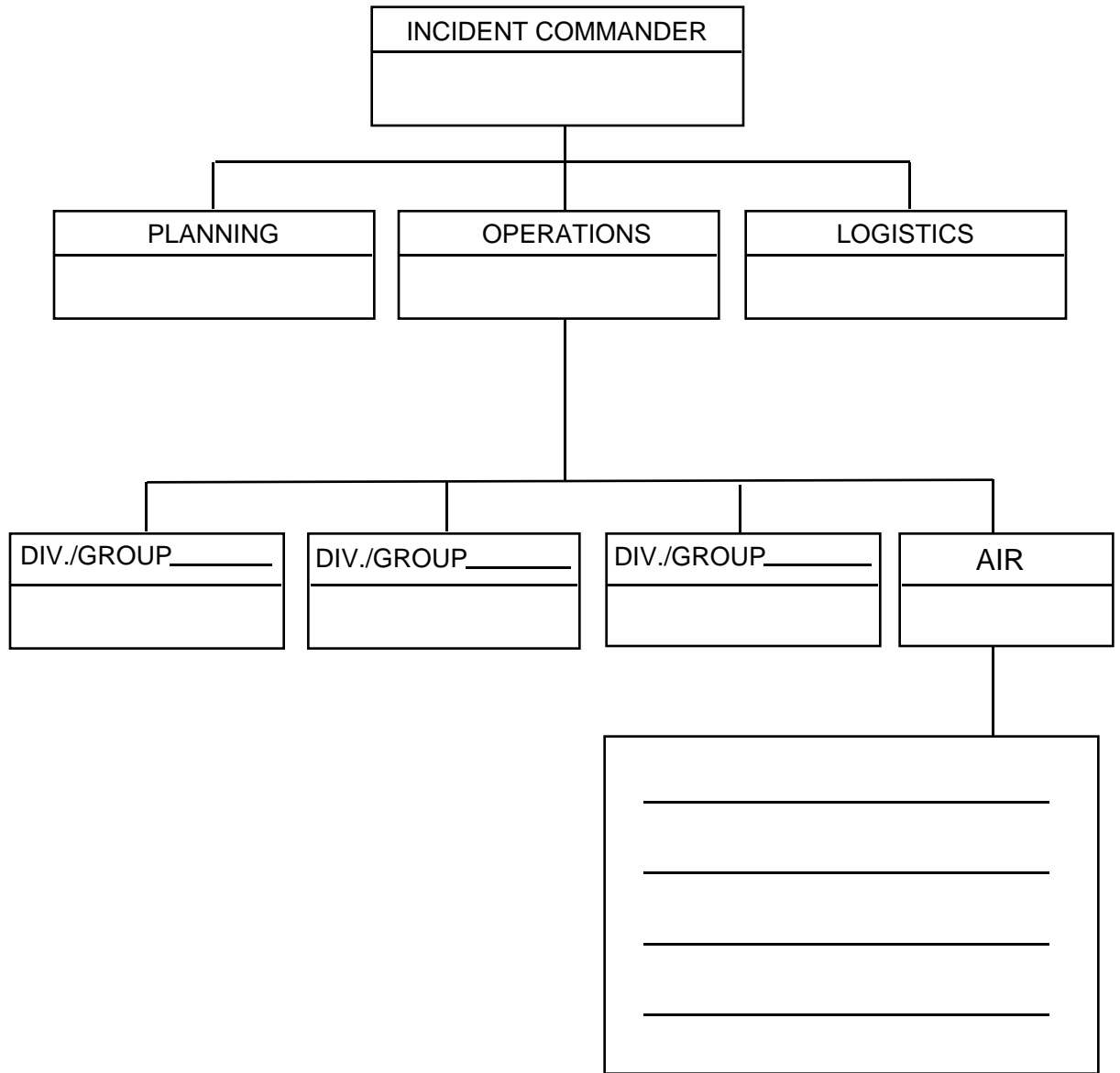


Incident Command Worksheet

Summary of Actions		
	Time/Date	Activity
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		

INCIDENT BRIEFING	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
4. MAP SKETCH			
ICS 201 (12/93) NFES 1325	PAGE 1	5. PREPARED BY (NAME AND POSITION)	

7. CURRENT ORGANIZATION



ORGANIZATION ASSIGNMENT LIST		1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED																																																																					
<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 5px;">POSITION</td> <td style="padding: 5px;">NAME</td> </tr> </table>	POSITION	NAME	4. OPERATIONAL PERIOD (DATE/TIME)																																																																						
POSITION	NAME																																																																								
5. INCIDENT COMMANDER AND STAFF		9. OPERATIONS SECTION																																																																							
<table style="width:100%; border-collapse: collapse;"> <tr><td style="width: 30%; padding: 5px;">INCIDENT COMMANDER</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">DEPUTY</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">SAFTEY OFFICER</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">INFORMATION OFFICER</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">LIAISON OFFICER</td><td style="border-bottom: 1px solid black;"></td></tr> </table>	INCIDENT COMMANDER		DEPUTY		SAFTEY OFFICER		INFORMATION OFFICER		LIAISON OFFICER		<table style="width:100%; border-collapse: collapse;"> <tr><td style="width: 30%; padding: 5px;">CHIEF</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">DEPUTY</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">a. BRANCH I- DIVISION/GROUPS</td><td></td></tr> <tr><td style="padding: 5px;">BRANCH DIRECTOR</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">DEPUTY</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">DIVISION/GROUP</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">DIVISION/GROUP</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">DIVISION/GROUP</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">DIVISION/GROUP</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">b. BRANCH II- DIVISION/GROUPS</td><td></td></tr> <tr><td style="padding: 5px;">BRANCH DIRECTOR</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">DEPUTY</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">DIVISION/GROUP</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">DIVISION/GROUP</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">DIVISION/GROUP</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">DIVISION/GROUP</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">c. BRANCH III- DIVISION/GROUPS</td><td></td></tr> <tr><td style="padding: 5px;">BRANCH DIRECTOR</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">DEPUTY</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">DIVISION/GROUP</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">DIVISION/GROUP</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">DIVISION/GROUP</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">DIVISION/GROUP</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">DIVISION/GROUP</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">d. AIR OPERATIONS BRANCH</td><td></td></tr> <tr><td style="padding: 5px;">AIR OPERATIONS BR. DIR.</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">AIR TACTICAL GROUP SUP.</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">AIR SUPPORT GROUP SUP.</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">HELICOPTER COORDINATOR</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">AIR TANKER/FIXED WING CRD.</td><td style="border-bottom: 1px solid black;"></td></tr> </table>			CHIEF		DEPUTY		a. BRANCH I- DIVISION/GROUPS		BRANCH DIRECTOR		DEPUTY		DIVISION/GROUP		DIVISION/GROUP		DIVISION/GROUP		DIVISION/GROUP		b. BRANCH II- DIVISION/GROUPS		BRANCH DIRECTOR		DEPUTY		DIVISION/GROUP		DIVISION/GROUP		DIVISION/GROUP		DIVISION/GROUP		c. BRANCH III- DIVISION/GROUPS		BRANCH DIRECTOR		DEPUTY		DIVISION/GROUP		DIVISION/GROUP		DIVISION/GROUP		DIVISION/GROUP		DIVISION/GROUP		d. AIR OPERATIONS BRANCH		AIR OPERATIONS BR. DIR.		AIR TACTICAL GROUP SUP.		AIR SUPPORT GROUP SUP.		HELICOPTER COORDINATOR		AIR TANKER/FIXED WING CRD.	
INCIDENT COMMANDER																																																																									
DEPUTY																																																																									
SAFTEY OFFICER																																																																									
INFORMATION OFFICER																																																																									
LIAISON OFFICER																																																																									
CHIEF																																																																									
DEPUTY																																																																									
a. BRANCH I- DIVISION/GROUPS																																																																									
BRANCH DIRECTOR																																																																									
DEPUTY																																																																									
DIVISION/GROUP																																																																									
DIVISION/GROUP																																																																									
DIVISION/GROUP																																																																									
DIVISION/GROUP																																																																									
b. BRANCH II- DIVISION/GROUPS																																																																									
BRANCH DIRECTOR																																																																									
DEPUTY																																																																									
DIVISION/GROUP																																																																									
DIVISION/GROUP																																																																									
DIVISION/GROUP																																																																									
DIVISION/GROUP																																																																									
c. BRANCH III- DIVISION/GROUPS																																																																									
BRANCH DIRECTOR																																																																									
DEPUTY																																																																									
DIVISION/GROUP																																																																									
DIVISION/GROUP																																																																									
DIVISION/GROUP																																																																									
DIVISION/GROUP																																																																									
DIVISION/GROUP																																																																									
d. AIR OPERATIONS BRANCH																																																																									
AIR OPERATIONS BR. DIR.																																																																									
AIR TACTICAL GROUP SUP.																																																																									
AIR SUPPORT GROUP SUP.																																																																									
HELICOPTER COORDINATOR																																																																									
AIR TANKER/FIXED WING CRD.																																																																									
6. AGENCY REPRESENTATIVES		10. FINANCE/ADMINISTRATION SECTION																																																																							
<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 5px;">AGENCY</td> <td style="padding: 5px;">NAME</td> </tr> <tr><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td></tr> </table>	AGENCY	NAME															<table style="width:100%; border-collapse: collapse;"> <tr><td style="width: 30%; padding: 5px;">CHIEF</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">DEPUTY</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">TIME UNIT</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">PROCUREMENT UNIT</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">COMPENSATION/CLAIMS UNIT</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">COST UNIT</td><td style="border-bottom: 1px solid black;"></td></tr> </table>			CHIEF		DEPUTY		TIME UNIT		PROCUREMENT UNIT		COMPENSATION/CLAIMS UNIT		COST UNIT																																											
AGENCY	NAME																																																																								
CHIEF																																																																									
DEPUTY																																																																									
TIME UNIT																																																																									
PROCUREMENT UNIT																																																																									
COMPENSATION/CLAIMS UNIT																																																																									
COST UNIT																																																																									
7. PLANNING SECTION		PREPARED BY (RESOURCES UNIT)																																																																							
<table style="width:100%; border-collapse: collapse;"> <tr><td style="width: 30%; padding: 5px;">CHIEF</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">DEPUTY</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">RESOURCES UNIT</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">SITUATION UNIT</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">DOCUMENTATION UNIT</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">DEMOBILIZATION UNIT</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">TECHNICAL SPECIALISTS</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td></tr> </table>	CHIEF		DEPUTY		RESOURCES UNIT		SITUATION UNIT		DOCUMENTATION UNIT		DEMOBILIZATION UNIT		TECHNICAL SPECIALISTS																																																												
CHIEF																																																																									
DEPUTY																																																																									
RESOURCES UNIT																																																																									
SITUATION UNIT																																																																									
DOCUMENTATION UNIT																																																																									
DEMOBILIZATION UNIT																																																																									
TECHNICAL SPECIALISTS																																																																									
8. LOGISTICS SECTION																																																																									
<table style="width:100%; border-collapse: collapse;"> <tr><td style="width: 30%; padding: 5px;">CHIEF</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">DEPUTY</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">a. SUPPORT BRANCH</td><td></td></tr> <tr><td style="padding: 5px;">DIRECTOR</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">SUPPLY UNIT</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">FACILITIES UNIT</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">GROUND SUPPORT UNIT</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">b. SERVICE BRANCH</td><td></td></tr> <tr><td style="padding: 5px;">DIRECTOR</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">COMMUNICATIONS UNIT</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">MEDICAL UNIT</td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="padding: 5px;">FOOD UNIT</td><td style="border-bottom: 1px solid black;"></td></tr> </table>	CHIEF		DEPUTY		a. SUPPORT BRANCH		DIRECTOR		SUPPLY UNIT		FACILITIES UNIT		GROUND SUPPORT UNIT		b. SERVICE BRANCH		DIRECTOR		COMMUNICATIONS UNIT		MEDICAL UNIT		FOOD UNIT																																																		
CHIEF																																																																									
DEPUTY																																																																									
a. SUPPORT BRANCH																																																																									
DIRECTOR																																																																									
SUPPLY UNIT																																																																									
FACILITIES UNIT																																																																									
GROUND SUPPORT UNIT																																																																									
b. SERVICE BRANCH																																																																									
DIRECTOR																																																																									
COMMUNICATIONS UNIT																																																																									
MEDICAL UNIT																																																																									
FOOD UNIT																																																																									

