

# FIRST RESPONDER TECHNICIAN LEVEL

## Comparison of HazMat Compliance/Essentials Technician CD-ROM Series to Standard for Professional Competence of Responders to Hazardous Materials Incidents (NFPA 472)

Objective	Competency Summary	Obj. Met	Module		Topic	
4-1.3	<b>Goal</b> Understand role of Technician Level responder	Y	1	Overview/General Principles	1	General Principles
4-2	<b>Competencies – Analyzing the Incident</b>	Y	2	HM Containers	All	
4-2.1	<b>Surveying the Hazardous Materials Incident</b> Identify special containers involved, give the appropriate equipment, identify or classify unknown materials, verify the identity of the HM, and determine the concentration of HM's	Y	2	HM Containers	1 2 3 4 5 6 7	Nonbulk Packaging Cargo Tanks Portable Tank Containers Railroad Tank Cars Facility Tanks Pipelines Radioactivity Packaging
4-2.1.1	Give examples of specialized containers identify each by name, and material, and hazard class typically found in each container	Y	2	HM Containers	All	
4-2.1.1.1	Identify railroad cars by type, material and hazard class typically found in each car	Y	2	HM Containers	4	Railroad Tank Cars
4-2.1.1.1 (a)	Cryogenic liquid tank cars	Y	2	HM Containers	4	Railroad Tank Cars
4-2.1.1.1 (b)	High-pressure tube cars	Y	2	HM Containers	4	Railroad Tank Cars
4-2.1.1.1 (c)	Nonpressure tank cars	Y	2	HM Containers	4	Railroad Tank Cars
4-2.1.1.1 (d)	Pneumatically unloaded hopper car	Y	2	HM Containers	4	Railroad Tank Cars
4-2.1.1.1 (e)	Pressure tank cars	Y	2	HM Containers	4	Railroad Tank Cars
4-2.1.1.2	Identify intermodal tank containers by type, material and hazard class typically found in each tank	Y	2	HM Containers	3	Portable Tanks
4-2.1.1.2 (a)	Nonpressure intermodal tanks	Y	2	HM Containers	3	Portable Tanks
4-2.1.1.2 (b)	Pressure intermodal tank containers	Y	2	HM Containers	3	Portable Tanks
4-2.1.1.2 (c)	Specialized intermodal tanks	Y	2	HM Containers	3	Portable Tanks
4-2.1.1.3	Identify cargo tanks by type, material and hazard class typically found in each tank	Y	2	HM Containers	2	Cargo Tanks
4-2.1.1.3 (a)	Dry bulk cargo tanks	Y	2	HM Containers	2	Cargo Tanks
4-2.1.1.3 (b)	MC-306/DOT-406 cargo tanks	Y	2	HM Containers	2	Cargo Tanks
4-2.1.1.3 (c)	MC-307/DOT-407 cargo tanks	Y	2	HM Containers	2	Cargo Tanks
4-2.1.1.3 (d)	MC-312/DOT-412 cargo tanks	Y	2	HM Containers	2	Cargo Tanks
4-2.1.1.3 (e)	MC-331 cargo tanks	Y	2	HM Containers	2	Cargo Tanks
4-2.1.1.3 (f)	MC-338 cargo tanks	Y	2	HM Containers	2	Cargo Tanks
4-2.1.1.4	Identify fixed facility tanks by type, material and hazard class typically found in each tank	Y	2	HM Containers	5	Facility Tanks
4-2.1.1.4 (a)	Nonpressure facility tanks	Y	2	HM Containers	5	Facility Tanks
4-2.1.1.4 (b)	Pressure facility tanks	Y	2	HM Containers	5	Facility Tanks
4-2.1.1.5	Identify nonbulk containers by type, material and hazard class typically found in each container	Y	2	HM Containers	1	Nonbulk Packaging
4-2.1.1.5 (a)	Bags	Y	2	HM Containers	1	Nonbulk Packaging
4-2.1.1.5 (b)	Carboys	Y	2	HM Containers	1	Nonbulk Packaging

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4-2.1.1.5 (c)	Cylinders	Y	2	HM Containers	1	Nonbulk Packaging
4-2.1.1.5 (d)	Drums	Y	2	HM Containers	1	Nonbulk Packaging
4-2.1.1.6	Identify radioactive materials packages by type, material and hazard class typically found in each package	Y	2	HM Containers	7	Radioactive Packaging
4-2.1.1.6 (a)	Type A	Y	2	HM Containers	7	Radioactive Packaging
4-2.1.1.6 (b)	Type B	Y	2	HM Containers	7	Radioactive Packaging
4-2.1.2	Identify approximate capacity of facility and transportation containers (3 examples)	Y	2	HM Containers	4	Portable Tank Containers
4-2.1.2.1	Identify the capacity of transport vehicles using markings on the container	Y	2	HM Containers	4	Portable Tank Containers
4-2.1.2.1 (a)	Cargo tanks	Y	2	HM Containers	2	Cargo Tanks
4-2.1.2.1 (b)	Tank cars	Y	2	HM Containers	4	Railroad Tank Cars
4-2.1.2.1 (c)	Tank containers	Y	2	HM Containers	3	Portable Tank Containers
4-2.1.2.2	Identify the capacity of facility containers using markings on the container and other available resources	Y	2	HM Containers	5	Facility Tanks
4-2.1.2.2 (a)	Nonpressure tank	Y	2	HM Containers		Portable Tank Containers
4-2.1.2.2 (b)	Pressure tank	Y	2	HM Containers		Portable Tank Containers
4-2.1.2.2 (c)	Cryogenic Liquid tank	Y	2	HM Containers		Portable Tank Containers
4-2.1.3	Identify or classify by hazard (3) unknown hazards: 1 solid, 1 liquid and 1 gas	Y	3	Hazard and Risk Evaluation	5	Use & Interpretation of Monitoring Equipment
