

HAZMAT TECHNICIAN SKILLS COMPETENCIES

1. Radiation Detection and Monitoring.

REFERENCE: NFPA 1072, 2017 Edition 7.1.7, 7.2.1, 7.2.2

CONDITION: The candidate will classify hazardous materials/WMD and verify the presence and concentrations of hazardous materials through detection, monitoring, and sampling at a hazardous materials/WMD incident, collect and interpret hazard and response information at a hazardous materials/WMD incident, given a hazardous materials/WMD incident with released identified and unidentified hazardous materials; an assignment in an incident action plan (IAP); policies and procedures; approved resources; detection and monitoring equipment; and personal protective equipment (PPE).

COMPETENCE:

- Select proper PPE
- Determine radiation dose rates from radioactive material labels
- Use radiation detection and monitoring devices to classify hazardous materials by basic hazard categories, verify the presence of hazardous materials, or determine the concentration of hazardous materials
- Monitor, read, interpret, records, and communicate readings from detection, monitoring, and sampling equipment according to the manufacturers' specifications and recommendations
- Complete required reports and supporting documentation for detection, monitoring, and sampling operations and verbally communicate findings
- Collect and interpret hazard and response information
- Identify signs and symptoms of exposure to hazardous materials/WMD, including target organ effects of exposure to hazardous materials/WMD
- Safety procedures followed
- Hazards avoided and minimized

TIME: 30:00 minutes

2. Gas/Vapor Detection, Monitoring, and Sampling.

REFERENCE: NFPA 1072, 2017 Edition 7.1.7, 7.2.1, 7.2.2

CONDITION: The candidate will classify hazardous materials/WMD and verify the presence and concentrations of hazardous materials through detection, monitoring, and sampling at a hazardous materials/WMD incident, collect and interpret hazard and response information at a hazardous materials/WMD incident, given a hazardous materials/WMD incident with released identified and unidentified hazardous materials; an assignment in an incident action plan (IAP); policies and procedures; approved resources; detection and monitoring equipment; and personal protective equipment (PPE).

COMPETENCE:

- Select Proper PPE
- Use each of the following types of detection, monitoring, & gas sampling equipment to either classify hazardous materials by basic hazard categories, verify the presence of hazardous materials or determine the concentration of hazardous materials
 - Colorimetrics (e.g., tubes, chips, papers, stripes, reagents)
 - Electrochemical cells (e.g., toxic gas sensors)
 - Flammable gas/LEL
 - Noncontact thermal detection device
 - Oxygen concentration
 - Photoionization detector (PID)
- Monitor, read, interpret, record, & communicate readings from detection, monitoring, & gas sampling equipment according to the manufacturers' specifications & recommendations
- Complete required reports and supporting documentation for detection and monitoring operations and verbally communicate findings
- Collect and interpret hazard and response information
- Identify signs and symptoms of exposure to hazardous materials/WMD, including target organ effects of exposure to hazardous materials/WMD
- Safety procedures followed
- Hazards avoided and minimized

TIME: 30:00 Minutes

3. Solid and Liquid Sampling.

REFERENCE: NFPA 1072, 2017 Edition 7.1.7, 7.2.2

CONDITION: The candidate will classify hazardous materials/WMD and verify the presence and concentrations of hazardous materials through detection, monitoring, and sampling at a hazardous materials/WMD incident, collect and interpret hazard and response information at a hazardous materials/WMD incident, given a hazardous materials/WMD incident with released identified and unidentified hazardous materials; an assignment in an incident action plan (IAP); policies and procedures; approved resources; detection and monitoring equipment; and personal protective equipment (PPE).

COMPETENCE:

- Select proper PPE
- Collect samples of a liquid and a solid
- Use sampling equipment to either classify hazardous materials by basic hazard categories, verify the presence of hazardous materials or determine the concentration of hazardous materials
- Monitor, read, interpret, record, & communicate readings from sampling equipment according to the manufacturers' specifications & recommendations
- Complete required reports and supporting documentation for detection, monitoring, and sampling operations and verbally communicate findings
- Collect and interpret hazard and response information
- Identify signs and symptoms of exposure to hazardous materials/WMD, including target organ effects of exposure to hazardous materials/WMD
- Safety procedures followed
- Hazards avoided and minimized

TIME: 30:00 Minutes

4- Identifying Stress(es) on the Container.

