

**HAZARDOUS MATERIALS
AWARENESS/OPERATIONS
LEVEL COURSE**



STUDENT HANDOUT

**Chris Pfaff
PHRT Training (253) 255-3435
CDPfaff@gmail.com**

Disclaimer

This publication is designed to provide information that might be useful during emergency incidents that involve the release or potential release of hazardous materials. It is intended for information purposes only and the reader is expressly cautioned to use any safety precautions and to take appropriate steps to avoid hazards when engaging in activities described herein.

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HAZARDOUS MATERIALS AWARENES
NFPA 1072, 2017 Edition

For certification purposes, the final skills examination will consist of two stations representing a random sampling of the standard. The practical skills have been broken down into two major categories, of which the Test Control Officer will select all skill sheets per category. Candidates are required to successfully complete the selected practical skills during final certification examinations at the Awareness level. Note: May be tested during Operations practical. See matrix below.

Hazardous Materials Awareness Practical Skills Job Performance Requirements			
Skill Sheet	NFPA Section #	Tasks	Number of Evaluation Sheets Required: A minimum of 2 skill sheets must be selected for Awareness Level
HMA 1	4.2.1/ 4.4.1	Recognition ,Identification and Notification	Select All Skill Sheets from this category
HMA 2	4.3.1	Initiate Protective Actions	



HAZARDOUS MATERIALS AWARENES

Candidate Name: _____

Skill Sheet: HMA 1

IFSAC ID: _____

Date: _____

NFPA Standard: 1072, 2017 Edition		JPR: 4.2.1 / 4.4.1		Skill Area: Recognition and Identification			
Task: Recognize and identify the hazardous materials / WMD to determine both hazardous materials/WMD being present and gather the basic hazard and response information.							
Conditions: The candidate, given an incident and a DOT <i>Emergency Response Guide</i> (ERG), shall analyze the incident to determine the hazardous material/WMD present, collect the basic hazard and response information.							
Performance Outcome: Given a hazardous materials / WMD incident, and approved reference sources, so that the presence of hazardous materials / WMD is recognized and the materials and their hazards are identified.							
No.	Task Step	First Test		Retest			
		Pass	Fail	Pass	Fail		
1.	* Detect the presence of hazardous materials/WMD by identifying one or more of the following <ul style="list-style-type: none"> • Container shape • Placard • Distinctive marking 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2.	Identifies material name in index	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
3.	Determines correct Guide Number to use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4.	Determine UN/NA identification number of the hazardous material/WMD involved	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
5.	Using the ERG Identify the hazard class for the product (either class name or number)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
6.	Identifies main safety hazard using the current edition of DOT ERG	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
7.	Initiates protective actions consistent with the DOT ERG	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
8.	Initiates and activates the initial notification process according to departmental policies and procedures (4.4.1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Overall Skill Sheet Score		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Stop Safety Candidate Used: Yes <input type="checkbox"/>			Stop Safety Equipment Failure Used: Yes <input type="checkbox"/>				



HAZARDOUS MATERIALS AWARENES

Candidate Name: _____

Skill Sheet: HMA 2

IFSAC ID: _____

Date: _____

NFPA Standard: 1072, 2017 Edition		JPR: 4.3.1		Skill Area: Initiate Protective Actions	
Task: Recognize and identify the hazardous materials / WMD to identify actions to be taken to protect themselves and others, and control access.					
Conditions: The candidate, given an example of a hazardous material/WMD and a DOT <i>Emergency Response Guidebook</i> (ERG), shall identify response information.					
Performance Outcome: Given a hazardous materials / WMD incident, and approved reference sources, so that the presence of hazardous materials / WMD is recognized and the materials and their hazards are identified.					
No.	Task Step	First Test		Retest	
		Pass	Fail	Pass	Fail
1.	Identify the emergency action (fire, spill, leak or first aid)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Identified necessary protective personal equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Describe and note the initial isolation distances and protective action distances, identify and use the table of isolation distances as described in the DOT ERG	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	Identify recommended personal protective equipment from the following: <i>Street Clothing or work uniforms</i> <i>Structural Firefighting protective clothing</i> <i>Positive Pressure self-contained breathing apparatus</i> <i>Chemical protective clothing and equipment</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	Use DOT ERG to identify and describe difference between large and small spills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall Skill Sheet Score		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stop Safety Candidate Used: Yes <input type="checkbox"/>			Stop Safety Equipment Failure Used: Yes <input type="checkbox"/>		

Evaluator/Candidate

Comments:



HAZARDOUS MATERIALS OPERATIONS

Practical Skills Certification Evaluation Packet National Fire Protection Association (NFPA) Standard 472, 2013 Edition

Test Construction Instructions

The skills examination will consist of three stations representing a random sampling of the standard. The practical skills have been broken down into three major categories, of which the Test Control Officer will randomly select the prescribed number of skill sheets per category. Candidates are required to successfully complete the selected practical skills during final certification examinations at the Operations level.

Hazardous Materials Operations Practical Skills Job Performance Requirements (JPRs)

Skill Sheet #	NFPA Section	Tasks	Minimum Number of Evaluation Sheets Required: 5 Sheets must be selected
HMO 1	5.1.2.2, 5.5.2, 6.6.3.1, 6.2.1.2	Scenario - Hazardous Materials Spill	Select 1 Skill Sheet from this category
HMO 2	5.1.2.2, 5.5.2, 6.6.3.1, 6.2.1.2	Scenario - Hazardous Materials Fire	
HMO 3	5.2.1.1	Surveying the Hazardous Materials/ WMD Incident	Select 2 Skill Sheets from this category minimum
HMO 4	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, and 5.2.1.1.7	Analyze the Incident - Container Identification	
HMO 5	5.2.1.2.1 (2) 5.2.1.3.1	Analyze the Incident - Containers	
HMO 6	5.2.1.3.2	Analyze the Incident - Pesticides	
HMO 7	5.2.2(2), 5.2.2(3)	Analyze the Incident - Chemical	
HMO 8	5.1.2.2 (1)(e), 5.1.2.2 (3)(e), 5.4.1(4), 6.2.4.1	Emergency Decontamination	Select 2 Skill Sheets from this category minimum
HMO 9	6.2.1.2, 6.2.4.1(3), 6.2.4.1(5), 6.6.1.2.2	Don and Doff PPE and Respiratory Protection	
HMO 10	6.2.4.1(3), 6.2.4.1(4)	Undergo Technical Decontamination	
HMO 11	6.2.1.2, 6.2.4.1(5), 6.2.5.1	Reporting and Documenting the Incident Maintain PPE and SCBA	
HMO 12	6.6.1.2, 6.6.3.1, 6.6.4.1	Defensive Control Measures	
HMO 13	6.6.3.1; 6.6.4.1(1), 6.6.4.1(3)	Application of Foam	



