

COURSE TITLE:	HazMat Technician Capabilities Evaluation (CapEval™)	Course No. & Version:	HAZ038A
TOPIC AREA:	HazMat Technician	LEVEL:	Technician
SOURCE:	Internal	Course No.	HAZ038A 11/2017
PRIMARY DOMAIN:	<input type="checkbox"/> Didactic <input checked="" type="checkbox"/> Psychomotor <input type="checkbox"/> Combination		
DELIVERY METHOD:	10 % Lecture 90% Hands-on % Distanced % Other:		
DURATION:	Hrs 7	SCHEDULING:	One day 0830 – 1730
PROGRAM GOAL:	<p>Upon completion of this evaluation, the hazardous materials technician will be provided a diagnostic evaluation of the ability to perform specific skills associated with hazardous materials emergency response. This information can then be utilized to identify individual and organizational training needs.</p>		
TARGET AUDIENCE:	<p>Previously trained hazardous materials technicians. This program is intended to provide capabilities evaluation for identifying training strengths and weakness at the technician level of competency.</p>		
COURSE DESCRIPTION:	<p>This capabilities evaluation is based upon various competencies outlined in NFPA 472 and existing hazmat technician training curriculums. The performance areas that are evaluated are selected from a menu of skills by the contracting agency. Additional skill areas can be developed upon request by the contracting organization. The evaluation is then developed into various application stations in which the participants are observed by subject matter experts for appropriate performance based upon evaluation rubrics. Observed data is recorded in the CapEval™ database which is then utilized to produce detailed individual reports and/or team and regional summary reports concerning performance strengths and weakness.</p>		
MAX STUDENTS:	Varies with skills evaluated	MAX INST. RATIO:	1:5
STANDARDS MET:	<p>Competencies addressed by NFPA 472 “Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents”</p>		
APPROVALS			
Organization	No. / Date	Conditions	
NOTES			

Hazardous Materials Technician Capabilities Evaluation

Program Description

Upon completion of this process, the hazardous materials technician will be provided a diagnostic evaluation of the ability to perform specific skills associated with hazardous materials emergency response. This information can then be utilized to identify individual and organizational training needs.

Pre-Requisite

Hazardous Materials Technician.

Target Audience Considerations

Previously trained hazardous materials technicians. This program is intended to provide diagnostic skills performance report for this specific mission level.

Evaluation Considerations

Evaluation is based upon education competencies outlined in NFPA 472 and programs such as IAFF 160 hour Hazardous Materials Technician or other technician programs meeting the competencies of NFPA 472.

Topic Area Menu

- Hazard Analysis and Risk Assessment
- Planning and Modeling
- Container Identification and Characteristics
- Detection Equipment & Principles
- Detection Use and Interpretation
- Field Chemical Analysis
- Non-Pressurized Leak Control
- Pressurized Leak Control
- Flaring Pressurized Containers
- Spill Control
- Class B Fire Control
- Other topics developed upon request**

Duration

The duration of the process is based upon the number and specific topic areas selected.

Educational Objectives

Risk Assessment Module

Given an incident demonstrate the ability to select the reference sources or databases necessary to complete a hazard/risk assessment of the involved materials.

Given an incident demonstrate the ability to obtain from employer provided reference materials and databases the information necessary to assess the hazards of given materials. This assessment shall include: 1) information concerning material identity and environmental reporting requirements, 2) physical and chemical characteristics, 3) flammability or combustibility, 4) toxicity information including all published exposure limits, 5) reactivity and radioactivity data, fire leak and spill control considerations, and 6) proper packaging and disposal procedures.

Given an incident the technician will determine the signs and symptoms of over-exposure to the materials involved.

Given equipment provided by the employer, demonstrate the ability to: 1) access the internet by remote or other available field means and 2) establish field capabilities to send and receive facsimile transmissions, establish verbal communications with the community's Emergency Operations Center, local medical facilities and the Florida State Warning Point .