1. BRANCH	2. DIVISION/GROUP	<h1 style="margin: 0;">ASSIGNMENT LIST</h1>
-----------	-------------------	---

3. INCIDENT NAME	4. OPERATIONAL PERIOD DATE _____ TIME _____
------------------	--

5. OPERATIONAL PERSONNEL

OPERATIONS CHIEF _____ DIVISION/GROUP SUPERVISOR _____

BRANCH DIRECTOR _____ AIR TACTICAL GROUP SUPERVISOR _____

6. RESOURCES ASSIGNED THIS PERIOD

STRIKE TEAM/TASK FORCE/ RESOURCE DESIGNATOR	EMT	LEADER	NUMBER PERSONS	TRANS. NEEDED	PICKUP PT./TIME	DROP OFF PT./TIME

7. CONTROL OPERATIONS

8. SPECIAL INSTRUCTIONS

9. DIVISION/GROUP COMMUNICATIONS SUMMARY

FUNCTION	FREQ.	SYSTEM	CHAN.	FUNCTION	FREQ.	SYSTEM	CHAN.
COMMAND	LOCAL			SUPPORT	LOCAL		
	REPEAT				REPEAT		
DIV./GROUP TACTICAL				GROUND TO AIR			

PREPARED BY (RESOURCE UNIT LEADER)	APPROVED BY (PLANNING SECT. CH.)	DATE	TIME
------------------------------------	----------------------------------	------	------

INCIDENT RADIO COMMUNICATIONS PLAN	1. INCIDENT NAME	2. DATE/TIME PREPARED	3. OPERATIONAL PERIOD DATE/TIME
	4. BASE RADIO CHANNEL UTILIZATION		

SYSTEM/CACHE	CHANNEL	FUNCTION	FREQUENCY/TONE	ASSIGNMENT	REMARKS

5. PREPARED BY (COMMUNICATIONS UNIT)

MEDICAL PLAN	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED	4. OPERATIONAL PERIOD					
5. INCIDENT MEDICAL AID STATIONS									
MEDICAL AID STATIONS	LOCATION			PARAMEDICS					
				YES	NO				
6. TRANSPORTATION									
A. AMBULANCE SERVICES									
NAME	ADDRESS		PHONE	PARAMEDICS					
				YES	NO				
B. INCIDENT AMBULANCES									
NAME	LOCATION			PARAMEDICS					
				YES	NO				
7. HOSPITALS									
NAME	ADDRESS		TRAVEL TIME		PHONE	HELIPAD		BURN CENTER	
			AIR	GRND		YES	NO	YES	NO
8. MEDICAL EMERGENCY PROCEDURES									
206 ICS 8/78			9. PREPARED BY (MEDICAL UNIT LEADER)			10. REVIEWED BY (SAFETY OFFICER)			

SITE SAFETY AND CONTROL PLAN ICS 208 HM	1. Incident Name:	2. Date Prepared:	3. Operational Period: Time:									
Section I. Site Information												
4. Incident Location:												
Section II. Organization												
5. Incident Commander:	6. HM Group Supervisor:	7. Tech. Specialist - HM Reference:										
8. Safety Officer:	9. Entry Leader:	10. Site Access Control Leader:										
11. Asst. Safety Officer - HM:	12. Decontamination Leader:	13. Safe Refuge Area Mgr:										
14. Environmental Health:	15.	16.										
17. Entry Team: (Buddy System) Name: PPE Level		18. Decontamination Element: Name: PPE Level										
Entry 1		Decon 1										
Entry 2		Decon 2										
Entry 3		Decon 3										
Entry 4		Decon 4										
Section III. Hazard/Risk Analysis												
19. Material:	Container type	Qty.	Phys. State	pH	IDLH	F.P.	I.T.	V.P.	V.D.	S.G.	LEL	UEL
Comment:												
Section IV. Hazard Monitoring												
20. LEL Instrument(s):						21. O ₂ Instrument(s):						
22. Toxicity/PPM Instrument(s):						23. Radiological Instrument(s):						
Comment:												
Section V. Decontamination Procedures												
24. Standard Decontamination Procedures:									YES:	NO:		
Comment:												
Section VI. Site Communications												
25. Command Frequency:				26. Tactical Frequency:				27. Entry Frequency:				
Section VII. Medical Assistance												
28. Medical Monitoring:		YES:	NO:	29. Medical Treatment and Transport In-place:					YES:	NO:		
Comment:												

Section VIII. Site Map

30. Site Map:



Weather Command Post Zones Assembly Areas Escape Routes Other

Section IX. Entry Objectives

31. Entry Objectives:

Section X. SOP S and Safe Work Practices

32. Modifications to Documented SOP s or Work Practices: YES: NO:

Comment:

Section XI. Emergency Procedures

33. Emergency Procedures:

Section XII. Safety Briefing

34. Asst. Safety Officer - HM Signature: Safety Briefing Completed (Time):

35. HM Group Supervisor Signature: 36. Incident Commander Signature:

INSTRUCTIONS FOR COMPLETING THE SITE SAFETY AND CONTROL PLAN ICS 208 HM

A Site Safety and Control Plan must be completed by the Hazardous Materials Group Supervisor and reviewed by all within the Hazardous Materials Group prior to operations commencing within the Exclusion Zone.

Item Number	Item Title	Instructions
1.	Incident Name/Number	Print name and/or incident number.
2.	Date and Time	Enter date and time prepared.
3.	Operational Period	Enter the time interval for which the form applies.
4.	Incident Location	Enter the address and or map coordinates of the incident.
5 - 16.	Organization	Enter names of all individuals assigned to ICS positions. (Entries 5 & 8 mandatory). Use Boxes 15 and 16 for other functions: i.e. Medical Monitoring.
17 - 18.	Entry Team/Decon Element	Enter names and level of PPE of Entry & Decon personnel. (Entries 1 - 4 mandatory buddy system and back-up.)
19.	Material	Enter names and pertinent information of all known chemical products. Enter UNK if material is not known. Include any which apply to chemical properties. (Definitions: ph = Potential for Hydrogen (Corrosivity), IDLH = Immediately Dangerous to Life and Health, F.P. = Flash Point, I.T. = Ignition Temperature, V.P. = Vapor Pressure, V.D. = Vapor Density, S.G. = Specific Gravity, LEL = Lower Explosive Limit, UEL = Upper Explosive Limit)
20 - 23.	Hazard Monitoring	List the instruments which will be used to monitor for chemical.
24.	Decontamination Procedures	Check NO if modifications are made to standard decontamination procedures and make appropriate Comments including type of solutions.
25 - 27.	Site Communications	Enter the radio frequency(ies) which apply.
28 - 29.	Medical Assistance	Enter comments if NO is checked.
30.	Site Map	Sketch or attach a site map which defines all locations and layouts of operational zones. (Check boxes are mandatory to be identified.)
31.	Entry Objectives	List all objectives to be performed by the Entry Team in the Exclusion Zone and any parameters which will alter or stop entry operations.
32 - 33.	SOP s, Safe Work Practices, and Emergency Procedures	List in Comments if any modifications to SOP s and any emergency procedures which will be affected if an emergency occurs while personnel are within the Exclusion Zone.
34 - 36.	Safety Briefing	Have the appropriate individual place their signature in the box once the Site Safety and Control Plan is reviewed. Note the time in box 34 when the safety briefing has been completed.