**FIRE PROTECTION BUREAU
ACCREDITATION AND CERTIFICATION
PO Box 42642
Olympia WA 98504-2642
(360) 596-3945 FAX: (360) 596-3936**



HAZARDOUS MATERIALS OPERATIONS

Candidate Name _____ Skill Sheet HMO 1

IFSAC ID _____ Date _____

NFPA STANDARD: 472, 2013 Edition		JPR: 5.1.2.2, 5.5.2, 6.6.3.1, 6.2.1.2		Hazardous Materials – Spill Leak Control			
TASK: Given a scenario involving hazardous materials, the candidate shall implement a response in accordance with SOP/SOG; evaluate progress to safely meet objectives; survey the incident to identify containers involved; collect hazard and response information; and communicate the status of response through chain of command.							
PERFORMANCE OUTCOME: The candidate shall 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 all tasks correctly.							
CONDITIONS: Given a scenario involving known hazardous materials in a container, interpret the hazard and response information obtained from the current edition of the North American Emergency Response Guidebook, safety data sheet (SDS) or material safety data sheets (MSDS), CHEMTREC/CANUTEC/SETIQ, and/or shipper/manufacturer contracts.							
No.	TASK STEPS	FIRST TEST		RETEST			
		Pass	Fail	Pass	Fail		
1.	Establish and enforce scene control procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2.	Establish means of evidence preservation, as indicated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
3.	Initiate incident management system according to National Incident Management System (NIMS)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4.	Identify the type of container and the product involved and determine material behavior based on available information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
5.	Determine the minimum personal protective equipment required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
6.	Implement product control measures as indicated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
7.	Evaluate the status of the actions taken in accomplishing the response objectives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
8.	Communicate the status of the response in accordance with local policy and procedure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
9.	Perform tasks assigned as identified in the action plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
10.	Evaluate the progress of the actions taken at a hazardous materials/WMD incident to insure that the response objectives are being met safely, effectively, and efficiently by evaluating status of actions taken in accomplishing the response objectives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Overall Skill Sheet Performance Outcome		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Evaluator Comments _____

Retest Approved by _____

Evaluator (Print & Sign) Candidate Signature Date

Retest Evaluator (Print & Sign) Candidate Signature Date

Candidate Name _____ Skill Sheet HMO 2

IFSAC ID _____ Date _____

NFPA STANDARD: 472, 2013 Edition		JPR: 5.1.2.2, 5.5.2, 6.6.3.1, 6.2.1.2		Hazardous Materials – Fire	
TASK: Given a scenario involving hazardous materials, the candidate shall implement a response in accordance with SOP/SOG; evaluate progress to safely meet objectives; survey the incident to identify containers involved; collect hazard and response information; and communicate the status of response through chain of command.					
PERFORMANCE OUTCOME: The candidate shall 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 all tasks correctly.					
CONDITIONS: Given a scenario involving known hazardous materials in a container, interpret the hazard and response information obtained from the current edition of the North American Emergency Response Guidebook, safety data sheet (SDS) or material safety data sheets (MSDS), CHEMTREC/CANUTEC/SETIQ, and/or shipper/manufacturer contracts.					
No.	TASK STEPS	FIRST TEST		RETEST	
		Pass	Fail	Pass	Fail
1.	Establish and enforce scene control procedures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Establish means of evidence preservation, as indicated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Initiate incident management system according to National Incident Management System (NIMS)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	Identify the type of container and the product involved and determine material behavior based on available information	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	Determine the minimum personal protective equipment required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	Implement product control measures as indicated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	Evaluate the status of the actions taken in accomplishing the response objectives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	Communicate the status of the response in accordance with local policy and procedure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	Perform tasks assigned as identified in the action plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	Notify the incident commander and other response personnel about critical emergency conditions at the incident, as indicated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall Skill Sheet Performance Outcome		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Candidate Name _____ Skill Sheet HMO 3

IFSAC ID _____ Date _____

NFPA STANDARD: 472, 2013 Edition		JPR: 5.2.1.1		Surveying the Hazardous Materials/WMD Incident	
TASK: Given three examples each of a liquid, gas, and solid hazardous materials or WMD, including various hazard classes, operations level personnel shall identify the general shapes of containers in which hazardous materials/WMD are typically found.					
PERFORMANCE OUTCOME: The candidate will identify three examples each of liquid, gas, and solid hazardous materials or WMD containers.					
CONDITIONS: Given diagrams or pictures of each type.					
No.	TASK STEPS	FIRST TEST		RETEST	
		Pass	Fail	Pass	Fail
	The candidate will correctly identify the following:				
1.	Liquid Container	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Gas Container	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Solid Container	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall Skill Sheet Performance Outcome		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NFPA STANDARD: 472, 2013 Edition		JPR: 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, and 5.2.1.1.7		Analyze the Incident – Container Identification			
TASK: Given examples of hazardous materials/WMD containers, the operations level responder shall identify all selected containers by the AHJ:							
PERFORMANCE OUTCOME: The candidate shall correctly identify all containers presented.							
CONDITIONS: Given pictures or diagrams of each selected container.							
No.	TASK STEPS	FIRST TEST		RETEST			
		Pass	Fail	Pass	Fail		
Test Control Officer shall select eight (8) of the following containers for final certification examination: Check Containers Selected							
1.	Tank Cars 5.2.1.1.1						
	<input type="checkbox"/> Non-Pressure Tank Cars <input type="checkbox"/> Pressure Tank Cars <input type="checkbox"/> Cryogenic Liquid Tank Cars	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Intermodal Tanks 5.2.1.1.2						
	<input type="checkbox"/> Non Pressure Intermodal Tanks <input type="checkbox"/> Pressurized Intermodal Tanks <input type="checkbox"/> Cryogenic Intermodal Tanks <input type="checkbox"/> Tube Modules	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Cargo Tanks 5.2.1.1.3						
	<input type="checkbox"/> Compressed Gas Tube Trailers <input type="checkbox"/> Corrosive Liquid Cargo Tanks <input type="checkbox"/> Cryogenic Liquid Cargo Tanks <input type="checkbox"/> Dry Bulk Cargo Tanks <input type="checkbox"/> High Pressure Cargo Tanks <input type="checkbox"/> Low Pressure Chemical Cargo Tanks <input type="checkbox"/> Non Pressure Liquid Cargo Tanks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	Storage Tanks 5.2.1.1.4						
	<input type="checkbox"/> Cryogenic Liquid Storage Tanks <input type="checkbox"/> Non-Pressure Storage Tanks <input type="checkbox"/> Pressure Storage Tanks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	Non-Bulk Packages 5.2.1.1.5						
	<input type="checkbox"/> Bags <input type="checkbox"/> Carboys <input type="checkbox"/> Cylinders <input type="checkbox"/> Drums <input type="checkbox"/> Dewar Flasks (Cryogenic Liquids)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	Containers or Packages 5.2.1.1.6						
	<input type="checkbox"/> Intermediate Bulk Containers <input type="checkbox"/> Ton Containers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