4-2.1.3.1	Identify the steps for identifying unknown solid and liquid materials	Y	3	Hazard and Risk Evaluation	5	Use & Interpretation of Monitoring Equipment
4-2.1.3.2	Identify the steps for identifying an unknown atmosphere	Y	3	Hazard and Risk Evaluation	5	Use & Interpretation of Monitoring Equipment
4-2.1.3.3	Identify types of monitoring equipment, test strips, and reagents	Y	3	Hazard and Risk Evaluation	4	Monitoring Basics
4-2.1.3.3 (a)	Corrosivity (pH)	Y	3	Hazard and Risk Evaluation	4	Monitoring Basics
4-2.1.3.3 (b)	Flammability	Y	3	Hazard and Risk Evaluation	4	Monitoring Basics
4-2.1.3.3 (c)	Oxidation potential	Y	3	Hazard and Risk Evaluation	4	Monitoring Basics
4-2.1.3.3 (d)	Oxygen deficiency	Y	3	Hazard and Risk Evaluation	4	Monitoring Basics
4-2.1.3.3 (e)	Radioactivity	Y	3	Hazard and Risk Evaluation	4	Monitoring Basics
4-2.1.3.3 (f)	Toxic levels	Y	3	Hazard and Risk Evaluation	4	Monitoring Basics
4-2.1.3.4	Identify the capabilities and limiting factors of monitoring equipment, test strips, and reagents	Y	3	Hazard and Risk Evaluation	4	Monitoring Basics
4-2.1.3.4 (a)	Carbon monoxide meter	Y	3	Hazard and Risk Evaluation	4	Monitoring Basics
4-2.1.3.4 (b)	Colorimetric tubes	Y	3	Hazard and Risk Evaluation	4	Monitoring Basics
4-2.1.3.4 (c)	Combustible gas indicator	Y	3	Hazard and Risk Evaluation	4	Monitoring Basics
4-2.1.3.4 (d)	Oxygen meter	Y	3	Hazard and Risk Evaluation	4	Monitoring Basics
4-2.1.3.4 (e)	Passive dosimeter	Y	3	Hazard and Risk Evaluation	4	Monitoring Basics
4-2.1.3.4 (f)	Photoionization detectors	Y	3	Hazard and Risk Evaluation	4	Monitoring Basics
4-2.1.3.4 (g)	pH indicators and/or pH meters	Y	3	Hazard and Risk Evaluation	4	Monitoring Basics
4-2.1.3.4 (h)	Radiation detection instruments	Y	3	Hazard and Risk Evaluation	4	Monitoring Basics
4-2.1.3.4 (i)	Reagents	Y	3	Hazard and Risk Evaluation	4	Monitoring Basics
4-2.1.3.4 (j)	Test strips	Y	3	Hazard and Risk Evaluation	4	Monitoring Basics
4-2.1.3.5	Select the appropriate equipment and demonstrate the proper techniques to identify and quantify when given (3) hazardous materials (solid, liquid, gas) and monitoring devices	Y	3	Hazard and Risk Evaluation	5	Use & Interpretation of Monitoring Equipment
4-2.1.3.5 (a)	Carbon monoxide meter	Y	3	Hazard and Risk Evaluation	5	Use & Interpretation of Monitoring Equipment
4-2.1.3.5 (b)	Colorimetric tubes	Y	3	Hazard and Risk Evaluation	5	Use & Interpretation of Monitoring Equipment
4-2.1.3.5 (c)	Combustible gas indicator	Y	3	Hazard and Risk Evaluation	5	Use & Interpretation of Monitoring Equipment
4-2.1.3.5 (d)	Oxygen meter	Y	3	Hazard and Risk Evaluation	5	Use & Interpretation of Monitoring Equipment
4-2.1.3.5 (e)	pH indicators and/or pH meters	Y	3	Hazard and Risk Evaluation	5	Use & Interpretation of Monitoring Equipment
4-2.1.3.5 (f)	Radiation detection instruments	Y	3	Hazard and Risk Evaluation	5	Use & Interpretation of Monitoring Equipment

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4-2.1.3.5 (g)	Reagents	Y	3	Hazard and Risk Evaluation	5	Use & Interpretation of Monitoring Equipment
4-2.1.3.5 (h)	Test strips	Y	3	Hazard and Risk Evaluation	5	Use & Interpretation of Monitoring Equipment
4-2.1.3.6	Demonstrate field maintenance and testing procedures for monitoring equipment, test strips, and reagents	Y	3	Hazard and Risk Evaluation	5	Use & Interpretation of Monitoring Equipment
4-2.1.4	Identify vertical bars, contents, activity and transport index, then describe and give the significance of the labeled item in surveying a radioactive incident	Y	2	HM Containers	7	Radioactive Packaging
<b>4-2.2</b>	<b>Collecting and Interpreting Hazard and Response Information</b>	Y	3 8	Hazard and Risk Evaluation Terrorist & Criminal Activities Involving HM	3 1	Collecting & Interpreting Hazard and Resp. Data Analyzing the incident
4-2.2.1	Identify, interpret the types of hazard and response information available and explain the advantages/disadvantages of each	Y	3	Hazard and Risk Evaluation	3	Collecting & Interpreting Hazard and Resp. Data
4-2.2.1 (a)	Hazardous materials data bases	Y	3	Hazard and Risk Evaluation	3	Collecting & Interpreting Hazard and Resp. Data
4-2.2.1 (b)	Maps and diagrams	Y	3	Hazard and Risk Evaluation	3	Collecting & Interpreting Hazard and Resp. Data
4-2.2.1 (c)	Monitoring equipment	Y Y	3	Hazard and Risk Evaluation	3 5	Collecting & Interpreting Hazard and Resp. Data Use and Interpretation of monitoring equipment
4-2.2.1 (d)	Reference manuals	Y	3	Hazard and Risk Evaluation	3	Collecting & Interpreting Hazard and Resp. Data