REFERENCE: NFPA 1072, 2017 Edition 7.1.7, 7.2.3

CONDITION: The candidate will assess the condition of a container and its closures at a hazardous material/WMD incident, given an incident involving hazardous materials/WMD; an assignment in an IAP; policies and procedures; the scope of the incident; identity of material(s) involved and their hazards, including results of detection, monitoring, and sampling; a container with required markings; and approved resources and PPE.

COMPETENCE:

- Assess the condition of the container
- Identify the type of damage and level of risk associated with the damage
- Identify stress(es) on the container
- Communicate the condition of the container and its closures and the level of risk associated with that condition
- Safety procedures are followed
- Hazards are avoided or minimized

TIME: 30:00 Minutes

5. Predicting Behavior.

REFERENCE: NFPA 1072, 2017 Edition 7.1.7, 7.2.4

CONDITION: The candidate will predict the behavior of the hazardous materials/WMD involved in a hazardous materials/WMD incident, given an incident involving multiple hazardous materials/WMD; an assignment in an IAP; policies and procedures; physical and chemical properties of the materials involved; results of detection, monitoring, and sampling; condition of the container (damage and stress); surrounding conditions; and approved reference sources

COMPETENCE:

- Predict the likely behavior of materials and their containers when multiple materials are involved
- Identify reactivity issues associated with mixing various hazardous materials
- Communicate the predicted behavior

TIME: 30:00 Minutes

6. Estimating Outcomes

REFERENCE: NFPA 1072, 2017 Edition 7.1.7, 7.2.5

CONDITION: The candidate will estimate the potential outcomes at a hazardous materials/WMD incident, given a hazardous materials/WMD incident, assignment in an IAP, policies and procedures, the likely behavior of the container and its contents, and approved resources and equipment

COMPETENCE:

- Use approved resources and equipment
- Determine concentrations of materials within the endangered area
- Identify the physical, health, and safety hazards within the endangered area
- Identify the areas of potential harm in the endangered area
- Estimate the potential outcomes in the endangered area
- Communicate the potential outcomes

TIME: 30:00 Minutes

7. Response Objectives & Options

REFERENCE: NFPA 1072, 2017 Edition 7.3.1

CONDITION: The candidate will develop and recommend to the incident commander or hazardous materials officer response objectives and action options at a hazardous materials/WMD incident, given a hazardous materials/WMD incident; an assignment in an IAP; results of the incident analysis, including incident-related information, life safety risks, environmental risks, and property risks; available resources; and policies and procedures

COMPETENCE:

- Develop response objectives for a hazardous materials incident
- Identify action options for each response objective

TIME: 30:00 Minutes

8. Personal Protection Equipment (PPE) Selection

REFERENCE: NFPA 1072, 2017 Edition 7.3.2

CONDITION: The candidate will select the PPE ensemble required for a given response option at a hazardous materials/WMD incident, given a hazardous materials/WMD incident, results of the incident analysis, response objectives and options for the incident, approved references, and policies and procedures

COMPETENCE:

- Select PPE ensemble for a specified response option based on all hazards identified
- Determine the effectiveness of protective clothing based on its uses and limitations

TIME: 30:00 Minutes

9. Decontamination Method Selection

REFERENCE: NFPA 1072, 2017 Edition 7.3.3

CONDITION: The candidate will select the decontamination method for a given response option at a hazardous materials/WMD incident, given a hazardous materials/WMD incident, results of the incident analysis, response objectives and options for the incident, available resources, and policies and procedures

COMPETENCE:

- Select decontamination procedures (operations and methods)
- Identify the equipment required to implement decontamination procedure (operations and methods)

TIME: 30:00 Minutes

10. Action Plan Development

REFERENCE: NFPA 1072, 2017 Edition 7.1.7, 7.3.4

CONDITION: The candidate will develop a plan of action for a hazardous materials/WMD incident, given a hazardous materials/WMD incident, an assignment in an IAP, results of the incident analysis, response objectives and options for the given incident, available resources, and policies and procedures