No.	TASK STEPS	FIRST TEST		RETEST			
		Pass	Fail	Pass	Fail		
7.	Radioactive Materials Containers 5.2.1.1.7						
	<input type="checkbox"/> Excepted Radioactive Material Containers <input type="checkbox"/> Industrial Radioactive Containers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/> Type A Radioactive Containers <input type="checkbox"/> Type B Radioactive Containers <input type="checkbox"/> Type C Radioactive Containers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall Skill Sheet Performance Outcome		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Candidate Name _____ Skill Sheet HMO 5

IFSAC ID _____ Date _____

NFPA STANDARD: 472, 2013 Edition		JPR: 5.2.1.2.1, 5.2.1.2.2, 5.2.1.2.3		Analyze the Incident – Container Identification			
TASK: Given examples of hazardous materials/WMD containers, the operations level responder shall identify all selected containers by the AHJ:							
PERFORMANCE OUTCOME: The candidate shall correctly identify all containers presented.							
CONDITIONS: Given pictures or diagrams of each selected container.							
NO.	TASK STEPS	FIRST TEST		RETEST			
		Pass	Fail	Pass	Fail		
1.	Marked Transport Vehicles 5.2.1.2.1						
	a. Highway Transport Vehicles, Including Cargo Tanks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	b. Intermodal Equipment, Including Tank Cars/Containers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	c. Rail Transport Vehicles, Including Tank Cars	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2.	Facility Containers 5.2.1.2.2						
	a. Product # 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	b. Product # 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	c. Product # 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
3.	Pipeline Markers 5.2.1.2.3						
	a. Emergency Telephone Number	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	b. Owner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	c. Product	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Overall Skill Sheet Performance Outcome		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Candidate Name _____ Skill Sheet HMO 6

IFSAC ID _____ Date _____

NFPA STANDARD: 472, 2013 Edition		JPR: 5.2.1.3.2		Analyzing the Incident – Pesticides			
TASK: Given a pesticide label , the first responder shall identify and give the significance of: 1) the active ingredient; 2) the hazard statement; 3) the name of the pesticide; 4) EPA Registration Number; 5) precautionary statement; 6) signal word.							
PERFORMANCE OUTCOME: The candidate shall identify the pieces of information on a pesticide label and match these to its significance in surveying the hazardous materials incident.							
CONDITIONS: Given a pesticide label or copy of a pesticide label and a list of things to identify.							
NO.	TASK STEPS	FIRST TEST		RETEST			
		Pass	Fail	Pass	Fail		
	The candidate will correctly identify the following:						
1.	The name of the active ingredient	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2.	The name of the hazard statement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
3.	The name of the pesticide	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4.	The EPA Registration Number	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
5.	The name of the precautionary statement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
6.	The name of the signal word	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
7.	Relay significance of the information gathered to evaluator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Overall Skill Sheet Performance Outcome		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Candidate Name _____ Skill Sheet HMO 7

IFSAC ID _____ Date _____

NFPA STANDARD: 472, 2013 Edition		JPR: 5.2.2(2), 5.2.2(3)		Analyze the Incident – Chemical	
TASK: Given a Material Safety Data Sheet (MSDS)/Safety Data Sheet (SDS) , the operations first responder shall:					
1. Verbally identify 2 ways to obtain an MSDS/SDS in an emergency					
2. Identify the following: 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 or leaks); i) applicable control measures, including PPE; j) emergency first aid procedures					
PERFORMANCE OUTCOME: The candidate will correctly give the following information from a MSDS/SDS and verbally identify 2 ways to obtain an MSDS in an emergency.					
CONDITIONS: Given a scenario involving Hazardous Materials/WMD, a MSDS/SDS, a current edition of the North American Emergency Response Guidebook, shipping papers, and a list of materials to identify.					
NO.	TASK STEPS	FIRST TEST		RETEST	
		Pass	Fail	Pass	Fail
	The candidate will correctly identify the following:				
1.	Physical and chemical characteristics (boiling point, specific gravity and/or vapor density, appearance/physical state, odor, flash point, vapor pressure, flammable range, water solubility)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Physical hazards of the chemical	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Health hazards of the chemical	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	Signs and symptoms of exposure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	Routes of entry to the body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	Permissible exposure limits of the chemical (PEL/PEL-C, TLV/TWA, STEL, IDLH, LC50/LC50)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	The responsible party contact	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	Precautions for safe handling (including hygiene practices, protective measures, and procedures for cleanup of spills or leaks)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	Applicable control measures, including PPE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.	The emergency first aid procedures for the chemical	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.	Two (2) ways to obtain an MSDS in an emergency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall Skill Sheet Performance Outcome		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Candidate Name _____ Skill Sheet HMO 8