4-2.2.1 (e)	Technical information centers	Y	3	Hazard and Risk Evaluation	3	Collecting & Interpreting Hazard and Resp. Data
4-2.2.1 (f)	Technical information specialists	Y	3	Hazard and Risk Evaluation	3	Collecting & Interpreting Hazard and Resp. Data
4-2.2.2	Define and explain the significance of the following terms in the risk assessment process	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (a)	Acid, caustic	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (b)	Air reactivity	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (c)	Boiling point	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (d)	Catalyst	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (e)	Chemical interactions	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (f)	Chemical reactivity	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (g)	Compound, mixture	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (h)	Concentration	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (i)	Corrosivity (pH)	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (j)	Critical temp and pressure	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (k)	Expansion ratio	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (l)	Flammable (explosive) range (LEL & UEL)	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (m)	Fire point	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (n)	Flash point	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (o)	Halogenated hydrocarbon	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (p)	Ignition (autoignition) temperature	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance

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4-2.2.2 (q)	Inhibitor	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (r)	Instability	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (s)	Ionic & covalent compounds	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (t)	Maximum, safe storage temperature (MSST)	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (u)	Melting point/freezing point	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (v)	Miscibility	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (w)	Organic and inorganic	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (x)	Oxidation potential	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (y)	pH	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (z)	Physical state (solid, liquid, gas)	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (aa)	Polymerization	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (bb)	Radioactivity	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (cc)	Saturated, unsaturated, and aromatic hydrocarbons	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (dd)	Self-accelerating decomposition temp (SADT)	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (ee)	Solution, slurry	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (ff)	Specific gravity	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (gg)	Strength	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (hh)	Sublimation	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (ii)	Temperature of product	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (jj)	Toxic products of combustion	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (kk)	Vapor density	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (ll)	Vapor pressure	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (mm)	Viscosity	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (nn)	Volatility	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (oo)	Water reactivity	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.2 (pp)	Water solubility	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.3	Describe the heat transfer process that occurs as a result of a cryogenic liquid spill.	Y	3	Hazard and Risk Evaluation	1	Chemical/Physical Terms & Their Significance
4-2.2.4	Identify the signs and symptoms of exposure and the target organ effects of exposure to (5) HM scenarios	Y	3	Hazard and Risk Evaluation	2	Health Hazards
4-2.2.5	Given the scenario of a domestic gas line break and the readings from a combustible gas indicator, determine the area of evacuation.	Y	3	Hazard and Risk Evaluation	6	Evaluating Risks
4-2.2.6	Identify two methods for determining the pressure in bulk packaging or facility containers.	Y	2	HM Containers	5	Facility Tanks
4-2.2.7	Identify one method for determining the amount of lading remaining in damaged bulk packaging or facility containers	Y	2	HM Containers	7	Facility Tanks