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN**

Performance Standards

Implementing the Planned Response

Performing Incident Command Duties

Skill #9

PERFORMANCE STANDARD

Section 604

NFPA 472 7.4.1

TECHNICIAN

OBJECTIVE

Given the emergency response plan or standard operating procedures and a scenario involving a hazardous materials/WMD incident, the hazardous materials technician shall demonstrate the duties of an assigned function in the hazardous materials branch or group within the incident command system and shall identify the role of the hazardous materials technician during hazardous materials/WMD incidents.

INSTRUCTIONS - Procedures for achieving the objective

Given a simulated hazardous materials/WMD incident scenario, you will be evaluated on your ability to perform the assigned duties of a hazardous materials branch/group functional assignment. Your assignment will be assigned to you by the examiner and may be one of the following positions:

- (1) Hazardous materials branch director/group supervisor
- (2) Assistant safety officer — Hazardous materials
- (3) Site access control leader
- (4) Decontamination leader
- (5) Technical specialist — Hazardous materials leader
- (6) Safe refuge area manager

You shall function as part of the incident command system and shall operate as a component of a written incident action plan. You will begin on my instruction to start. The skill will end when the hazardous materials/WMD incident scenario has terminated. Do you understand these instructions?

EXAMINER NOTE

The hazardous materials technician trainee will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

A scenario involving a hazardous materials/WMD incident

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
 Performance Standards

Implementing the Planned Response
 Performing Incident Command Duties
Skill #9

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS TECHNICIAN	<u>TEST</u>		<u>RETEST</u>	
Implementing the Planned Response - Skill Number #9	S	U	S	U
Given the emergency response plan or standard operating procedures and a scenario involving a hazardous materials/WMD incident, the hazardous materials technician shall demonstrate the duties of an assigned function in the hazardous materials branch or group within the incident command system and shall identify the role of the hazardous materials technician during hazardous materials/WMD incidents. <p style="text-align: right;">(7.4.1)</p>				
The trainee shall:	S	U	S	U
Hazardous Materials Branch/Group Assignment: _____				
a) Effectively perform the assigned duties				
b) Operated within the incident command system				
c) Operated within the constraints of the incident action plan and site safety plan				

Evaluator/Candidate Comments:

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
Performance Standards

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN**

Performance Standards

Implementing the Planned Response

Using Chemical Protective Clothing and Respiratory Protection

Skill #10

PERFORMANCE STANDARD

Section 604

NFPA 472 7.4.2 (1), (2), (3), (4)

TECHNICIAN

OBJECTIVE

The hazardous materials technician shall demonstrate the ability to don, work in, and doff liquid splash-protective, vapor-protective, and chemical-protective clothing and any other specialized personal protective equipment provided by the AHJ, including respiratory protection, and shall complete the following tasks:

- (1) Describe three safety procedures for personnel working in chemical-protective clothing.
- (2) Describe three emergency procedures for personnel working in chemical-protective clothing.

Emergency procedures for personnel working in vapor-protective clothing should include procedures for the following:

- (1) Loss of air supply
 - (2) Loss of suit integrity
 - (3) Loss of verbal communications
 - (4) Buddy down in hot zone
- (3) Demonstrate the ability to don, work in, and doff self-contained breathing apparatus in addition to any other respiratory protection provided by the AHJ.
 - (4) Demonstrate the ability to don, work in, and doff liquid splash-protective, vapor-protective, and chemical-protective clothing in addition to any other specialized protective equipment provided by the AHJ.

INSTRUCTIONS - procedures for achieving the objective

Given various forms of chemical protective clothing and respiratory protection, you will don, perform manipulative tasks and doff each ensemble. You will be provided an assistant. Additionally, you will:

- 1) Describe three safety procedures for personnel working in chemical-protective clothing.
- (2) Describe three emergency procedures for personnel working in chemical-protective clothing.

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION HAZARDOUS MATERIALS TECHNICIAN

Performance Standards

You will begin on my instructions to start. The skill will end when you state or indicate to me that you have completed all the identified steps. Do you understand these instructions?

EXAMINERS NOTE

The hazardous materials technician trainee will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

1. Complete Level A Vapor Protective Ensemble
2. Complete Level B Encapsulated Splash Protective Ensemble
3. Complete Level B Non-Encapsulated Splash Protective Ensemble
4. Complete Level C Splash Protective Ensemble
5. Tools and props to perform manipulative task with
6. Suitable place for technician to sit (i.e. small stool, folding chair with no back, or stepladder 18"-24")

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
 Performance Standards

Implementing the Planned Response
 Using Chemical Protective Clothing and Respiratory Protection
Skill #10

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS TECHNICIAN	<u>TEST</u>		<u>RETEST</u>	
Implementing the Planned Response - Skill Number #10	S	U	S	U
The hazardous materials technician shall demonstrate the ability to don, work in, and doff liquid splash-protective, vapor-protective, and chemical-protective clothing and any other specialized personal protective equipment provided by the AHJ, including respiratory protection, and shall complete the following tasks: (1) Describe three safety procedures for personnel working in chemical-protective clothing. (2) Describe three emergency procedures for personnel working in chemical-protective clothing. (3) Demonstrate the ability to don, work in, and doff self-contained breathing apparatus in addition to any other respiratory protection provided by the AHJ. (4) Demonstrate the ability to don, work in, and doff liquid splash-protective, vapor-protective, and chemical-protective clothing in addition to any other specialized protective equipment provided by the AHJ. (7.4.2)				
The candidate shall:	S	U	S	U
Level A Vapor Protective CPC Ensemble				
a) Properly Don a Level A Vapor Protective CPC Ensemble				
b) Perform a manipulative task while wearing a Level A Vapor Protective CPC Ensemble				
c) Properly Doff a Level A Vapor Protective CPC Ensemble				
Level B Encapsulated Splash Protective CPC Ensemble				
d) Properly Don a Level B Encapsulated Splash Protective CPC Ensemble				

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN**

Performance Standards

e) Perform a manipulative task while wearing a Level B Encapsulated Splash Protective CPC Ensemble				
f) Properly Doff a Level B Encapsulated Splash Protective CPC Ensemble				
Level B Non-Encapsulated Splash Protective CPC Ensemble				
g) Properly Don a Level B Non-Encapsulated Splash Protective CPC Ensemble				
h) Perform a manipulative task while wearing Level B Non-Encapsulated Splash Protective CPC Ensemble				
i) Properly Doff a Level B Non-Encapsulated Splash Protective CPC Ensemble				
Level C Splash Protective CPC Ensemble				
j) Properly Don a Level C Splash Protective CPC Ensemble				
k) Perform a manipulative task while wearing a Level C Splash Protective CPC Ensemble				
l) Properly Doff a Level C Splash Protective CPC Ensemble				
m) Describe three safety procedures for personnel working in chemical-protective clothing.				
n) Describe three emergency procedures for personnel working in chemical-protective clothing.				

Evaluator/Candidate Comments:

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
Performance Standards

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

Certifying Examiner

Date

Re-Test Certifying Examiner

Date

Overall Skill Sheet Score
Pass <input type="checkbox"/> Fail <input type="checkbox"/>
Overall Skill Sheet Re-Test Score
Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN**

Performance Standards

Implementing the Planned Response

Using Chlorine Kits

Skill #11

PERFORMANCE STANDARD

Section 604

NFPA 472 7.4.3 (1), (2), (5); 7.5.1

TECHNICIAN

OBJECTIVE

Given scenarios involving hazardous materials/WMD incidents, the hazardous materials technician shall select the tools, equipment, and materials for the control of hazardous materials/WMD incidents and identify the precautions for controlling releases from the packaging/containers and shall complete the following tasks:

Given a pressure vessel, select the material or equipment and demonstrate a method(s) to contain leaks from the following locations:

- (a) Fusible plug
- (b) Fusible plug threads
- (c) Side wall of cylinder
- (d) Valve blowout
- (e) Valve gland
- (f) Valve inlet threads
- (g) Valve seat
- (h) Valve stem assembly blowout

Given the fittings on a pressure container, demonstrate the ability to perform the following:

- (a) Close valves that are open
- (b) Replace missing plugs
- (c) Tighten loose plugs

Identify the maintenance and inspection procedures for the tools and equipment provided for the control of hazardous materials releases according to the manufacturer's specifications and recommendations.

Given scenarios involving hazardous materials/WMD incidents and the incident action plan, the hazardous materials technician shall evaluate the effectiveness of any control functions identified in the plan of action.

INSTRUCTIONS - procedures for achieving the objective

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION HAZARDOUS MATERIALS TECHNICIAN

Performance Standards

You will be provided with a Chlorine Cylinder/Container/Tank Simulator and three chlorine emergency response kits that contain the necessary tools and equipment to contain a leak. The examiner will select a type of leak and or location of the leak. Working as a team, you must choose the proper chlorine kit for the evaluation, inspect its contents, and effectively stop the leak. Your team must indicate to me when the leak has been controlled. You will be graded as a team. You will begin on my instruction to start. The skill will end when you state or indicate to me that you have completed all the identified steps. Do you understand these instructions?