IFSAC ID _____ Date _____

NFPA STANDARD: 472, 2013 Edition		JPR: 5.1.2.2(1)(c), 5.1.2.2 (3)(e), 5.4.1(4), 6.2.4.1		Emergency Decontamination			
TASK: Demonstrate the ability to perform emergency decontamination on a contaminated victim.							
PERFORMANCE OUTCOME: The candidate shall be able to remove a victim from the contaminated area and properly implement emergency decontaminate procedures.							
CONDITIONS: Given a simulated contaminated person and a scenario, the candidate shall demonstrate the ability to:							
NO.	TASK STEPS	FIRST TEST		RETEST			
		Pass	Fail	Pass	Fail		
1.	Identify the proper emergency decontamination procedure based on the Emergency Response Guide	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2.	Ensure all responders involved in control functions don appropriate PPE to perform emergency decontamination operations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
3.	Remove the victim from the contaminated area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4.	Immediately wash any contaminated clothing or exposed body parts by flooding with water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
5.	Remove the victim's clothing and/or PPE quickly. If necessary, cut articles of clothing from the top of the body down to minimize contamination spread.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
6.	Implement head-to-toe rinse, wash, rinse cycle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
7.	Transfer victim on to medical personnel and communicate the hazard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
8.	Decontaminate tools	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Overall Skill Sheet Performance Outcome		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Candidate Name _____ Skill Sheet HMO 9

IFSAC ID _____ Date _____

NFPA STANDARD: 472, 2013 Edition		JPR: 6.2.1.2, 6.2.4.1(3), 6.2.4.1(5), 6.6.1.2.2		Don and Doff PPE and Respiratory Protection			
TASK: Demonstrate the ability to don personal protective equipment (PPE) with respiratory protection, work in a contaminated area (simulated), and doff the equipment provided to support mission-specific tasks.							
PERFORMANCE OUTCOME: The candidate shall demonstrate the ability to correctly don PPE and respiratory protection, work in a contaminated area, exit the contaminated area, and doff gear in accordance with AHJ policies and procedures.							
CONDITIONS: Given a simulated hazardous materials environment, the candidate shall demonstrate the ability to complete all task steps using Personal Protective Equipment, SCBA, and decontamination materials according to AHJ policies and procedures.							
NO.	TASK STEPS	FIRST TEST		RETEST			
		Pass	Fail	Pass	Fail		
1.	Select and confirm adequate personal protective equipment and SCBA is appropriate for the product or substance involved	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2.	Correctly don personal protective clothing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
3.	Correctly don respiratory protection.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4.	Verify all personal protective clothing correctly is in place	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
5.	Perform work as assigned	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
6.	Complete decontamination and doffing procedures in accordance with local AHJ policy and procedure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Overall Skill Sheet Performance Outcome		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Candidate Name _____ Skill Sheet HMO 10

IFSAC ID _____ Date _____

NFPA STANDARD: 472, 2013 Edition		JPR: 6.2.4.1(3), 6.2.4.1(4)		Undergoing Technical Decontamination			
TASK: Demonstrate local procedures for operation level responders undergoing the technical decontamination process.							
PERFORMANCE OUTCOME: The candidate shall demonstrate the ability to correctly don Personal Protective Equipment (PPE) and respiratory protection, work in a contaminated area, exit the contaminated area, and doff gear in accordance with AHJ policies and procedures of technical decontamination.							
CONDITIONS: Given a simulated hazardous materials environment and a decontamination corridor, the candidate shall demonstrate the ability to undergo technical decontamination.							
No.	TASK STEPS	FIRST TEST		RETEST			
		Pass	Fail	Pass	Fail		
1.	Enter the decontamination corridor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2.	Drop tools in collection container	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
3.	Undergo gross decontamination	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4.	Undergo secondary decontamination wash	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
5.	Remove outer PPE, place in waste container	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
6.	Remove respiratory protection, removing face piece last (Note: Steps 5 & 6 may need to be reversed depending on PPE worn)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
7.	Remove undergarments (as appropriate)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
8.	Shower and wash thoroughly from the top down	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
9.	Monitor for additional contamination using the appropriate detection device (Note: If contamination is detected, repeat decontamination wash and/or change method as appropriate)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
10.	Proceed to medical evaluation station	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Overall Skill Sheet Performance Outcome		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Candidate Name _____ Skill Sheet HMO 11

IFSAC ID _____ Date _____

NFPA STANDARD: 472, 2013 Edition		JPR: 6.2.1.2, 6.2.4.1(5), 6.2.5.1		Reporting and Documenting the Incident – Maintain PPE and SCBA			
TASK: Demonstrate the ability to don personal protective equipment (PPE) with respiratory protection, work in a contaminated area (simulated), and doff the equipment provided to support mission-specific tasks.							
PERFORMANCE OUTCOME: The candidate shall demonstrate the ability to correctly don PPE and respiratory protection, work in a contaminated area, exit the contaminated area, and doff gear in accordance with AHJ procedure.							
CONDITIONS: Given a simulated hazardous materials environment, the candidate shall demonstrate the ability to complete all task steps using Personal Protective Equipment, SCBA, and decontamination materials according to Authority Having Jurisdiction (AHJ).							
No.	TASK STEPS	FIRST TEST		RETEST			
		Pass	Fail	Pass	Fail		
1.	Wash SCBA/respirator with manufacturer recommended cleaner/disinfectant and rinse completely with water and air dry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2.	Clean equipment with damp cloth or according to department policies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
3.	Check straps and backpack assembly (SCBA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4.	Check condition and hydrostatic test date of cylinder (SCBA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
5.	Turn cylinder valve on fully and compare that both gauges are within 100 psi (low pressure) to 200 psi (high pressure) of each other (SCBA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
6.	Check regulator operation by connecting to face piece and breathing (SCBA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
7.	Check face piece and exhalation valve by inhaling & exhaling (SCBA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
8.	Check by-pass operation and ensure by-pass is in the off position after testing (SCBA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
9.	Check low pressure alarm while bleeding the air line (SCBA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
10.	Return all straps, valves, and components back to ready state (SCBA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
11.	Check the air cylinder is in off position and at least 90% to full (SCBA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
12.	Remove from service and notify supervisor if irregularities are found	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
13.	Complete reports and documentation pertaining to equipment use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Overall Skill Sheet Performance Outcome		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Candidate Name _____ Skill Sheet HMO 12