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4-2.3	<b>Describing the Condition of a Container Involved in an Incident</b>	Y	2	HM Containers	2 3 4 5 6	Cargo Tanks Portable Tank Containers Railroad Tank Cars Facility Tanks Pipelines
4-2.3.1	Identify the basic design and construction features for three examples of containers	Y	2	HM Containers	2 3 4 5 6	Cargo Tanks Portable Tank Containers Railroad Tank Cars Facility Tanks Pipelines
4-2.3.1.1	Identify the basic design and construction features, including closures of bulk containers	Y	2	HM Containers	2 3 4 5 6	Cargo Tanks Portable Tank Containers Railroad Tank Cars Facility Tanks Pipelines
4-2.3.1.1(a)	Cargo tanks	Y	2	HM Containers	2	Cargo Tanks
4-2.3.1.1(b)	Fixed facility tanks	Y	2	HM Containers	5	Facility Tanks
4-2.3.1.1(c)	Intermodal tanks	Y	2	HM Containers	3	Portable Tank Containers
4-2.3.1.1(d)	One-ton containers	Y	2	HM Containers	3	Portable Tank Containers
4-2.3.1.1(e)	Pipelines	Y	2	HM Containers	6	Pipelines
4-2.3.1.1(f)	Railroad cars	Y	2	HM Containers	4	Railroad Tank Cars
4-2.3.1.1(g)	Intermediate bulk containers (tote tank)	Y	2	HM Containers	3	Portable Tank Containers
4-2.3.1.2	Identify the basic design and construction features, including closures of nonbulk containers	Y	2	HM Containers	1	Nonbulk Packaging
4-2.3.1.2(a)	Carboys	Y	2	HM Containers	1	Nonbulk Packaging
4-2.3.1.2(b)	Drums	Y	2	HM Containers	1	Nonbulk Packaging
4-2.3.1.2(c)	Pressurized cylinders	Y	2	HM Containers	1	Nonbulk Packaging
4-2.3.1.3	Identify the basic design and construction features of radioactive material containers	Y	2	HM Containers	7	Radioactive Packaging
4-2.3.1.3 (a)	Type A package	Y	2	HM Containers	7	Radioactive Packaging
4-2.3.1.3 (b)	Type B package	Y	2	HM Containers	7	Radioactive Packaging
4-2.3.2	Describe how a liquid pipeline can carry different products	Y	2	HM Containers	6	Pipelines
4-2.3.3	Identify elements of a pipeline	Y	2	HM Containers	6	Pipelines
4-2.3.3 (a)	Ownership of the line	Y	2	HM Containers	6	Pipelines
4-2.3.3 (b)	Procedures for checking for gas migration	Y	2	HM Containers	6	Pipelines
4-2.3.3 (c)	Procedure for shutting down the line or controlling the leak	Y	2	HM Containers	6	Pipelines
4-2.3.3 (d)	Type of product in the line	Y	2	HM Containers	6	Pipelines
4-2.3.4	Identify the different types of damage a pressure container could incur	Y	3	Hazard and Risk Evaluation	6	Evaluating Risks
4-2.3.5	Identify different types of tank car damage	Y	3	Hazard and Risk Evaluation	6	Evaluating Risks
4-2.4	<b>Predicting Likely Behavior of Materials and Their Containers When Multiple Materials are Involved</b>	Y	3	Hazard and Risk Evaluation	All	
4-2.4.1	Identify 3 resources available that indicate the effects of mixing various HM	Y	3	Hazard and Risk Evaluation	3	Collecting & Interpreting Hazard and Resp. Data
4-2.4.2	Identify and explain the significance in the risk assessment process of fire and safety features on the behavior of products during an incident at a bulk storage facility	Y	3	Hazard and Risk Evaluation	6	Evaluating Risks
4-2.4.2 (a)	Fire protection systems	Y	3	Hazard and Risk Evaluation	6	Evaluating Risks
4-2.4.2 (b)	Monitoring and detection systems	Y	3	Hazard and Risk Evaluation	6	Evaluating Risks
4-2.4.2 (c)	Predict spillage and control (impoundment and diking)	Y	3	Hazard and Risk Evaluation	6	Evaluating Risks
4-2.4.2 (d)	Tank spacing	Y	3	Hazard and Risk Evaluation	6	Evaluating Risks
4-2.4.2 (e)	Tank venting an flaring systems	Y	3	Hazard and Risk Evaluation	6	Evaluating Risks
4-2.4.2 (f)	Transfer operations	Y	3	Hazard and Risk Evaluation	6	Evaluating Risks
4-2.5	<b>Estimating the Likely Size of an</b>	Y	3	Hazard and Risk Evaluation	6	Evaluating Risks

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	<b>Endangered Area.</b>					
4-2.5.1	Identify local resources for dispersion pattern in prediction and modeling	Y	3	Hazard and Risk Evaluation	6	Evaluating Risks
4-2.5.2	Identify the steps for determining the extent of the hazard within the endangered area of a HM incident	Y	3	Hazard and Risk Evaluation	6	Evaluating Risks
4-2.5.2.1	In the risk assessment process describe toxicological terms and exposure values and explain their significance	Y	3	Hazard and Risk Evaluation	2	Health Hazards
4-2.5.2.1 (a)	Parts per million (PPM)	Y	3	Hazard and Risk Evaluation	2	Health Hazards
4-2.5.2.1 (b)	Parts per billion (PPB)	Y	3	Hazard and Risk Evaluation	2	Health Hazards
4-2.5.2.1 (c)	Lethal dose (LD <sub>50</sub> )	Y	3	Hazard and Risk Evaluation	2	Health Hazards