EXAMINERS NOTE:

The hazardous materials technician trainee will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

1. 1 - Chlorine 100 or 150 lbs. pressure vessel simulator
2. 1 - Chlorine One Ton Intermediate Bulk container pressure vessel simulator
3. 1 - Chlorine Pressure Railcar dome assembly simulator
4. 1 - Chlorine A Kit
5. 1 - Chlorine B Kit
6. 1 - Chlorine C Kit or Midland Emergency Kit
7. Level A CPC

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
 Performance Standards

Implementing the Planned Response
 Using Chlorine Kits
Skill #11

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS TECHNICIAN	<u>TEST</u>		<u>RETEST</u>	
Implementing the Planned Response - Skill Number #11	S	U	S	U
<p>Given scenarios involving hazardous materials/WMD incidents, the hazardous materials technician shall select the tools, equipment, and materials for the control of hazardous materials/WMD incidents and identify the precautions for controlling releases from the packaging/containers and shall complete the following tasks:</p> <p>(1) Given a pressure vessel, select the material or equipment and demonstrate a method(s) to contain leaks from the following locations:</p> <ul style="list-style-type: none"> (a) Fusible plug (b) Fusible plug threads (c) Side wall of cylinder (d) Valve blowout (e) Valve gland (f) Valve inlet threads (g) Valve seat (h) Valve stem assembly blowout <p>(2) Given the fittings on a pressure container, demonstrate the ability to perform the following:</p> <ul style="list-style-type: none"> (a) Close valves that are open (b) Replace missing plugs (c) Tighten loose plugs <p>(5) Identify the maintenance and inspection procedures for the tools and equipment provided for the control of hazardous materials releases according to the manufacturer's specifications and recommendations.</p> <p style="text-align: right;">(7.4.3)</p>				

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
 Performance Standards

Given scenarios involving hazardous materials/WMD incidents and the incident action plan, the hazardous materials technician shall evaluate the effectiveness of any control functions identified in the plan of action. <p style="text-align: right;">(7.5.1)</p>				
The candidate shall:	S	U	S	U
a) Given a Chlorine 100 or 150 lbs. pressure vessel select a Chlorine Emergency Kit Type A and contain a leak. Leak Location/Type: _____				
b) Given a Chlorine One Ton Intermediate Bulk container pressure vessel select a Chlorine Emergency Kit Type B and contain a leak. Leak Location/Type: _____				
c) Given a Chlorine Pressure Railcar Dome assembly select a Chlorine Emergency Kit Type B and contain a leak. Leak Location/Type: _____				
d) All steps must be performed while wearing Level A Vapor Protective Chemical Protective Clothing				

Evaluator/Candidate Comments:

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
Performance Standards

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN**

Performance Standards

Implementing the Planned Response

Contain a Leak in a 55 Gallon Drum

Skill #12

PERFORMANCE STANDARD

Section 604

NFPA 472 7.4.3 (3), (4), (5); 7.5.1

TECHNICIAN

OBJECTIVE

Given scenarios involving hazardous materials/WMD incidents, the hazardous materials technician shall select the tools, equipment, and materials for the control of hazardous materials/WMD incidents and identify the precautions for controlling releases from the packaging/containers and shall complete the following tasks:

Given a 55 gal (208 L) drum and applicable tools and materials, demonstrate the ability to contain the following types of leaks:

- (a) Bung leak
- (b) Chime leak
- (c) Forklift puncture
- (d) Nail puncture

Given a 55 gal (208 L) drum and an over pack drum, demonstrate the ability to place the 55 gal (208 L) drum into the over pack drum using the following methods:

- (a) Rolling slide-in
- (b) Slide-in
- (c) Slip-over

Identify the maintenance and inspection procedures for the tools and equipment provided for the control of hazardous materials releases according to the manufacturer's specifications and recommendations.

Given scenarios involving hazardous materials/WMD incidents and the incident action plan, the hazardous materials technician shall evaluate the effectiveness of any control functions identified in the plan of action.

INSTRUCTIONS - procedures for achieving the objective

Presented with a 55-gallon leaking drum containing a randomly selected leak involving either a nail puncture, a forklift puncture, a chime leak, or a leaking closure (bung or top) you will choose the appropriate tools and equipment from the equipment available, inspect its serviceability, and contain the leak. Additionally you will over pack the drum utilizing a randomly selected method (selected by the examiner). After donning CPC, you will begin on my instruction to start. The skill will end when you state or indicate to

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
Performance Standards

me that you have completed all the identified steps. Do you understand these instructions?

EXAMINERS NOTE

The hazardous materials technician trainee will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

- 1.) A 55-gallon drum with either a nail puncture, a forklift puncture, a chime leak, or a leaking closure (bung).
- 2.) Bung wrench
- 3.) Drum plugging and patching kit
- 4.) Over pack drum
- 5.) CPC with respiratory protection

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
 Performance Standards

Implementing the Planned Response
 Contain a Leak in a 55 Gallon Drum
Skill #12

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS TECHNICIAN	<u>TEST</u>		<u>RETEST</u>	
Implementing the Planned Response - Skill Number #12	S	U	S	U
<p>Given scenarios involving hazardous materials/WMD incidents, the hazardous materials technician shall select the tools, equipment, and materials for the control of hazardous materials/WMD incidents and identify the precautions for controlling releases from the packaging/containers and shall complete the following tasks:</p> <p>(3) Given a 55 gal (208 L) drum and applicable tools and materials, demonstrate the ability to contain the following types of leaks:</p> <ul style="list-style-type: none"> (a) Bung leak (b) Chime leak (c) Forklift puncture (d) Nail puncture <p>(4) Given a 55 gal (208 L) drum and an over pack drum, demonstrate the ability to place the 55 gal (208 L) drum into the over pack drum using the following methods:</p> <ul style="list-style-type: none"> (a) Rolling slide-in (b) Slide-in (c) Slip-over <p>(5) Identify the maintenance and inspection procedures for the tools and equipment provided for the control of hazardous materials releases according to the manufacturer's specifications and recommendations.</p> <p style="text-align: right;">(7.4.3)</p> <p>Given scenarios involving hazardous materials/WMD incidents and the incident action plan, the hazardous</p>				

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
 Performance Standards

materials technician shall evaluate the effectiveness of any control functions identified in the plan of action. (7.5.1)				
The candidate shall:	S	U	S	U
a) Given a 55 gal (208 L) drum and applicable tools and materials, demonstrate the ability to contain one of the following types of leaks: <ul style="list-style-type: none"> • Bung leak • Chime leak • Forklift puncture • Nail puncture 				
b) Given a 55 gal (208 L) drum and an over pack drum, demonstrate the ability to place the 55 gal (208 L) drum into the over pack drum using one of the following methods: <ul style="list-style-type: none"> • Rolling slide-in • Slide-in • Slip-over 				
c) All tasks must be performed in Chemical Protective Clothing				

Evaluator/Candidate Comments:

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN**

Performance Standards

Implementing the Planned Response

Highway Cargo Tank Emergency Response

Skill #13

PERFORMANCE STANDARD

Section 604

NFPA 472 7.4.3 (5), (8), (9), (10), (11); 7.5.1

TECHNICIAN

OBJECTIVE

Given scenarios involving hazardous materials/WMD incidents, the hazardous materials technician shall select the tools, equipment, and materials for the control of hazardous materials/WMD incidents and identify the precautions for controlling releases from the packaging/containers and shall complete the following tasks:

Identify the maintenance and inspection procedures for the tools and equipment provided for the control of hazardous materials releases according to the manufacturer's specifications and recommendations.

Given an MC-306/DOT-406 cargo tank and a dome cover clamp, demonstrate the ability to install the clamp on the dome.

Identify the methods and precautions used to control a fire involving an MC-306/DOT-406 aluminum shell cargo tank.

Describe at least one method for containing each of the following types of leaks in MC-306/DOT-406, MC-307/DOT-407, and MC-312/DOT-412 cargo tanks:

- (a) Dome cover leak
- (b) Irregular-shaped hole
- (c) Puncture
- (d) Split or tear

Describe three product removal and transfer considerations for overturned MC-306/DOT-406, MC-307/DOT-407, MC-312/DOT-412, MC-331, and MC-338 cargo tanks.

Given scenarios involving hazardous materials/WMD incidents and the incident action plan, the hazardous materials technician shall evaluate the effectiveness of any control functions identified in the plan of action.

INSTRUCTIONS - procedures for achieving the objective

You will be presented with a MC 306/DOT 406 cargo tank, which is leaking a product from one of the dome covers. You will gather the necessary equipment for grounding the cargo tank and controlling the leak coming from the dome cover and inspect them

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION HAZARDOUS MATERIALS TECHNICIAN

Performance Standards

for serviceability. You will properly install the dome clamp and ground and bond the cargo tank in anticipation of product transfer operations. You will be graded as a team. You will begin on my instruction to start. The skill will end when you state or indicate to me that you have completed the above identified steps. Do you understand these instructions?