IFSAC ID _____ Date _____

NFPA STANDARD: 472, 2013 Edition		JPR: 6.6.1.2, 6.6.3.1, 6.6.4.1		Defensive Product Control Measures			
TASK: 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 requirements as prescribed by the AHJ:							
PERFORMANCE OUTCOME: The candidate will successfully demonstrate each of the abilities identified within the checklist.							
CONDITIONS: The candidate shall complete the following: using Personal protective equipment, self-contained breathing apparatus (SCBA), shovels/hand tools, adsorbent pads/material, tarps/salvage cover, sandbags, fire hose, and water supply. Other equipment/materials may be used based on local resources.							
No.	TASK STEPS	FIRST TEST		RETEST			
		Pass	Fail	Pass	Fail		
	Evaluator shall select two of the following tasks for final certification examination:						
1.	<input type="checkbox"/> Absorption Examples: <i>absorbent pads, saw dust, diatomaceous earth, gelling agent</i>						
	a. Use common, available materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	b. Avoid contact with the hazardous material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	c. Ensure drains do not become contaminated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	d. Ensure hazardous material is absorbed into absorbent material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
2.	<input type="checkbox"/> Damming Examples: <i>sand, dirt, salvage cover, absorbent pads, sewer-storm drain plugs</i>						
	a. Use common, available materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	b. Avoid contact with the hazardous material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	c. Ensure dam is not breached	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
3.	<input type="checkbox"/> Diking Examples: <i>dirt, sand bags, absorbent pads, clay</i>						
	a. Use common, available materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	b. Avoid contact with the hazardous material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	c. Form a "v" and a "circle" dike	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	d. Ensure hazardous material does not enter drains or manholes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
4.	<input type="checkbox"/> Dilution Examples: <i>applied water stream to dilute substance</i>						
	a. Use common, available materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	b. Avoid contact with the hazardous material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	c. Ensure the hazardous material is water soluble	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
	d. Do NOT overflow retention pond of hazardous material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

No.	TASK STEPS	FIRST TEST		RETEST	
		Pass	Fail	Pass	Fail
5.	<input type="checkbox"/> Diversion Examples: <i>hovels or high pressure water steams, sand bags</i>				
	a. Use common, available materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	b. Avoid contact with the hazardous material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	c. Ensure hazardous material is diverted away from drains and waterways	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	d. Make sure the hazardous material does NOT breach the diversion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	<input type="checkbox"/> Retention Examples: <i>salvage cover catch-all basin, earthen dams, floating confinement boom, temporary patches on containers</i>				
	a. Define the purpose of retention	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	b. Use common, available materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	c. Avoid contact with the hazardous material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	d. Ensure product flow does not exceed retention area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	<input type="checkbox"/> Vapor Dispersion Examples: <i>water streams, fans</i>				
	a. Avoid contact with the hazardous material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	b. Eliminate ignition sources, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	c. Use water spray or fans to control dispersion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	d. Move vapors away from threatened area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	<input type="checkbox"/> Remote Valve Shut-off				
	a. Avoid contact with the hazardous material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	b. Eliminate ignition sources, if applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	c. Manipulate valve as instructed to control the flow of the product	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall Skill Sheet Performance Outcome		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

HAZARDOUS MATERIALS OPERATIONS

Candidate Name _____ Skill Sheet HMO 13

IFSAC ID _____ Date _____

NFPA STANDARD: 472, 2013 Edition	JPR: 6.6.3.1; 6.6.4.1(1), 6.6.4.1(3)	Application of Foam			
TASK: Using class B foam or simulated vapor suppressing agent and foam equipment furnished by the AHJ, demonstrate the proper application of the fire-fighting foam(s) or vapor suppressing agent(s) on a spill or fire involving hazardous materials.					
PERFORMANCE OUTCOME: The candidate shall demonstrate the ability to properly apply firefighting foam or a vapor suppressing agent. The agent application should be sufficient to prevent re-ignition, and provide safety to the team at all times.					
CONDITIONS: Given a hazardous materials scenario, the candidate shall demonstrate the ability to:					
No.	TASK STEPS	FIRST TEST		RETEST	
		Pass	Fail	Pass	Fail
1.	Approach the spill or fire from uphill and upwind	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Coordinate the attack team's advancement toward the fire so that a smooth and safe approach is maintained	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Set nozzle to correct pattern (<i>and GPM flow, if applicable</i>)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	Use correct application procedures to effectively control vapors or fire	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	Demonstrate application of a foam blanket over a fuel spill using one of the following techniques. Check the selected method. <input type="checkbox"/> Roll on method <input type="checkbox"/> Bank down method <input type="checkbox"/> Rain down method	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.	Apply properly proportioned foam to the surface of the fuel and create and maintain a foam blanket	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.	Extinguish the fire and prevent re-ignition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	Maintain team protection with a foam stream	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.	Face the hazard until the team has completely retreated to a safe haven	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall Skill Sheet Performance Outcome		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Evaluator Comments _____

Retest Approved by _____

Evaluator (Print & Sign)

Candidate Signature

Date

Retest Evaluator (Print & Sign)

Candidate Signature

Date

Directions: Write the correct letter on the blank before each question.

How are hazardous materials incidents different from other emergencies?

- A. Other emergencies may be extremely difficult to contain.
- B. Hazardous materials can be dangerous in many different ways.
- C. Hazardous materials incidents are always the result of an accident.
- D. Other emergencies may require specialized equipment, procedures, and PPE.

Which of the following first responders can perform ONLY defensive tasks?

- A. Technician
- B. Branch Officer
- C. Operations Core
- D. Operations Mission-Specific

Cold thermal hazards are a danger when working with:

- A. gamma rays.
- B. alpha particles.
- C. cryogenic gases.
- D. combustible gases.

Which radiological hazards lose energy rapidly in matter and do not penetrate very far?

- A. Neutrons
- B. Gamma rays
- C. Beta particles
- D. Alpha particles

Which radiological hazards have neither a charge nor a mass?

- A. Neutrons
- B. Gamma rays
- C. Beta particles
- D. Alpha particles

Which of the following are small amounts of radiation received over a long period of time?

- A. Cryogenics
- B. Carcinogens
- C. Acute radiation doses
- D. Chronic radiation doses

Which of the following are substances that prohibit the body from using oxygen?

- A. Toxic asphyxiants
- B. Simple asphyxiants
- C. Chemical asphyxiants
- D. Radiological asphyxiants

Strychnine is an example of a:

- A. irritant.
- B. sensitizer.
- C. convulsant.
- D. carcinogen.

Which of the following are poisons produced by living organisms?

- A. Viral agents
- B. Bacterial agents
- C. Biological toxins
- D. Infectious diseases

Which EPA regulation created a tax on chemical and petroleum industries?

- A. SARA
- B. RCRA
- C. EPCRA
- D. CERCLA

Which governmental agency includes FEMA and the U.S. Coast Guard?