Planning and Modeling Module

Given a hazardous materials scenario involving multiple hazardous substances, the technician shall rank the materials with regards to anticipated level of risk.

Given incident scenarios including research data and data from air monitoring instruments, the technician will demonstrate the ability to assess the risks to response personnel and the public.

Demonstrate the ability to predict the necessary evacuation area for a leak from a domestic gas line and develop an air-monitoring plan necessary to validate those predicted areas.

Given the quantity, concentration and rate of release of a material, the technician shall demonstrate the ability to assess potential shelter in-place options.

Given the quantity, concentration and rate of release of a material, the technician shall demonstrate the ability to model and predict dispersion patterns and necessary evacuation areas using employer provided databases and computer modeling software.

Given equipment provided by the employer, demonstrate the ability to: 1) access the internet by remote or other available field means and 2) establish field capabilities to send and receive

facsimile transmissions, establish verbal communications with the community's Emergency Operations Center, local medical facilities and the Florida State Warning Point .

Given equipment provided by the employer, demonstrate the ability to setup real time surface meteorological monitoring capabilities and properly to interface the equipment with computers used for dispersion modeling.

Container Identification and Characteristics

Given various fixed, transportation and portable containers, the technician shall demonstrate the ability to identify the container type and potential materials carried or stored within the container.

Given a scenario involving a container, (removed: demonstrate the ability to) determine the pressure and remaining lading within the container.

Given a scenario involving a highway transportation container with appropriate specification plates, determine the type, capacity and construction characteristics of the container necessary to conduct a container damage assessment.

Given a simulated incident with damaged containers, demonstrate the ability to collect information necessary for completion of a container damage assessment.

Given a simulated incident involving containers, demonstrate the ability to differentiate between liquid and vapor lines.

Identify common methods for product transfers involving MC306/DOT406, MC307/DOT407, MC312/DOT412, MC331 and MC338 cargo tanks.

Demonstrate an understanding of and the ability to apply the safety precautions necessary for product transfer operations. (e.g., grounding, pneumatics, etc.)

Given WMD scenarios using containers, identify the typical contents by type or name.

Detection Equipment & Principles

Given air monitoring devices provided by the employer, demonstrate the ability to complete the following: 1) determine the inherent safety rating of the instrument and 2) properly start and prepare the instrument for operation in accordance with manufacturer recommendations.

Properly describe to the assessor the differences between 1) instrument calibration, 2) field calibration check, 3) spanning and 4) bump test, as well as the applicability for each process.

Demonstrate proper field maintenance of all air monitoring devices provided by the employer in accordance with the employer's written air monitoring equipment plan and the recommendations of the manufacturer.

Given various written scenarios demonstrate the ability to select the appropriate air monitoring instrument(s) necessary for the qualitative and quantitative analysis of the potentially hazardous environment caused by airborne gases and vapors

Demonstrate the ability to use WMD detectors (chemical and biological), monitoring and sampling equipment provided by the AHJ and employing agency. (e.g., Assay Kits 20/20, APD 2000, LCD 3.3, HazMat CAD, M-256, isotope identifier, biological immunoassay indicators, Chemical agent monitors (CAM), DNA fluoroscopy, electrochemical cells (carbon monoxide meter, oxygen meter), flame ionization detector, gas chromatograph/mass spectrometer (GC/MS), infrared spectroscopy, ion mobility spectroscopy, mass channel analyzer, metal oxide sensor, polymerase chain reaction (PCR) and to determine the following hazard of pathogenicity Raman spectroscopy, surface acoustical wave (SAW), wet chemistry

Detection Use and Interpretation

Given controlled skill stations with live samples, demonstrate proper reading and interpretation to include identification of potential false negatives and positives, for each of the following types of air monitoring instruments: pH indicators or meters, personal alarms, dosimeters, oxygen concentration instruments, combustible gas indicators, electro-mechanical gas monitors, colorimetric detector tubes and/or badges, photo-ionization detectors, flame ionization detectors, IR spectrometry and other instruments provided by the employer.