COMPETENCE:

- Prepare an action plan
- Identify site safety and control components
- Identify points for a safety briefing
- Identify pre-entry tasks
- Identify atmospheric and physical safety hazards when incident involves a confined space
- Preserve and collect any legal evidence
- The developed plan meets the response objectives
- The plan is within the capability of available personnel, PPE, and control equipment

TIME: 30:00 Minutes

11. Performing Assigned IMS/ICS Duties

REFERENCE: NFPA 1072, 2017 Edition 7.1.7, 7.4.1

CONDITION: The candidate will perform assigned hazardous materials branch or group functions within the incident command system (ICS) at a hazardous materials/WMD incident, given a hazardous materials/WMD incident; an assignment in an IAP; results of the incident analysis; policies and procedures, including an emergency response plan and standard operating procedures; the IAP; and approved resources.

COMPETENCE:

- Perform the duties and responsibilities of an assigned function in the hazardous materials branch or group organization
- Communicate observations to hazardous materials branch director/group supervisor, ICS operations section chief, or IC

TIME: 30:00 Minutes

12. Personal Protective Equipment Use

REFERENCE: NFPA 1072, 2017 Edition 7.1.7, 7.4.2

CONDITION: The candidate will don, work in, and doff PPE at a hazardous materials/WMD incident, given a hazardous materials/WMD incident, an assignment in an IAP, policies and procedures, results of the incident analysis, response objectives and options for the incident, and PPE ensembles as identified in the IAP

COMPETENCE:

- Inspect, don, work in, going through technical decontamination while wearing PPE
- Properly maintain and store equipment
- Complete required reports and supporting documents for the use of PPE
- Safety procedures are followed
- Hazards are avoided or minimized

TIME: 30:00 Minutes

13. Product Control

REFERENCE: NFPA 1072, 2017 Edition 7.1.7, 7.4.3.1

CONDITION: The candidate will perform product control techniques at a hazardous materials/WMD incident, given a hazardous materials/WMD incident with release of product, an assignment in an IAP, results of the incident analysis, policies and procedures for product control, response objectives and options for the incident, and approved tools, equipment, control agents, and PPE

COMPETENCE:

- Select and use PPE
- Protect exposures and personnel
- Select and use approved control agents and equipment on a release involving hazardous materials/WMD
- Use container control valves and remote emergency shutoff devices
- Perform product control techniques
- Product is controlled
- Safety procedures are followed
- Inspect and maintain tools and equipment
- Complete required and supporting documentation for product control operations

TIME: 30:00 Minutes

14. Controlling Container Leaks

REFERENCE: NFPA 1072, 2017 Edition 7.1.7, 7.4.3.2

CONDITION: The candidate will control leaks from containers and their closures at a hazardous materials/WMD incident, given three scenarios, including (1) a leak from a bulk or nonbulk pressure container or its closures, (2) a leak from a nonbulk liquid container or its closures, and (3) a leak from a bulk liquid container or its closures; an assignment in an IAP; results of the incident analysis; policies and procedures for controlling leaks from containers and/or their closures; and approved tools, equipment, and PPE

COMPETENCE:

- Select and use PPE
- Select and use approved control agents and equipment
- Protect personnel and exposures
- Control leaks on containers and their closures (patching, plugging, sealing closures, remote valve shutoff, closing valves, repositioning container; replacing missing plugs, and tightening loose fittings)
- Decontaminate tools and equipment
- Hazards are avoided or minimized
- Safety procedures are followed
- Inspect and maintain tools and equipment
- Complete requirements for reporting and documenting product control operations

TIME: 30:00 Minutes

15. Overpacking Non-bulk & Radioactive Materials Containers

REFERENCE: NFPA 1072, 2017 Edition 7.1.7, 7.4.3.3

CONDITION: The candidate will overpack damaged or leaking nonbulk and radioactive materials containers at a hazardous materials/WMD incident, given a hazardous materials/WMD incident; an assignment in an IAP; results of the incident analysis; a loaded damaged or leaking container; a suitable overpack container; policies and procedures; and approved tools, equipment, and PPE