EXAMINERS NOTE

The hazardous materials technician trainee will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

1. 1 - MC 306/DOT 406 Cargo tank laying on its side and water spilling out of a dome cover; or a Cargo tank dome cover training simulator and water spilling out of the dome cover
2. 1 - Dome cover clamp
3. 1 - LEL monitor
4. 1 - Complete set of grounding equipment
 - a. Ground rod
 - b. Ground clamps
 - c. Grounding cables
 - d. Non-sparking hammer

The hazardous materials technician trainee shall accomplish the skill wearing "**FULL PROTECTIVE CLOTHING FOR STRUCTURAL FIREFIGHTERS**" as required by the Texas Commission on Fire Protection to include helmet, coat, trousers, boots, and SCBA.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
 Performance Standards

Implementing the Planned Response
 Highway Cargo Tank Emergency Response
Skill #13

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS TECHNICIAN	<u>TEST</u>		<u>RETEST</u>	
Implementing the Planned Response - Skill Number #13	S	U	S	U
<p>Given scenarios involving hazardous materials/WMD incidents, the hazardous materials technician shall select the tools, equipment, and materials for the control of hazardous materials/WMD incidents and identify the precautions for controlling releases from the packaging/containers and shall complete the following tasks:</p> <ul style="list-style-type: none"> (5) Identify the maintenance and inspection procedures for the tools and equipment provided for the control of hazardous materials releases according to the manufacturer's specifications and recommendations. (8) Given an MC-306/DOT-406 cargo tank and a dome cover clamp, demonstrate the ability to install the clamp on the dome. (9) Identify the methods and precautions used to control a fire involving an MC-306/DOT-406 aluminum shell cargo tank. (10) Describe at least one method for containing each of the following types of leaks in MC-306/DOT-406, MC-307/DOT-407, and MC-312/DOT-412 cargo tanks: <ul style="list-style-type: none"> (a) Dome cover leak (b) Irregular-shaped hole (c) Puncture (d) Split or tear (11) Describe three product removal and transfer considerations for overturned MC-306/DOT-406, MC-307/DOT-407, MC-312/DOT-412, MC-331, and MC-338 cargo tanks. 				

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
 Performance Standards

(7.4.3)				
Given scenarios involving hazardous materials/WMD incidents and the incident action plan, the hazardous materials technician shall evaluate the effectiveness of any control functions identified in the plan of action.				
(7.5.1)				
The candidate shall:	S	U	S	U
a) Identify the maintenance and inspection procedures for the tools and equipment provided for the control of hazardous materials releases according to the manufacturer's specifications and recommendations.				
b) Identify three considerations for assessing a leak or spill inside a confined space without entering the area.				
c) Identify three safety considerations for product transfer operations.				
d) Given an MC-306/DOT-406 cargo tank and a dome cover clamp, demonstrate the ability to install the clamp on the dome.				
e) Identify the methods and precautions used to control a fire involving an MC-306/DOT-406 aluminum shell cargo tank.				
f) Describe at least one method for containing each of the following types of leaks in MC-306/DOT-406, MC-307/DOT-407, and MC-312/DOT-412 cargo tanks: (a) Dome cover leak (b) Irregular-shaped hole (c) Puncture (d) Split or tear				
g) Describe three product removal and transfer considerations for overturned MC-306/DOT-406, MC-307/DOT-407, MC-312/DOT-412, MC-331, and MC-338 cargo tanks.				
h) Properly bond and ground the cargo tank in preparation of conducting transfer operations				
i) All tasks performed while wearing a full structural firefighting protective ensemble including SCBA.				

Evaluator/Candidate Comments:

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
Performance Standards

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
Performance Standards

Implementing the Planned Response
Decontamination Operations
Skill #14

PERFORMANCE STANDARD

Section 604

NFPA 472 7.4.5 (1), (2), (3)

TECHNICIAN

OBJECTIVE

The hazardous materials technician shall demonstrate the ability to set up and implement the following types of decontamination operations:

- (1) Technical decontamination operations in support of entry operations
- (2) Technical decontamination operations involving ambulatory and non-ambulatory victims
- (3) Mass decontamination operations involving ambulatory and non-ambulatory victims

INSTRUCTIONS - procedures for achieving the objective

The technician, operating as a member of a team at a simulated hazardous materials incident, shall demonstrate how to perform technical and mass decontamination operations. You will be provided with the necessary equipment and water supply to set up and establish a technical contamination reduction corridor. After establishing a technical contamination reduction corridor, while wearing Level B chemical protective clothing (CPC) and a self-contained breathing apparatus (SCBA); you shall demonstrate the procedures to decontaminate responders and both ambulatory and non-ambulatory victims during a simulated hazardous materials incident. Working as part of a team you will establish a mass decontamination corridor and explain how the decontamination of both ambulatory and non-ambulatory victims will be conducted during a simulated mass casualty hazardous materials incident.

You will be graded as a team. You will begin on my instruction to start. The skill will end when you state or indicate to me that you have completed all the identified steps. Do you understand these instructions?

EXAMINERS NOTE:

The hazardous materials technician trainee will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

1. Emergency Response and Hazardous Materials Response Equipment
2. Technical Decontamination Equipment
3. Mass Decontamination Equipment

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
Performance Standards

4. Complete Level B CPC ensembles w/SCBAs
5. One technician in Level A CPC that has been “contaminated”
 A dummy/manikin or a non responder victim to be decontaminated

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
 Performance Standards

Implementing the Planned Response
 Decontamination Operations
Skill #14

Candidate: _____ Date: _____

Academy: _____ Test Site: _____

HAZARDOUS MATERIALS TECHNICIAN	<u>TEST</u>		<u>RETEST</u>	
Implementing the Planned Response - Skill Number 14	S	U	S	U
The hazardous materials technician shall demonstrate the ability to set up and implement the following types of decontamination operations: (1) Technical decontamination operations in support of entry operations (2) Technical decontamination operations involving ambulatory and non-ambulatory victims (3) Mass decontamination operations involving ambulatory and non-ambulatory victims (7.4.5)				
The candidate shall perform:	S	U	S	U
a) Technical decontamination operations in support of entry operations				
1. Properly locates Contamination Reduction Corridor upwind, uphill, and in warm zone				
2. Provides protective measure to protect the environment from contamination by constructing a large catch basin with plastic				
3. Sets up decon pools to contain decontamination solution run off				
4. Clearly marks entrance and exit access points				
5. Container available at entrance access point, in hot zone, for contaminated tools				
6. Container available in CRC for contaminated CPC				
7. Establishes suit removal area with suitable seating next to cold zone and takes precautions to eliminate contamination				
8. Establishes water supply				
9. Provides water to each decon pool area (i.e. garden hose)				

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN**

Performance Standards

10. Provides brushes for decon pool(s)				
11. Mixes proper decon solution for use				
b) Decontaminates a Technician				
1. Instructs technician to put tools in tool drop container				
2. Performs gross decontamination and wash at first decon pool to remove as much contamination as possible				
3. Performs wash/rinse at subsequent decon pool(s)				
4. Assist technician with CPC removal in doffing area				
5. Places contaminated CPC in proper drum				
6. Removes SCBA				
7. Instructs technician to move to medical evaluation area				
c) Technical decontamination operations involving ambulatory and non-ambulatory victims				
1. Transfer victim to emergency decontamination area				
2. Flush victim with copious amounts of water				
3. Remove outer layers of clothing				
4. Flush victim with copious amounts of water				
5. Remove victims respiratory protection if worn				
6. Cover with clean sheet				
7. Transfer care to EMS				
8. Transfer information regarding the name of the known or possible chemical hazard exposure				
d) Mass decontamination operations involving ambulatory and non-ambulatory victims				
1. Establishes a mass decontamination corridor in accordance with local protocols				
2. Establishes patient triage and treatment areas for both ambulatory and non-ambulatory victims				
3. Explains the mass decontamination process				
e) Conducts all decontamination operations while wearing full Level B liquid splash protective CPC				

Evaluator/Candidate Comments:

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS TECHNICIAN
Performance Standards

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS INCIDENT COMMANDER
Performance Standards

HAZARDOUS MATERIALS INCIDENT COMMANDER
Collecting and Interpreting Hazard and Response Information
Skill #1

PERFORMANCE STANDARD

Section 605

NFPA 472 8.2.1.1

INCIDENT COMMANDER

OBJECTIVE

Given access to printed and technical resources, computer databases, and monitoring equipment, the incident commander shall collect and interpret hazard and response information not available from the current edition of the DOT *Emergency Response Guidebook* or an MSDS.

INSTRUCTIONS - procedures for achieving the objective

Given a hazardous materials incident/WMD scenario, you will collect and interpret hazard and response information utilizing provided printed and technical reference resources, computer databases and monitoring results. Given the data provided and using the information you have interpreted, you will develop an incident site safety plan and complete a product data sheet(s). You will begin on my instructions to start. The skill will end when you state or indicate to me that you have completed all the identified steps. Do you understand these instructions?

EXAMINERS NOTE

The hazardous materials incident commander trainee will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

1. Various hazardous materials/WMD incident scenarios
2. Various hazardous materials printed reference text (see reference list and equipment list).
3. Various hazardous materials electronic databases as provided by AHJ (i.e. WISER and/or CAMEO)
4. Chemical data worksheet
5. Site safety plan worksheet (i.e. ICS form 208HM)

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS INCIDENT COMMANDER
 Performance Standards

HAZARDOUS MATERIALS INCIDENT COMMANDER
 Collecting and Interpreting Hazard and Response Information
Skill #1

Candidate: _____ Notes: _____

Dept: _____

School: _____

Test Site: _____

Examiner: _____

HAZARDOUS MATERIALS INCIDENT COMMANDER	<u>TEST</u>		<u>RETEST</u>	
Collecting and Interpreting Hazard and Response Information - Skill Number #1	S	U	S	U
Given access to printed and technical resources, computer databases, and monitoring equipment, the incident commander shall collect and interpret hazard and response information not available from the current edition of the DOT <i>Emergency Response Guidebook</i> or an MSDS. (8.2.1.1)				
The candidate shall:	S	U	S	U
a) Uses a minimum of three reference sources				
b) Complete a chemical data worksheet for each chemical identified				
c) Using all data collected, complete a site safety plan*				

***At a minimum, the site safety plan should include the following information:**

1. Maximum exposure limits
2. Identifies hazards or conditions present
3. Level of PPE needed
4. Hazardous substance safe handling procedures
5. Identifies the need for a site map
6. Use of the "buddy system"
7. Backup personnel
8. Medical support
9. Safety officer
10. Decontamination procedures
11. Hazard monitoring
12. Control zones

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS INCIDENT COMMANDER
 Performance Standards

Evaluator/Candidate Comments:

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS INCIDENT COMMANDER
Performance Standards

HAZARDOUS MATERIALS INCIDENT COMMANDER
Incident Action Plan
Skill #2

PERFORMANCE STANDARD

Section 605

NFPA 472 8.3.4

INCIDENT COMMANDER

OBJECTIVE

Given scenarios involving hazardous materials/WMD incidents, the incident commander shall develop an incident action plan, including site safety and control plan, consistent with the emergency response plan or standard operating procedures and within the capability of the available personnel, personal protective equipment, and control equipment.