Given a simulated incident involving an unidentified hazardous material and equipment provided by the employer, demonstrate the ability to properly conduct air monitoring including proper 1) monitoring sequence, 2) approach, 3) sampling patterns, 4) selection of elevation based on vapor density, 5) speed and interpret the instrument readings.

Given an unknown gas or vapor, demonstrate the ability to identify or classify the material by hazard using air monitoring instruments.

Demonstrate the ability to properly document air monitoring activities in accordance with the employer's emergency response plan.

Demonstrate the ability to obtain an air sample for off-site analysis using equipment and procedures provided by the employer

Demonstrate the ability to document sample collection procedures and the chain of custody in a manner consistent with law enforcement evidence gathering procedures.

Field Chemical Analysis

Demonstrate the ability to select and establish a suitable location for the field chemical analysis of solid, liquid or gas samples being recovered from the isolation area for cold zone analysis.

Given two unidentified samples (one solid and one liquid) and, using the procedures identified by the employer, the technician will demonstrate the ability to properly perform a field chemical analysis process necessary to identify or classify the hazards of the material.

Demonstrate the ability to maintain a safe, clean and orderly field chemical analysis work area during all analysis procedures.

Demonstrate the ability to properly document the field chemical analysis procedures used and results obtained.

Non-Pressurized Leak Control

Given a simulated hazardous materials incident involving a leak(s) from bulk and non-bulk containers, demonstrate the ability to properly select the necessary tools, materials and equipment to perform offensive leak control activities.

Given a leaking 55 gallon drum, demonstrate the ability to control the following types of leaks:
a) Bung or chime leak; b) Forklift and nail punctures

Given a leaking 55 gallon drum, demonstrate the ability to safely perform the following over-packs: a) Rolling slide-in; b) Slide-in; c) Slip-over

Demonstrate the ability to properly stabilize, bond and ground a container prior to operations or product transfer.

Demonstrate the ability to properly use any product transfer equipment provided by the employer in accordance with the employer's emergency response plan and the manufacturer's recommendations.

Given a leak from the dome of a MC306/DOT406, demonstrate the ability to properly apply a dome clamp.

Demonstrate the ability to control each of the following leak types: a) Dome cover leak; b) Irregular shaped hole; c) Puncture; d) Split or tear

Pressurized Leak Control

Given a pressure vessel, select the appropriate tools and equipment and demonstrate the ability to perform control activities for leaks from: a) Open valves, missing or loose plugs Fusible plug (metal and threads); b) Side wall of container; c) Valve blowout, gland, inlet threads and seat; d) Valve stem assembly blowout

Given a simulated incident involving containers, demonstrate the ability to differentiate between liquid and vapor lines.

Flaring Pressurized Containers

Demonstrate the ability to perform a flaring of a LPG container.

Spill Control

Given a simulated hazardous materials incident involving a release from bulk and non-bulk containers, demonstrate the ability to properly select the necessary tools, equipment and personnel to perform defensive and offensive spill control activities.

Given a simulated hazardous materials incident involving a spill, demonstrate the ability to supervise an operations level team in the performance of defensive spill control measures.

Given a simulated hazardous materials incident, a spill control plan and proper PPE, demonstrate the ability to perform offensive spill control procedures where direct contact with the product would be anticipated.

Demonstrate the ability to perform the following spill control measures: a) Dam, dike, divert and retain a liquid/surface and liquid/water spill. b) Properly apply a curtain boom and oiliphilic boom to a liquid/water spill. C) Construct an underflow damn and overflow dam. D) Blanket a liquid or solid/surface spill. E) Ventilate and disperse or enter into an aqueous solution a gas/air release, f) any other materials provided by the employer following manufacturer's guidelines.

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Class B Fire Control

Demonstrate the ability to obtain product fire control information from at least three references.

Given pre-plan information, foam availability, and flowing fuel fire, identify the steps to be taken to protect exposures, extinguish the fire if applicable, and mitigate the hazard per jurisdictional SOPs/SOGs.