- A. EPA
- B. DoD
- C. DHS
- D. OSHA

_____	<p>Which Canadian agency is tasked with assessing and managing the risks associated with toxic substances?</p> <p>A. Transport Canada B. Environment Canada C. Canadian Department of Labour D. Canadian Nuclear Safety Commission</p>	<p>A. 14.5 to 25.4 (169 to 175) {1.69 to 1.75} B. 25.4 to 100 (175 to 689) {1.75 to 6.9} C. 50 to 250 (345 to 1 724) {3.45 to 17.2} D. 100 to 500 (689 to 3 447) {6.9 to 34.5}</p>
_____	<p>Which of the following materials is MOST likely to be involved in a hazardous materials incident?</p> <p>A. Irritants B. Allergens C. Corrosives D. Carcinogens</p>	<p>Which of the following vessel cargo carriers are box-shaped, flat-decked vessels used for transporting cargo?</p> <p>A. Barges B. Cargo vessels C. Chemical carriers D. Petroleum carriers</p>
_____	<p>What terms are used to define capacity by the U.S. DOT and TC?</p> <p>A. Bulk and nonbulk B. Pressure and nonpressure C. Bulk-capacity and transportation-capacity D. Fixed-facility and transportation packaging</p>	<p>Which of the following containers for radioactive materials provide shielding against radiation?</p> <p>A. Type A B. Type B C. Type C D. Type D</p>
_____	<p>To be considered bulk packaging, the maximum net mass is greater than ___ pounds (kg) as a receptacle for a solid.</p> <p>A. 500 (227) B. 672 (305) C. 750 (340) D. 882 (400)</p>	<p>Which UN hazard class includes flammable liquids?</p> <p>A. Class 3 B. Class 4 C. Class 5 D. Class 6</p>
_____	<p>Pressure storage tanks have pressures of ___ psi (kPa) {bar} or greater.</p> <p>A. 15 (103) {1.03} B. 25 (172) {1.72} C. 35 (241) {2.4} D. 45 (310) {3.1}</p>	<p>DOT placards are ___ shaped.</p> <p>A. oval B. circular C. diamond D. rectangular</p>
_____	<p>Where are fittings located on a cryogenic liquid tank car?</p> <p>A. At the sides of the car B. Visible at the top and/or bottom of the car C. In ground-level cabinets on sides of the car D. Out of sight under protective housing on top of the tank</p>	<p>Which of the following is a difference between Canadian and U.S. placards, labels, and markings?</p> <p>A. Canadian transport placards will be written only in French. B. The United States requires a unique placard for anhydrous ammonia. C. Canadian subsidiary labels and placards will not have the class number on them. D. Canadian transport placards always have signal words written on them.</p>
_____	<p>IM 102 portable intermodal tanks are designed to handle maximum allowable working pressures of ___ psi (kPa) {bar}.</p>	<p>Which North American railroad tank car markings indicate the standards to which the tank car was built?</p> <p>A. Volume stencils</p>

- B. Reporting marks
- C. Capacity stencils
- D. Specification markings

information regarding
specific chemicals

What does the color white indicate on an NFPA® 704 marker?

- A. Health
- B. Instability
- C. Flammability
- D. Special hazards

Which of the following is a visual clue that CHEMICAL actions and reactions are taking place?

- A. Rainbow sheet on water surfaces
- B. Wavy vapors over a volatile liquid
- C. Containers deformed by the force of an accident
- D. Spattering or boiling of unheated materials

Where are pipeline markers required?

- A. Where pipelines cross under roads
- B. Where pipelines come near waterways
- C. Where pipelines run parallel to railroads
- D. Where pipelines run for stretches longer than 1 mile (km)

Which of the following is the difference between hazardous materials incidents and terrorist incidents?

- A. Hazardous materials incidents specifically target people.
- B. Terrorist incidents have a lower risk of contaminated victims.
- C. Terrorists specifically target the public, first responders, or both.
- D. Hazardous materials incidents typically have a higher level of risk from structural collapse hazards.

Pesticide labels must include the term EXTREMELY FLAMMABLE if the contents have a flash point below ____°F (°C).

- A. 50 (10)
- B. 60 (16)
- C. 70 (21)
- D. 80 (27)

Predetermined procedures must be written and required to be effective.

- A. True
- B. False

What does the color blue indicate in the ANSI Z535.1 standard?

- A. Caution
- B. Danger or stop
- C. Safety equipment
- D. Safety information signage

Predetermined procedures are based on those things that are different about hazardous materials incidents.

- A. True
- B. False

Which of the following best describes the *Emergency Response Guidebook (ERG)*?

- A. Document containing information about locations of materials within a facility
- B. Guide to aid emergency responders in quickly identifying the specific or generic hazards of materials involved in an emergency incident
- C. Detailed information bulletin prepared by the manufacturer or importer of a chemical that provides specific information about the product
- D. Document that must accompany shipments of hazardous materials that include shipping and hazard

Notification requirements should be defined in predetermined procedures.

- A. True
- B. False

The *Emergency Response Guidebook (ERG)* is designed for use at ____ incidents.

- A. pipeline
- B. highway
- C. terrorist
- D. fixed-facility

_____ Which section of the *ERG* provides an index list of hazardous materials in numerical order of ID number?

- A. Blue index
- B. Green index
- C. Yellow index
- D. Orange index

_____ Which section of the *ERG* provides an index of dangerous goods in alphabetical order by material name?

- A. Blue index
- B. Green index
- C. Yellow index
- D. Orange index

_____ Which section of the initial action guide of the *ERG* should be consulted first?

- A. First aid
- B. Evacuation
- C. Potential hazards
- D. Protective clothing

_____ A small spill is one that involves a small package up to ___ gallons (L).

- A. 45 (170)
- B. 55 (208)
- C. 65 (246)
- D. 75 (284)

_____ Information regarding emergency response centers is provided on the ___ pages of the *ERG*.

- A. red
- B. green
- C. white
- D. yellow

_____ Which of the following emergency response centers is NOT government operated?

- A. SETIQ
- B. CANUTEC
- C. CENACOM
- D. CHEMTREC®

_____ How are hazardous materials incidents different from other emergencies?

- A. Haz mat incidents are easier to detect.
- B. Other emergencies may be difficult to detect.
- C. Other emergencies involve specialized equipment.
- D. Haz mat incidents may be extremely difficult to contain.