COMPETENCE:

- Select and use PPE
- Place a damaged or leaking nonbulk materials container into the overpack container
- Place a damaged or leaking radioactive materials container into an overpack container
- Follow safety procedures
- Hazards are avoided or minimized
- Decontaminate tools and equipment
- Inspect and maintain tools and equipment
- Complete requirements for reporting and documenting product control operations

TIME: 30:00 Minutes

16. Liquid Product Transfer

REFERENCE: NFPA 1072, 2017 Edition 7.1.7, 7.4.3.4

CONDITION: The candidate will transfer liquids from leaking nonpressure containers at a hazardous materials/WMD incident, given a hazardous materials/WMD incident; an assignment in an IAP; results of the incident analysis; a leaking nonpressure container and a recovery container; policies and procedures for transferring liquids from leaking nonpressure containers; and approved tools, equipment, and PPE

COMPETENCE:

- Select and use PPE
- Identify a compatible recovery container and transfer equipment
- Monitor for hazards
- Ground and bond containers
- Transfer liquid product from a leaking container to a recovery container
- Suppress vapors
- Decontaminate responders, tools, and equipment
- Inspect and maintain tools and equipment
- Complete reports and supporting documentation for product control operations

TIME: 30:00 Minutes

17. Mass Decontamination

REFERENCE: NFPA 1072, 2017 Edition 7.1.7, 7.4.4.1

CONDITION: The candidate will perform mass decontamination for ambulatory and nonambulatory victims at a hazardous materials/WMD incident, given a hazardous materials/WMD incident requiring mass decontamination; an assignment in an IAP, results of the incident analysis; policies and procedures; and approved PPE, tools, and equipment

COMPETENCE:

- Select and use PPE
- Select a mass decontamination procedure to minimize the hazard
- Set up and implement mass decontamination operations for ambulatory and nonambulatory victims
- Evaluate the effectiveness of the mass decontamination process
- Safety procedures are followed
- Hazards are avoided or minimized
- Complete reporting and documentation requirements

TIME: 30:00 Minutes

18. Technical Decontamination

REFERENCE: NFPA 1072, 2017 Edition 7.1.7, 7.4.4.2

CONDITION: The candidate will establish and implement technical decontamination in support of entry operations and for ambulatory and nonambulatory victims at a hazardous materials/WMD incident, given a hazardous materials/WMD incident requiring technical decontamination; an assignment in an IAP; results of the incident analysis; policies and procedures; and approved PPE, tools, and equipment

COMPETENCE:

- Select and use PPE
- Select a technical decontamination procedure to minimize the hazard
- Set up and implement technical decontamination operations
- Safety procedures are followed
- Hazards are avoided or minimized
- Evaluate the effectiveness of the technical decontamination procedure
- Complete required reports and supporting documentation for technical decontamination operations
- Avoid or minimize hazards
- Product is controlled
- Decontamination is completed

TIME: 30:00 Minutes

19. Evaluating & Reporting Progress

REFERENCE: NFPA 1072, 2017 Edition 7.1.7, 7.5.1

CONDITION: The candidate will evaluate and report the progress of assigned tasks at a hazardous materials/WMD incident, given a hazardous materials/WMD incident, an assignment in an IAP, current incident conditions, response options and actions taken, and approved communication equipment

COMPETENCE:

- Compare predicted behavior of the material and its container to the actual behavior
- Determine effectiveness of response options and actions
- Communicate the status of response options and actions
- Modify the response options and actions based on the incident status review

TIME: 30:00 Minutes

20. Terminating the Incident

REFERENCE: NFPA 1072, 2017 Edition 7.1.7, 7.6.1

CONDITION: The candidate will terminate a hazardous materials/WMD incident, given a hazardous materials/WMD incident, an assignment in an IAP, policies and procedures, operational observations of response operations (incident information), and approved forms for documentation and reporting

COMPETENCE:

- Communicate operational observations (incident information) at debriefings and critiques
- Complete, forward, and file required reports, records, and supporting documentation

TIME: 30:00 Minutes