4-2.5.2.1 (d)	Lethal concentrations (LC <sub>50</sub> )	Y	3	Hazard and Risk Evaluation	2	Health Hazards
4-2.5.2.1 (e)	Permissible exposure limit (PEL)	Y	3	Hazard and Risk Evaluation	2	Health Hazards
4-2.5.2.1 (f)	Threshold limit value time-weighted average (TLV-TWA)	Y	3	Hazard and Risk Evaluation	2	Health Hazards
4-2.5.2.1 (g)	Threshold limit value short-term exposure limit (TLV-STEL)	Y	3	Hazard and Risk Evaluation	2	Health Hazards
4-2.5.2.1 (h)	Threshold limit value ceiling (TLV-C)	Y	3	Hazard and Risk Evaluation	2	Health Hazards
4-2.5.2.1 (i)	Immediately dangerous to life and health value (IDLH)	Y	3	Hazard and Risk Evaluation	2	Health Hazards
4-2.5.2.2	Describe radiological terms and explain their significance in predicting health hazards and environmental impact in a HM incident	Y	3	Hazard and Risk Evaluation	2	Health Hazards
4-2.5.2.2 (a)	Types	Y	3	Hazard and Risk Evaluation	2	Health Hazards
4-2.5.2.2 (b)	Measurements	Y	3	Hazard and Risk Evaluation	2	Health Hazards
4-2.5.2.2 (c)	Protection	Y	3	Hazard and Risk Evaluation	2	Health Hazards
4-2.5.2.3	Within the endangered area of a HM identify 2 methods for predicting areas of potential harm	Y	3	Hazard and Risk Evaluation	6	Evaluating Risks
4-2.5.3	Within an endangered area of a HM incident identify a method for estimating outcomes	Y	3	Hazard and Risk Evaluation	6	Evaluating Risks
<b>4-3</b>	<b>Competencies – Planning the Response</b>	Y	4	Planning the Response	All	
<b>4-3.1</b>	<b>Identifying Response Objectives</b> Describe the response objectives for simulated facility and transportation incidents	Y	4	Planning the Response	1	Response Objectives
<b>4-3.2</b>	<b>Identifying the Potential Action Options</b> Identify possible action options (defensive, offensive, and nonintervention) by response objective for simulated facility and transportation incidents	Y	4	Planning the Response	4	Plan of Action
<b>4-3.3</b>	<b>Selecting PPE</b> Given situations with known and unknown hazardous materials, determine the appropriate PPE for the action options specified in the plan of action in each situation	Y	4	Planning the Response	2	Protective Clothing
4-3.3.1	Identify the 4 levels of PPE	Y	4	Planning the Response	2	Protective Clothing
4-3.3.2	For a specified action option identify the factors to be considered in selecting the proper respiratory protection	Y	4	Planning the Response	3	Respiratory Protection
4-3.3.2.1	Describe the advantages, limitations, and proper use of respiratory protection	Y	4	Planning the Response	3	Respiratory Protection
4-3.3.2.1 (a)	Positive pressure SCBA	Y	4	Planning the Response	3	Respiratory Protection
4-3.3.2.1 (b)	Positive pressure air line respirators with required escape unit	Y	4	Planning the Response	3	Respiratory Protection
4-3.3.2.1 (c)	Air purifying respirators	Y	4	Planning the Response	3	Respiratory Protection
4-3.3.2.2	Identify the process for selecting the proper respiratory protection	Y	4	Planning the Response	3	Respiratory Protection
4-3.3.2.3	Identify the operational components of air purifying respirators and air line respirators by name and function	Y	4	Planning the Response	3	Respiratory Protection

Objective	Competency Summary	Obj. Met	Module		Topic	
4-3.3.3	Identify the factors to be considered in selecting the proper chemical-protective clothing for a specified action option	Y	4	Planning the Response	2	Protective Clothing
4-3.3.3.1	Describe the following terms and explain their impact and significance on the selection of chemical-protective clothing	Y	4	Planning the Response	2	Protective Clothing
4-3.3.3.1 (a)	Degradation	Y	4	Planning the Response	2	Protective Clothing
4-3.3.3.1 (b)	Penetration	Y	4	Planning the Response	2	Protective Clothing
4-3.3.3.1 (c)	Permeation	Y	4	Planning the Response	2	Protective Clothing
4-3.3.3.2	Identify 3 indication of material degradation of chemical-protective clothing	Y	4	Planning the Response	2	Protective Clothing
4-3.3.3.3	Identify 3 types of vapor-protective and splash-protective clothing – describe advantages and disadvantages	Y	4	Planning the Response	2	Protective Clothing
4-3.3.3.4	Identify advantages and disadvantages of heat exchange units used for the cooling of personnel in chemical-protective clothing	Y	4	Planning the Response	2	Protective Clothing
4-3.3.3.4 (a)	Air cooled	Y	4	Planning the Response	2	Protective Clothing
4-3.3.3.4 (b)	Ice cooled	Y	4	Planning the Response	2	Protective Clothing
4-3.3.3.4 (c)	Water cooled	Y	4	Planning the Response	2	Protective Clothing