_____ Which OSHA requirements pertain to training of hazardous materials responders?

- A. CFR 311
- B. CFR 411
- C. Title 29 CFR
- D. Title 40 CFR

_____ Which NFPA® standards pertain to the training of hazardous materials responders?

- A. NFPA® 472
- B. NFPA® 1001
- C. NFPA® 1021
- D. NFPA® 1030

_____ Which NFPA® level of training includes the core competencies or beyond?

- A. Awareness
- B. Operations
- C. Technician
- D. Branch Officer

_____ Which of the following is an OSHA level of hazardous materials responders? (13)

- A. Hazardous Materials Specialist
- B. Hazardous Materials Branch Officer
- C. Hazardous Materials Branch Safety Officer
- D. Hazardous Materials Incident Commander

_____ Which of the following levels can perform ONLY defensive tasks?

- A. Specialist
- B. Technician
- C. Operations Core
- D. Operations Mission-Specific

_____ Which of the following is a responsibility of Awareness-Level personnel?

- A. Identify actions to protect themselves and others from hazards
- B. Analyze an incident to determine the nature and extent of the problem
- C. Develop a defensive plan of action to address the problems presented by the incident
- D. Evaluate the progress of the actions taken to ensure that response objectives are safely met

Which of the following is a responsibility of Operations-Level personnel ONLY?

- A. Recognize the type of container at a site
- B. Recognize the presence or potential presence of hazardous materials
- C. Transmit information to an appropriate authority and call for appropriate assistance
- D. Implement the planned response to mitigate or control a release from a safe distance and keep it from spreading

Cold temperatures are a danger when working with:

- A. cryogenic gases.
- B. combustible liquids.
- C. flammable materials.
- D. radiological materials.

The U.S. DOT defines elevated-temperature materials as those in a liquid phase at a temperature at or above:

- A. 38°F (3°C).
- B. 100°F (38°C).
- C. 212°F (100°C).
- D. 464°F (240°C).

What are alpha particles?

- A. High-energy photons
- B. Ultrahigh energy particles that have a physical mass but have no electrical charge
- C. Energetic, positively charged particles emitted from the nucleus during radioactive decay
- D. Fast-moving, positively or negatively charged electrons emitted from the nucleus during radioactive decay

Which radiological hazards are usually completely blocked by the outer dead layer of human skin?

- A. Neutrons
- B. Gamma rays
- C. Beta particles
- D. Alpha particles

Which radiological hazards are capable of penetrating skin and can travel appreciable distances in air?

- A. Neutrons
- B. Gamma rays

- C. Beta particles
- D. Alpha particles

Which radiological hazards have neither a charge nor a mass and require at least two feet of concrete or earth to stop?

- A. Neutrons
- B. Gamma rays
- C. Beta particles
- D. Alpha particles

Which radiological hazards are produced by fission reactions and are difficult to measure in the field?

- A. Neutrons
- B. Gamma rays
- C. Beta particles
- D. Alpha particles

Which of the following is an exposure to radiation received in a short period of time?

- A. Acute radiation doses
- B. Atomic radiation doses
- C. Chronic radiation doses
- D. Carcinogenic radiation doses

Which of the following are gases that displace the oxygen necessary for breathing?

- A. Toxic asphyxiants
- B. Simple asphyxiants
- C. Chronic asphyxiants
- D. Chemical asphyxiants

The likelihood of an adverse health effect occurring depends on the ____ of the chemical.

- A. size
- B. toxicity
- C. proximity
- D. corrosivity

Which types of poisonous chemicals disrupt nerve impulses?

- A. Irritants
- B. Neurotoxins
- C. Simple asphyxiants
- D. Chemical asphyxiants

Which of the following chemicals comprise the largest usage class in the industry?

- A. Irritants
- B. Corrosives
- C. Toxic chemicals
- D. Poisonous chemicals

<hr/>	<p>Which of the following is a chemical that ionizes to yield hydrogen ions in water?</p> <p>A. Acids B. Bases C. Neutrals D. Oxidizers</p>	
<hr/>	<p>Which corrosives can cause severe eye damage?</p> <p>A. Acids B. Bases C. Neutrals D. Oxidizers</p>	<p>A. Seismic effect B. Blast pressure wave C. Shrapnel fragmentation D. Incendiary thermal effect</p>
<hr/>	<p>Which of the following are toxins that cause temporary but sometimes severe inflammation of the eyes, skin, or respiratory system?</p> <p>A. Irritants B. Corrosives C. Convulsants D. Carcinogens</p>	<p>Which route of entry includes taking in materials by breathing through the nose or mouth?</p> <p>A. Ingestion C. Inhalation D. Skin contact</p>
<hr/>	<p>Which of the following is a known carcinogen?</p> <p>A. Urushiol B. Strychnine C. Carbamates D. Polyvinyl chloride</p>	<p>Entry through skin contact is easier if the skin is:</p> <p>B. wet. C. sensitive. D. sunburned.</p>
<hr/>	<p>Which types of etiological hazards are the simplest types of microorganisms that can only replicate themselves in the living cells of their hosts?</p> <p>A. Rickettsia B. Viral agents C. Bacterial agents D. Biological toxins</p>	<p>Title 49 CFR is sometimes referred to as:</p> <p>A. <i>Hazardous Materials Policies.</i> C. <i>Hazardous Materials Legislation.</i> D. <i>Hazardous Materials Regulations.</i></p>
<hr/>	<p>Which of the following etiological hazards are poisons produced by living organisms?</p> <p>A. Rickettsia B. Viral agents C. Bacterial agents D. Biological toxins</p>	<p>Which of the following created a tax on chemical and petroleum industries?</p> <p>A. Environmental Protection Agency B. (OSHA) C. Superfund Amendments and Reauthorization Act (SARA) D. (CERCLA)</p>
<hr/>	<p>Which of the following mechanical hazards is the result of an explosion, bomb, or IED?</p> <p>A. Striking hazards B. Friction hazards C. Trauma hazards D. Abrasive hazards</p>	<p>Which of the following is a characteristic of SARA?</p> <p>A. Gave the EPA the authority to control hazardous waste B. Increased the focus on human health problems posed by hazardous waste sites C. Required each state to appoint a State Emergency Response Commission (SERC) D. Established a trust fund to provide for cleanup when no responsible party could be identified</p>
<hr/>	<p>Which explosion hazard is the primary reason for injuries and damage?</p>	<p>Who enables the EPA to address environmental problems that could result from underground tanks storing hazardous substances?</p> <p>A. Toxic Substances Control Act (TSCA)</p>

- B. Local Emergency Planning Committee (LEPC)
- C. Resource Conservation and Recovery Act (RCRA)
- D. Environmental Protection and Community Right-to-Know Act (EPCRA)

- C. Federal Bureau of Investigation (FBI)
- D. Department of Defense Explosives Safety Board (DDESB)

Which of the following was designed to ensure that information about chemical hazards and associated protective measures is disseminated to workers and employers?