INSTRUCTIONS - Procedures for achieving the objective

Given a simulated hazardous materials/WMD incident or scenario involving a facility or transportation setting, the incident commander shall develop a complete incident action plan (IAP) including a site safety plan. The plan shall be consistent with the local emergency response plan and the organization's standard operating procedures. Do you understand these instructions?

EXAMINER NOTE

The hazardous materials incident commander trainee will not be allowed to review the performance steps at the time of testing.

If the incident commander trainee has already completed a site safety plan for the provided scenario to meet the requirements of skill #1, that site safety plan may be submitted as a component of this incident action plan assignment. If a site safety plan has not been completed a new one must be developed to meet the requirements of this skill.

PREPARATION & EQUIPMENT

Simulated hazardous materials/WMD incident or scenario involving a facility or transportation setting
ICS forms or ICS worksheet

Note: Standard ICS forms would include:

- ICS 201 Incident Briefing Form
- ICS 202 Incident Objectives Worksheet
- ICS 203 Organization Assignment List
- ICS 204 Division Assignment List

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS INCIDENT COMMANDER
Performance Standards

- ICS 205 Communications Plan
- ICS 206 Medical Plan
- ICS 208HM Site Safety and Control Plan

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS INCIDENT COMMANDER
 Performance Standards

HAZARDOUS MATERIALS INCIDENT COMMANDER
 Incident Action Plan
Skill #2

Candidate: _____ Notes: _____

Dept: _____

School: _____

Test Site: _____

Examiner: _____

HAZARDOUS MATERIALS INCIDENT COMMANDER	<u>TEST</u>		<u>RETEST</u>	
Planning the Response - Skill Number #2	S	U	S	U
Given scenarios involving hazardous materials/WMD incidents, the incident commander shall develop an incident action plan, including site safety and control plan, consistent with the emergency response plan or standard operating procedures and within the capability of the available personnel, personal protective equipment, and control equipment. (8.3.4)				
The candidate shall:	S	U	S	U
a) Analyze the incident				
b) Collect and interpret hazard and response information				
c) Estimate the potential outcomes				
d) Identify the response objectives				
e) Identify the potential response options				
f) Approve the level of personal protective equipment				
g) Develop a complete incident action plan				
h) Develop a site safety plan (see examiner's note above)				

Evaluator/Candidate Comments:

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS INCIDENT COMMANDER
Performance Standards

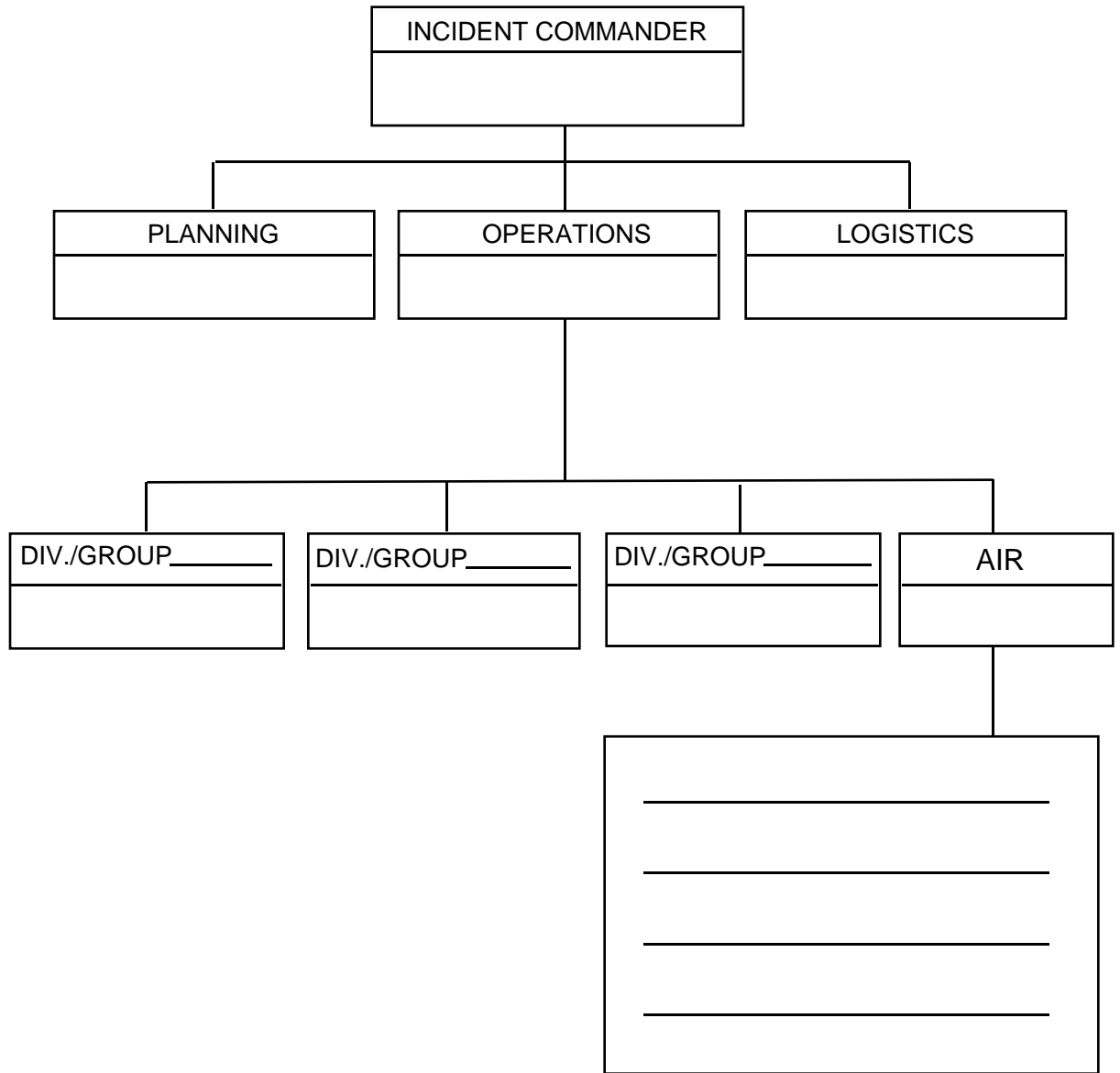
All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

INCIDENT BRIEFING	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
4. MAP SKETCH			
ICS 201 (12/93) NFES 1325	PAGE 1	5. PREPARED BY (NAME AND POSITION)	

7. CURRENT ORGANIZATION



8. RESOURCES SUMMARY

RESOURCES ORDERED	RESOURCES IDENTIFICATION	ETA	ON SCENE	LOCATION/ASSIGNMENT
ICS 201 (12/93) NFES 1325	PAGE 4			

INCIDENT OBJECTIVES	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED									
4. OPERATIONAL PERIOD (DATE/TIME)												
5. GENERAL CONTROL OBJECTIVES FOR THE INCIDENT (INCLUDE ALTERNATIVES)												
6. WEATHER FORECAST FOR OPERATIONAL PERIOD												
7. GENERAL SAFETY MESSAGE												
8. ATTACHMENTS (✓ IF ATTACHED) <table border="0" style="width: 100%; margin-top: 10px;"> <tr> <td><input type="checkbox"/> ORGANIZATION LIST (ICS 203)</td> <td><input type="checkbox"/> MEDICAL PLAN (ICS 206)</td> <td><input type="checkbox"/> _____</td> </tr> <tr> <td><input type="checkbox"/> ASSIGNMENT LIST (ICS 204)</td> <td><input type="checkbox"/> INCIDENT MAP</td> <td><input type="checkbox"/> _____</td> </tr> <tr> <td><input type="checkbox"/> COMMUNICATIONS PLAN (ICS 205)</td> <td><input type="checkbox"/> TRAFFIC PLAN</td> <td><input type="checkbox"/> _____</td> </tr> </table>				<input type="checkbox"/> ORGANIZATION LIST (ICS 203)	<input type="checkbox"/> MEDICAL PLAN (ICS 206)	<input type="checkbox"/> _____	<input type="checkbox"/> ASSIGNMENT LIST (ICS 204)	<input type="checkbox"/> INCIDENT MAP	<input type="checkbox"/> _____	<input type="checkbox"/> COMMUNICATIONS PLAN (ICS 205)	<input type="checkbox"/> TRAFFIC PLAN	<input type="checkbox"/> _____
<input type="checkbox"/> ORGANIZATION LIST (ICS 203)	<input type="checkbox"/> MEDICAL PLAN (ICS 206)	<input type="checkbox"/> _____										
<input type="checkbox"/> ASSIGNMENT LIST (ICS 204)	<input type="checkbox"/> INCIDENT MAP	<input type="checkbox"/> _____										
<input type="checkbox"/> COMMUNICATIONS PLAN (ICS 205)	<input type="checkbox"/> TRAFFIC PLAN	<input type="checkbox"/> _____										
9. PREPARED BY (PLANNING SECTION CHIEF)		10. APPROVED BY (INCIDENT COMMANDER)										