4-3.3.3.5	Identify the process for selecting the proper protective clothing	Y	4	Planning the Response	2 3	Protective Clothing Respiratory Protection
4-3.3.3.6	Determine the appropriate protective clothing construction materials for a given action option using chemical compatibility charts when given 3 examples of various HM	Y	4	Planning the Response	2 3	Protective Clothing Respiratory Protection
4-3.3.3.7	Identify the physical and psychological stresses that can affect users of specialized protective clothing	Y	4	Planning the Response	2	Protective Clothing
<b>4-3.4</b>	<b>Developing Appropriate Decontamination Procedures</b>	Y	4	Planning the Response	6	Decontamination Methods
4-3.4.1	Identify the advantages and limitations and describe an example where decontamination methods would be used	Y	4	Planning the Response	6	Decontamination Methods
4-3.4.1 (a)	Absorption	Y	4	Planning the Response	6	Decontamination Methods
4-3.4.1 (b)	Adsorption	Y	4	Planning the Response	6	Decontamination Methods
4-3.4.1 (c)	Chemical degradation	Y	4	Planning the Response	6	Decontamination Methods
4-3.4.1 (d)	Dilution	Y	4	Planning the Response	6	Decontamination Methods
4-3.4.1 (e)	Disposal	Y	4	Planning the Response	6	Decontamination Methods
4-3.4.1 (f)	Evaporation	Y	4	Planning the Response	6	Decontamination Methods
4-3.4.1 (g)	Neutralization	Y	4	Planning the Response	6	Decontamination Methods
4-3.4.1 (h)	Solidification	Y	4	Planning the Response	6	Decontamination Methods
4-3.4.1 (i)	Vacuuming	Y	4	Planning the Response	6	Decontamination Methods
4-3.4.1 (j)	Washing	Y	4	Planning the Response	6	Decontamination Methods
4-3.4.2	Identify 3 sources of technical information for selecting appropriate decontamination procedures	Y	4	Planning the Response	6	Decontamination Methods
4-3.4.3	Identify purpose of emergency decon procedures at HM incidents	Y	4	Planning the Response	6	Decontamination Methods
<b>4-3.5</b>	<b>Developing a Plan of Action</b>	Y	4	Planning the Response	4	Plan of Action
4-3.5.1	Describe the purpose of, procedures for, equipment required, and safety precautions used with the following techniques for HM control	Y	4	Planning the Response	4	Plan of Action
4-3.5.1 (a)	Adsorption	Y	4	Planning the Response	4	Plan of Action
4-3.5.1 (b)	Neutralization	Y	4	Planning the Response	4	Plan of Action
4-3.5.1 (c)	Overpacking	Y	4	Planning the Response	4	Plan of Action
4-3.5.1 (d)	Patching	Y	4	Planning the Response	4	Plan of Action
4-3.5.1 (e)	Plugging	Y	4	Planning the Response	4	Plan of Action

Objective	Competency Summary	Obj. Met	Module		Topic	
4-3.5.2	Identify common methods for product transfer from; MC-306/DOT-406, MC-307/DOT-407, MC-312/DOT-412, MC-338 cargo tanks	Y	4	Planning the Response	5	Product Removal/Transfer from Cargo Tanks
4-3.5.3	Develop safety considerations that must be included in the plan of action	Y	4	Planning the Response	4	Plan of Action
4-3.5.3.1	List and describe the safety considerations to be included	Y	4	Planning the Response	4	Plan of Action
4-3.5.3.2	Identify the points that should be made in a safety briefing prior to working at the scene	Y	4	Planning the Response	4	Plan of Action
4-3.5.4	Identify atmospheric and physical safety hazards associated with HM incidents involving confined spaces	Y	4	Planning the Response	4	Plan of Action
4-3.5.5	Identify pre-entry activities to be performed	Y	4	Planning the Response	4	Plan of Action
<b>4</b>	<b>Competencies – Implementing the Planned Response</b>	Y	5	Implementing the Planned Response	All	
<b>4-4.1</b>	<b>Performing Incident Management Duties</b>	Y	5	Implementing the Planned Response	1	The Technician Level Responder Role
4-4.1.1	During an incident involving HM identify the role of the HM technician	Y	5	Implementing the Planned Response	1	The Technician Level Responder Role
4-4.1.2	Within the incident management system identify the duties and responsibilities of the following HM branch functions	Y	5	Implementing the Planned Response	1	The Technician Level Responder Role
4-4.1.2 (a)	Backup	Y	5	Implementing the Planned Response	1	The Technician Level Responder Role
4-4.1.2 (b)	Entry	Y	5	Implementing the Planned Response	1	The Technician Level Responder Role
4-4.1.2 (c)	Decontamination	Y	5	Implementing the Planned Response	1	The Technician Level Responder Role
4-4.1.2 (d)	Hazardous Materials Branch Mgmt	Y	5	Implementing the Planned Response	1	The Technician Level Responder Role
4-4.1.2 (e)	Hazardous Materials Branch Safety	Y	5	Implementing the Planned Response	1	The Technician Level Responder Role
4-4.1.2 (f)	Information/research	Y	5	Implementing the Planned Response	1	The Technician Level Responder Role
4-4.1.2 (g)	Reconnaissance	Y	5	Implementing the Planned Response	1	The Technician Level Responder Role
4-4.1.2 (h)	Resources	Y	5	Implementing the Planned Response	1	The Technician Level Responder Role
4-4.1.3	Demonstrate setup of the decontamination corridor (specified in the planned response)	Y	5	Implementing the Planned Response	3	Contamination Reduction Corridor
4-4.1.4	Demonstrate the decontamination process (specified in the planned response)	Y	5	Implementing the Planned Response	3	Contamination Reduction Corridor
<b>4-4.2</b>	<b>Using Protective Clothing and Respiratory Protection</b> Demonstrate the ability to don, work in, and doff both liquid splash and vaporized PPE, including appropriate respiratory protection	Y	5	Implementing the Planned Response	2	PPE Safety & Emergency Procedures
4-4.2.1	Describe 3 safety procedures for personnel wearing vapor-protective clothing	Y	5	Implementing the Planned Response	2	PPE Safety & Emergency Procedures
4-4.2.2	Describe 3 emergency procedures for personnel wearing vapor-protecting clothing	Y	4 5	Planning the Response Implementing the Planned Response	3 2	Respiratory Protection PPE Safety & Emergency Procedures
4-4.2.3	Identify the procedures for donning, working in, and doffing the following types of respiratory protection	Y	4	Planning the Response	3	Respiratory Protection
4-4.2.3 (a)	Air line respirator with required escape unit	Y	4	Planning the Response	3	Respiratory Protection
4-4.2.3 (b)	Air purifying respirator	Y	4	Planning the Response	3	Respiratory Protection
4-4.2.4	Demonstrate donning, working in, and doffing chemical-protective clothing	Y	4	Planning the Response	2	Protective Clothing

Objective	Competency Summary	Obj. Met	Module		Topic	
4-4.2.5	Demonstrate the ability to record the use, repair, and testing of chemical-protective clothing	Y	4	Planning the Response	2	Protective Clothing
4-4.2.6	Describe the maintenance, testing, inspection, and storage procedures for PPE	Y	4	Planning the Response	2	Protective Clothing
<b>4-4.3</b>	<b>Performing Control Functions Identified in Plan of Action</b>	Y	6	Controlling Releases	3	Pressurized System Releases
4-4.3.1	Given a pressure vessel, select the appropriate material or equipment and demonstrate a method to contain leaks from various locations	Y	6	Controlling Releases	3	Pressurized System Releases
4-4.3.1 (a)	Fusible metal of plug	Y	6	Controlling Releases	3	Pressurized System Releases
4-4.3.1 (b)	Fusible plug threads	Y	6	Controlling Releases	3	Pressurized System Releases
4-4.3.1 (c)	Side wall of cylinder	Y	6	Controlling Releases	3	Pressurized System Releases
4-4.3.1 (d)	Valve blowout	Y	6	Controlling Releases	3	Pressurized System Releases
4-4.3.1 (e)	Valve gland	Y	6	Controlling Releases	3	Pressurized System Releases
4-4.3.1 (f)	Valve inlet threads	Y	6	Controlling Releases	3	Pressurized System Releases
4-4.3.1 (g)	Valve seat	Y	6	Controlling Releases	3	Pressurized System Releases
4-4.3.1 (h)	Valve stem assembly blowout	Y	6	Controlling Releases	3	Pressurized System Releases
4-4.3.2	Given the fittings on a pressure container, demonstrate the ability to perform the following	Y	6	Controlling Releases	3	Pressurized System Releases
4-4.3.2 (a)	Bung leak	Y	6	Controlling Releases	3	Pressurized System Releases
4-4.3.2 (b)	Replace missing plugs	Y	6	Controlling Releases	3	Pressurized System Releases
4-4.3.2 (c)	Tighten loose plugs	Y	6	Controlling Releases	3	Pressurized System Releases
4-4.3.3	Demonstrate the ability to contain the following types of leaks in a 55-gal drum	Y	6	Controlling Releases	2	Nonbulk Liquid Container Releases
4-4.3.3 (a)	Bung leak	Y	6	Controlling Releases	2	Nonbulk Liquid Container Releases
4-4.3.3 (b)	Chime leak	Y	6	Controlling Releases	2	Nonbulk Liquid Container Releases
4-4.3.3 (c)	Forklift puncture	Y	6	Controlling Releases	2	Nonbulk Liquid Container Releases
4-4.3.3 (d)	Nail puncture	Y	6	Controlling Releases	2	Nonbulk Liquid Container Releases
4-4.3.4	Demonstrate the ability to place a 55-gal drum into an overpack drum using the following method	Y	6	Controlling Releases	2	Nonbulk Liquid Container Releases
4-4.3.4 (a)	Rolling side-in	Y	6	Controlling Releases	2	Nonbulk Liquid Container Releases
4-4.3.4 (b)	Slide-in	Y	6	Controlling Releases	2	Nonbulk Liquid Container Releases
4-4.3.4 (c)	Slip-over	Y	6	Controlling Releases	2	Nonbulk Liquid Container Releases