ORGANIZATION ASSIGNMENT LIST

1. INCIDENT NAME

2. DATE PREPARED

3. TIME PREPARED

POSITION NAME

4. OPERATIONAL PERIOD (DATE/TIME)

5. INCIDENT COMMANDER AND STAFF

INCIDENT COMMANDER _____
 DEPUTY _____
 SAFETY OFFICER _____
 INFORMATION OFFICER _____
 LIAISON OFFICER _____

9. OPERATIONS SECTION

CHIEF _____
 DEPUTY _____
 a. BRANCH I- DIVISION/GROUPS
 BRANCH DIRECTOR _____
 DEPUTY _____
 DIVISION/GROUP _____
 DIVISION/GROUP _____
 DIVISION/GROUP _____
 DIVISION/GROUP _____
 b. BRANCH II- DIVISION/GROUPS
 BRANCH DIRECTOR _____
 DEPUTY _____
 DIVISION/GROUP _____
 DIVISION/GROUP _____
 DIVISION/GROUP _____
 DIVISION/GROUP _____

6. AGENCY REPRESENTATIVES

AGENCY	NAME

7. PLANNING SECTION

CHIEF _____
 DEPUTY _____
 RESOURCES UNIT _____
 SITUATION UNIT _____
 DOCUMENTATION UNIT _____
 DEMOBILIZATION UNIT _____
 TECHNICAL SPECIALISTS _____

c. BRANCH III- DIVISION/GROUPS
 BRANCH DIRECTOR _____
 DEPUTY _____
 DIVISION/GROUP _____
 DIVISION/GROUP _____
 DIVISION/GROUP _____
 DIVISION/GROUP _____

8. LOGISTICS SECTION

CHIEF _____
 DEPUTY _____
 a. SUPPORT BRANCH
 DIRECTOR _____
 SUPPLY UNIT _____
 FACILITIES UNIT _____
 GROUND SUPPORT UNIT _____
 b. SERVICE BRANCH
 DIRECTOR _____
 COMMUNICATIONS UNIT _____
 MEDICAL UNIT _____
 FOOD UNIT _____

d. AIR OPERATIONS BRANCH
 AIR OPERATIONS BR. DIR. _____
 AIR TACTICAL GROUP SUP. _____
 AIR SUPPORT GROUP SUP. _____
 HELICOPTER COORDINATOR _____
 AIR TANKER/FIXED WING CRD. _____

10. FINANCE/ADMINISTRATION SECTION

CHIEF _____
 DEPUTY _____
 TIME UNIT _____
 PROCUREMENT UNIT _____
 COMPENSATION/CLAIMS UNIT _____
 COST UNIT _____

PREPARED BY (RESOURCES UNIT)

1. BRANCH	2. DIVISION/GROUP	<h1 style="margin: 0;">ASSIGNMENT LIST</h1>
-----------	-------------------	---

3. INCIDENT NAME	4. OPERATIONAL PERIOD DATE _____ TIME _____
------------------	--

5. OPERATIONAL PERSONNEL

OPERATIONS CHIEF _____ DIVISION/GROUP SUPERVISOR _____

BRANCH DIRECTOR _____ AIR TACTICAL GROUP SUPERVISOR _____

6. RESOURCES ASSIGNED THIS PERIOD

STRIKE TEAM/TASK FORCE/ RESOURCE DESIGNATOR	EMT	LEADER	NUMBER PERSONS	TRANS. NEEDED	PICKUP PT./TIME	DROP OFF PT./TIME

7. CONTROL OPERATIONS

8. SPECIAL INSTRUCTIONS

9. DIVISION/GROUP COMMUNICATIONS SUMMARY

FUNCTION	FREQ.	SYSTEM	CHAN.	FUNCTION	FREQ.	SYSTEM	CHAN.
COMMAND	LOCAL			SUPPORT	LOCAL		
	REPEAT				REPEAT		
DIV./GROUP TACTICAL				GROUND TO AIR			

PREPARED BY (RESOURCE UNIT LEADER)	APPROVED BY (PLANNING SECT. CH.)	DATE	TIME
------------------------------------	----------------------------------	------	------

INCIDENT RADIO COMMUNICATIONS PLAN	1. INCIDENT NAME	2. DATE/TIME PREPARED	3. OPERATIONAL PERIOD DATE/TIME
	4. BASE RADIO CHANNEL UTILIZATION		

SYSTEM/CACHE	CHANNEL	FUNCTION	FREQUENCY/TONE	ASSIGNMENT	REMARKS

5. PREPARED BY (COMMUNICATIONS UNIT)

MEDICAL PLAN	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED	4. OPERATIONAL PERIOD					
5. INCIDENT MEDICAL AID STATIONS									
MEDICAL AID STATIONS	LOCATION			PARAMEDICS					
				YES	NO				
6. TRANSPORTATION									
A. AMBULANCE SERVICES									
NAME	ADDRESS		PHONE	PARAMEDICS					
				YES	NO				
B. INCIDENT AMBULANCES									
NAME	LOCATION			PARAMEDICS					
				YES	NO				
7. HOSPITALS									
NAME	ADDRESS		TRAVEL TIME		PHONE	HELIPAD		BURN CENTER	
			AIR	GRND		YES	NO	YES	NO
8. MEDICAL EMERGENCY PROCEDURES									
206 ICS 8/78			9. PREPARED BY (MEDICAL UNIT LEADER)			10. REVIEWED BY (SAFETY OFFICER)			

SITE SAFETY AND CONTROL PLAN ICS 208 HM	1. Incident Name:	2. Date Prepared:	3. Operational Period: Time:									
Section I. Site Information												
4. Incident Location:												
Section II. Organization												
5. Incident Commander:	6. HM Group Supervisor:	7. Tech. Specialist - HM Reference:										
8. Safety Officer:	9. Entry Leader:	10. Site Access Control Leader:										
11. Asst. Safety Officer - HM:	12. Decontamination Leader:	13. Safe Refuge Area Mgr:										
14. Environmental Health:	15.	16.										
17. Entry Team: (Buddy System) Name: PPE Level		18. Decontamination Element: Name: PPE Level										
Entry 1		Decon 1										
Entry 2		Decon 2										
Entry 3		Decon 3										
Entry 4		Decon 4										
Section III. Hazard/Risk Analysis												
19. Material:	Container type	Qty.	Phys. State	pH	IDLH	F.P.	I.T.	V.P.	V.D.	S.G.	LEL	UEL
Comment:												
Section IV. Hazard Monitoring												
20. LEL Instrument(s):						21. O ₂ Instrument(s):						
22. Toxicity/PPM Instrument(s):						23. Radiological Instrument(s):						
Comment:												
Section V. Decontamination Procedures												
24. Standard Decontamination Procedures:									YES:	NO:		
Comment:												
Section VI. Site Communications												
25. Command Frequency:				26. Tactical Frequency:				27. Entry Frequency:				
Section VII. Medical Assistance												
28. Medical Monitoring:		YES:	NO:	29. Medical Treatment and Transport In-place:					YES:	NO:		
Comment:												

Section VIII. Site Map

30. Site Map:



Weather Command Post Zones Assembly Areas Escape Routes Other

Section IX. Entry Objectives

31. Entry Objectives:

Section X. SOP S and Safe Work Practices

32. Modifications to Documented SOP s or Work Practices: YES: NO:

Comment:

Section XI. Emergency Procedures

33. Emergency Procedures:

Section XII. Safety Briefing

34. Asst. Safety Officer - HM Signature: Safety Briefing Completed (Time):

35. HM Group Supervisor Signature: 36. Incident Commander Signature:

INSTRUCTIONS FOR COMPLETING THE SITE SAFETY AND CONTROL PLAN ICS 208 HM

A Site Safety and Control Plan must be completed by the Hazardous Materials Group Supervisor and reviewed by all within the Hazardous Materials Group prior to operations commencing within the Exclusion Zone.

Item Number	Item Title	Instructions
1.	Incident Name/Number	Print name and/or incident number.
2.	Date and Time	Enter date and time prepared.
3.	Operational Period	Enter the time interval for which the form applies.
4.	Incident Location	Enter the address and or map coordinates of the incident.
5 - 16.	Organization	Enter names of all individuals assigned to ICS positions. (Entries 5 & 8 mandatory). Use Boxes 15 and 16 for other functions: i.e. Medical Monitoring.
17 - 18.	Entry Team/Decon Element	Enter names and level of PPE of Entry & Decon personnel. (Entries 1 - 4 mandatory buddy system and back-up.)
19.	Material	Enter names and pertinent information of all known chemical products. Enter UNK if material is not known. Include any which apply to chemical properties. (Definitions: ph = Potential for Hydrogen (Corrosivity), IDLH = Immediately Dangerous to Life and Health, F.P. = Flash Point, I.T. = Ignition Temperature, V.P. = Vapor Pressure, V.D. = Vapor Density, S.G. = Specific Gravity, LEL = Lower Explosive Limit, UEL = Upper Explosive Limit)
20 - 23.	Hazard Monitoring	List the instruments which will be used to monitor for chemical.
24.	Decontamination Procedures	Check NO if modifications are made to standard decontamination procedures and make appropriate Comments including type of solutions.
25 - 27.	Site Communications	Enter the radio frequency(ies) which apply.
28 - 29.	Medical Assistance	Enter comments if NO is checked.
30.	Site Map	Sketch or attach a site map which defines all locations and layouts of operational zones. (Check boxes are mandatory to be identified.)
31.	Entry Objectives	List all objectives to be performed by the Entry Team in the Exclusion Zone and any parameters which will alter or stop entry operations.
32 - 33.	SOP s, Safe Work Practices, and Emergency Procedures	List in Comments if any modifications to SOP s and any emergency procedures which will be affected if an emergency occurs while personnel are within the Exclusion Zone.
34 - 36.	Safety Briefing	Have the appropriate individual place their signature in the box once the Site Safety and Control Plan is reviewed. Note the time in box 34 when the safety briefing has been completed.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS INCIDENT COMMANDER
Performance Standards

HAZARDOUS MATERIALS INCIDENT COMMANDER
Directing Resources (Private and Governmental)
Skill #3

PERFORMANCE STANDARD

Section 605

NFPA 472 8.4.2

INCIDENT COMMANDER

OBJECTIVE

Given a scenario involving a hazardous materials/WMD incident and the necessary resources to implement the planned response, the incident commander shall demonstrate the ability to direct the resources in a safe and efficient manner consistent with the capabilities of those resources.