4-4.3.5	Identify the maintenance and inspection procedures for the tools and equipment provided for the control of HM releases	Y	6	Controlling Releases	2 3	Nonbulk Liquid Container Releases Pressurized System Releases
4-4.3.6	Identify 3 considerations for assessing a leak or spill inside a confined space without entering the area	Y	6	Controlling Releases	1 2	Safety Considerations Nonbulk Liquid Container Release
4-4.3.7	Identify 3 safety considerations for product transfer operations	Y	6	Controlling Releases	1 5	Safety Considerations Cargo Tank Releases
4-4.3.8	Given an MC-306/DOT406 cargo tank and a dome cover clamp, demonstrate the ability to install the clamp on the dome properly	Y	6	Controlling Releases	5	Cargo Tank Releases
4-4.3.9	When controlling a fire involving an MC-306/DOT-406 aluminum shell cargo tank identify the methods and precautions used	Y	6	Controlling Releases	5	Cargo Tank Releases
4-4.3.10	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	Y	6	Controlling Releases	5	Cargo Tank Releases
4-4.3.10 (a)	Dome cover leak	Y	6	Controlling Releases	5	Cargo Tank Releases
4-4.3.10 (b)	Irregular-shaped hole	Y	6	Controlling Releases	5	Cargo Tank Releases

Objective	Competency Summary	Obj. Met		Module		Topic
4-4.3.10 (c)	Puncture	Y	6	Controlling Releases	5	Cargo Tank Releases
4-4.3.10 (d)	Split or tear	Y	6	Controlling Releases	5	Cargo Tank Releases
4-4.3.11	Describe 3 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	Y	6	Controlling Releases	5	Cargo Tank Releases
<b>4-5</b>	<b>Competencies-Evaluating Progress</b>	Y	7	Evaluating Progress	1	Status of Control Functions & Communication Methods
<b>4-5.1</b>	<b>Evaluating the Effectiveness of the Control Functions</b>	Y	7	Evaluating Progress	1	Status of Control Functions & Communication Methods
<b>4-6</b>	<b>Competencies-Terminating the Incident</b>	Y	7	Evaluating Progress	2	Termination the Incident
<b>4-6.1</b>	<b>Assisting in the Debriefing</b>	Y	7	Evaluating Progress	2	Termination the Incident
4-6.1.1	Describe 3 components of an effective debriefing	Y	7	Evaluating Progress	2	Termination the Incident
4-6.1.2	Describe the key topics of an effective debriefing	Y	7	Evaluating Progress	2	Termination the Incident
4-6.1.3	Describe when a debriefing should take place	Y	7	Evaluating Progress	2	Termination the Incident
4-6.1.4	Describe who should be involved in a briefing	Y	7	Evaluating Progress	2	Termination the Incident
<b>4-6.2</b>	<b>Assist in the Incident Critique</b> provide operational observations of the activities that were performed in the hot and warm zones during the incident	Y	7	Evaluating Progress	2	Termination the Incident
4-6.2.1	Describe three components of an effective critique	Y	7	Evaluating Progress	2	Termination the Incident
4-6.2.2	Describe who should be involved in a critique	Y	7	Evaluating Progress	2	Termination the Incident
4-6.2.3	Describe why an effective critique is necessary after a HM incident	Y	7	Evaluating Progress	2	Termination the Incident
4-6.2.4	Describe which written documents should be prepared as a result of the critique	Y	7	Evaluating Progress	2	Termination the Incident
<b>4-6.3</b>	<b>Provide Reports and Documentation</b>	Y	7	Evaluating Progress	2	Termination the Incident
4-6.3.1	Identify the reports and supporting documentation required by the local emergency response plan and the org. standard operating procedures	Y	7	Evaluating Progress	2	Termination the Incident
4-6.3.2	Demonstrate the proper completion of required reports	Y	7	Evaluating Progress	2	Termination the Incident
4-6.3.3	Describe the importance of personnel exposure records	Y	7	Evaluating Progress	2	Termination the Incident
4-6.3.4	Describe the importance of debriefing records	Y	7	Evaluating Progress	2	Termination the Incident
4-6.3.5	Describe the importance of critique records	Y	7	Evaluating Progress	2	Termination the Incident
4-6.3.6	Identify the steps in keeping an activity log and exposure records	Y	7	Evaluating Progress	2	Termination the Incident
4-6.3.7	In compiling incident reports that meet federal, state, local, and org. requirements identify the steps to be taken	Y	7	Evaluating Progress	2	Termination the Incident
4-6.3.8	Identify the requirements for compiling hot zone entry and exit logs	Y	7	Evaluating Progress	2	Termination the Incident
4-6.3.9	Identify the requirements for compiling PPE logs	Y	7	Evaluating Progress	2	Termination the Incident
4-6.3.10	Identify the requirements for filing documents and maintaining records	Y	7	Evaluating Progress	2	Termination the Incident