INSTRUCTIONS - Procedures for achieving the objective

Given a simulated hazardous materials/WMD incident or scenario involving a facility or transportation setting, the incident commander shall assign resources to meet the strategic goals of the incident action plan (IAP). Additionally, the incident commander shall redirect resources as necessary to support the completion of tactical objectives as identified in the incident action plan. The incident commander shall establish priorities for the assignment and redistribution of all resources dedicated to the incident. All actions shall be consistent with the local emergency response plan and the organization's standard operating procedures. Do you understand these instructions?

EXAMINER NOTE

The hazardous materials incident commander trainee will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

Simulated hazardous materials/WMD incident or scenario involving a facility or transportation setting
List of available resources

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS INCIDENT COMMANDER
 Performance Standards

HAZARDOUS MATERIALS INCIDENT COMMANDER
 Directing Resources (Private and Governmental)
Skill #3

Candidate: _____ Notes: _____

Dept: _____

School: _____

Test Site: _____

Examiner: _____

HAZARDOUS MATERIALS INCIDENT COMMANDER	<u>TEST</u>		<u>RETEST</u>	
Implementing the Planned Response - Skill Number #3	S	U	S	U
Given a scenario involving a hazardous materials/WMD incident and the necessary resources to implement the planned response, the incident commander shall demonstrate the ability to direct the resources in a safe and efficient manner consistent with the capabilities of those resources. <p style="text-align: right;">(8.4.2)</p>				
The candidate shall:	S	U	S	U
a) Analyze the incident				
b) Develop strategic goals				
c) Approve tactical objectives				
d) Consult with planning and technical specialists				
e) Consult with logistics concerning resource availability				
f) Prioritize the assignment of resources				
g) Reassign resources as needed				
h) Ensure a safe operational environment				

Evaluator/Candidate Comments:

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS INCIDENT COMMANDER
Performance Standards

All steps of the skill objective are mandatory and must be scored as “Satisfactory” to pass the skill.

_____	_____	Overall Skill Sheet Score
Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>
_____	_____	Overall Skill Sheet Re-Test Score
Re-Test Certifying Examiner	Date	Pass <input type="checkbox"/> Fail <input type="checkbox"/>

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

**TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS INCIDENT COMMANDER
Performance Standards**

**HAZARDOUS MATERIALS INCIDENT COMMANDER
Terminating the Incident
Skill #4**

PERFORMANCE STANDARD

Section 605

NFPA 472 8.6.2, 8.6.3, 8.6.4

INCIDENT COMMANDER

OBJECTIVE

Given scenarios involving a hazardous materials/WMD incident, the incident commander shall conduct a debriefing of the incident.

Given details of a scenario involving a multiagency hazardous materials/WMD incident, the incident commander shall conduct a critique of the incident.

Given a scenario involving a hazardous materials/WMD incident, the incident commander shall demonstrate the ability to report and document the incident consistent with local, state, and federal requirements.

INSTRUCTIONS - Procedures for achieving the objective

Immediately upon completion of a simulated hazardous materials/WMD incident or scenario involving a facility or transportation setting, the incident commander shall conduct a debriefing of the incident. Additionally, after returning all equipment to service, the incident commander shall conduct a critique of the incident/scenario in a classroom environment. The incident commander will ensure that all incident documentation is thoroughly completed in accordance with local, state and federal requirements. You will begin on my instruction to start. Do you understand these instructions?

EXAMINER NOTE

The hazardous materials incident commander trainee will not be allowed to review the performance steps at the time of testing.

PREPARATION & EQUIPMENT

Simulated hazardous materials/WMD incident or scenario involving a facility or transportation setting

Incident action plan

Site safety plan

Other incident documents

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

TEXAS COMMISSION ON FIRE PROTECTION
HAZARDOUS MATERIALS INCIDENT COMMANDER
 Performance Standards

HAZARDOUS MATERIALS INCIDENT COMMANDER
 Terminating the Incident
Skill #4

Candidate: _____ Notes: _____

Dept: _____

School: _____

Test Site: _____

Examiner: _____

HAZARDOUS MATERIALS INCIDENT COMMANDER	<u>TEST</u>		<u>RETEST</u>	
Terminating the Incident - Skill Number #4	S	U	S	U
Given scenarios involving a hazardous materials/WMD incident, the incident commander shall conduct a debriefing of the incident. <p style="text-align: right;">(8.6.2)</p>				
Given details of a scenario involving a multiagency hazardous materials/WMD incident, the incident commander shall conduct a critique of the incident. <p style="text-align: right;">(8.6.3)</p>				
Given a scenario involving a hazardous materials/WMD incident, the incident commander shall demonstrate the ability to report and document the incident consistent with local, state, and federal requirements. <p style="text-align: right;">(8.6.4)</p>				
The candidate shall:	S	U	S	U
a) Conduct a debriefing				
1. Provide health and exposure information to responders				
2. Identify equipment, apparatus and supply status				
3. Identify a follow-up contact person for informational matters				
4. Identify problems requiring immediate action				

Reprinted with permission from NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents 2008 Edition Copyright © 2007, National Fire Protection Association, Quincy, MA 02169. This reprinted material is not the complete and official position of the NFPA on the referenced subject, which is represented only by the standard in its entirety.

HAZMAT SKILLS LIST

DISCIPLINE	OBJECTIVE	#	SKILL NAME	FUNCTIONAL NAME	NFPA #
Awareness	General	1	DOT Guidebook	DOT Emergency Response Guidebook	4.1.2.2, 4.2.3, 4.4.1
Awareness	Analyzing	2	Container ID	Container Recognition	4.2.1(6)
Awareness	Analyzing	3	Hazard Recognition	Detecting the Presence of Haz-Mat/WMD	4.2.1(7-9)
Operations	General	1	Response Obj.	Analyze, Plan, Implement, and Evaluate Response	5.1.2.2
Operations	Analyzing	2	Container ID	Container ID - liquid, gas, and solid	5.2.1 (all)
Operations	Analyzing	3	Pesticide Label ID	Identify Pesticide Label Information	5.2.1.3.2
Operations	Analyzing	4	Identify MSDS	Collect hazard and response info using MSDS	5.2.2 (2), (3)
Operations	Analyzing	5	Endangered Area	Estimating the size of an endangered area	5.2.4(1), (2)
Operations	Implementing	6	Enforce scene control	Scene control zones / Public Protective Actions	5.4.1 (1-6)
Operations	Evaluating	7	Communication	Communicating the status of the planned response	5.5.2 (1), (2)
MS Operations	Implementing	1	PPE	Donning, working in, and doffing PPE	6.2.4.1(1-3), (5)
MS Operations	Implementing	2	PPE - Decon	Demonstrate decontamination procedures	6.2.4.1(4)
MS Operations	Planning	3	Product Control ID	Identifying product control options	6.6.3.1(1), (2)
MS Operations	Implementing	4	Product Control	Implementing product control options - Foam	6.6.4.1(1), (2)
MS Operations	Implementing	5	Product Control	Implementing product control options - AHJ	6.6.4.1(3)
MS Operations	Implementing	6	Product Control	Highway cargo tanks remote shut-off	6.6.4.1(4)
MS Operations	Implementing	7	Product Control	Fixed facility remote shut-off devices	6.6.4.1(5)
Technician	Analyzing	1	Contain ID	Containers identification	7.2.1 (all)
Technician	Analyzing	2	Sample testing	Sampling and monitoring/surveying equipment	7.2.1.3.5, 7.2.1.5
Technician	Analyzing	3	Maintenance	Equipment maintenance and use	7.2.1.3.6
Technician	Analyzing	4	Collecting info	Collecting and interpreting information	7.2.2, 7.2.2.4
Technician	Analyzing	5	Protective actions	Identifying areas of concern for PPA	7.2.5.4
Technician	Planning	6	Response Obj.	Identifying response objectives	7.3.1, 7.3.2
Technician	Planning	7	CPC selection	Selecting chemical protective clothing	7.3.3, 7.3.3.4.6
Technician	Planning	8	IAP	Incident action plan	7.3.5, 7.3.5.2
Technician	Implementing	9	ICS	Performing incident command duties	7.4.1
Technician	Implementing	10	CPC selection	Using CPC and respiratory protection	7.4.2 (1-4)
Technician	Implementing	11	Chlorine kits	Chlorine kits	7.4.3(1), (2)
Technician	Implementing	12	Contain leak	Contain a leak in a 55 gallon drum	7.4.3(3), (4)
Technician	Implementing	13	Cargo tank	Highway cargo tank emergency response	7.4.3 (8-11)
Technician	Implementing	14	Decon	Decontamination operations	7.4.5(1-3)
HMIC	Analyzing	1	Site safety plan	Collecting and interpreting hazard and response info.	8.2.1.1
HMIC	Planning	2	IAP	Incident Action Plan	8.3.4
HMIC	Implementing	3	Directing resources	Directing resources (private and governmental)	8.4.2
HMIC	Terminating	4	Terminating the incident	Terminating the incident	8.6.2, 8.6.3, 8.6.4