Which of the following evaluates potential risks of environmental pollutants and toxic substances?

- A. HAZWOPER
- B. Department of Labor (DOL)
- C. Process Safety Management (PSM)
- D. Hazardous Communication Standard (HCS)

- A. Hazardous Products Act
- B. Pest Control Products Act
- C. Transport Dangerous Goods (TDG) Directorate
- D. Canadian Environmental Protection Act (CEPA)

Which of the following information is included in Title 10 *CFR* 20, *Standards for Protection Against Radiation*?

Which of the following materials is MOST likely to be involved in hazardous materials incidents and accidents?

- A. Requirements for notifying the public about radiation areas
- B. Radiation dose limits for workers and members of the public
- C. Distances for housing additions from nuclear storage facilities
- D. Requirements for shipping/transporting of radioactive materials

- A. Allergens
- B. Corrosives
- C. Sensitizers
- D. Poisonous chemicals

Which of the following materials is LEAST likely to be involved in hazardous materials incidents and accidents?

Which of the following agencies ensures that emergency response professionals are prepared for any situation in the event of a terrorist attack, natural disaster, or other large-scale emergency? (43)

- A. Chlorine
- B. Irritants
- C. Anhydrous ammonia
- D. Flammable/combustible liquids

Which mode of transportation is MOST likely to have a hazardous materials transportation incident?

- A. Department of Energy (DOE)
- B. Department of Defense (DoD)
- C. Department of Homeland Security (DHS)
- D. Federal Emergency Management Agency (FEMA)

- A. Air
- B. Rail
- C. Water
- D. Highway

Which agency maintains a database for hazardous substances emergency events?

Which of the following agencies enforces the federal laws and regulations relating to alcohol, tobacco products, firearms, explosives, and arson?

- A. U.S. Department of Transportation
- B. U.S. Department of Homeland Security
- C. U.S. Agency for Toxic Substances and Disease Registry
- D. U.S. Agency for Dangerous Goods and Hazardous Materials

- A. Department of Treasury
- B. Department of Justice (DOJ)

Which of the following is NOT one of the clues to the presence of hazardous materials?

- A. Container sizes

- B. Occupancy types
- C. Written resources
- D. Transportation placards

Which of the following can reduce the number of on-site decisions for first responders?

- A. Pre-incident surveys
- B. Accurate witness accounts
- C. Correct information from dispatch
- D. Effective use of the incident management system

Which of the following should be identified in pre-incident surveys?

- A. Locations of all means of egress
- B. Dangers of the hazardous materials
- C. List of responding organizations in the area
- D. Twenty-four-hour telephone numbers of all workers

Which of the following is LEAST likely to have large amounts of hazardous materials?

- A. Dry cleaners
- B. Lumberyards
- C. Fast-food restaurants
- D. Pest control companies

In which of the following roadway locations are hazardous materials accidents MOST likely to occur?

- A. Wide turns
- B. Steep grades
- C. Poorly paved roads
- D. Lightly traveled roads

In which of the following railway locations are hazardous materials accidents MOST likely to occur?

- A. Straight-aways
- B. Over roadways
- C. Sections of new tracks
- D. Steep grades and severe curves

In which of the following airway locations are hazardous materials accidents MOST likely to occur?

- A. Runways
- B. Terminals
- C. Fueling ramps

Which of the following statements regarding water level in rivers and tidal areas is MOST accurate?

- A. Tidal and flow conditions remain basically the same throughout the day.
- B. Many accidents occur because flow volume and tidal conditions were not considered.
- C. Once a material reaches an outside water source, it is much easier to contain, confine, and mitigate.
- D. Occupancies in low-lying areas should have a contingency plan to remove or destroy hazardous materials in case of flood.

Harm regarding terrorist targets should be defined in terms of all of the following EXCEPT:

- A. destroying property.
- B. damaging the economy.
- C. causing panic and/or disruption.
- D. affecting power and water supply.

Which of the following is LEAST likely to be a potential terrorist target?

- A. Campsite areas
- B. Mass transportation
- C. Critical infrastructure
- D. Areas of public assembly

Which of the following is MOST likely a potential terrorist target?

- A. Boathouse
- B. Wildlife refuge
- C. Residential house
- D. Educational facility

To be considered bulk packaging, the maximum capacity is greater than ___ gallons (L) as a receptacle for a liquid.

- A. 100 (380)
- B. 119 (450)
- C. 154 (585)
- D. 196 (740)

What is the definition of nonbulk packaging?

- A. Packaging that is lighter than the criteria for bulk packaging
- C. Packaging that is larger than the maximum criteria for bulk packaging

- D. Packaging that is smaller than the minimum criteria for bulk packaging

Which of the following is a container found at fixed facilities?

- A. Railroad cars
B. Cargo tanks
C. Intermodal containers
D. Aboveground storage tanks

Nonpressure storage tanks have a maximum pressure of ____ psi (kPa) {bar}.

- A. 0.5 (3.45) {0.03}
B. 1 (7) {0.07}
C. 1.5 (10) {0.1}
D. 2 (14) {0.14}

Pressure vessels hold materials at pressures of ____ psi (kPa) {bar} or greater.

- A. 5 (34) {0.34}
B. 10 (69) {0.69}
C. 15 (103) {1.03}
D. 20 (138) {1.38}

Low-pressure tank cars transport what kind of materials?

- A. Only hazardous materials
B. Only nonhazardous materials
C. Only liquid nonhazardous materials
D. A variety of hazardous and nonhazardous materials

What shape are low-pressure tank cars?

- A. Cylindrical with flat ends
B. Cylindrical with rounded ends
C. Cylindrical with concave ends
D. Cylindrical, noncompartmentized, with concave ends

Pressure tank cars typically transport hazardous materials at pressures greater than ____ psi (kPa) {bar}.

- A. 10 (69) {0.69}
B. 15 (103) {1.03}
C. 20 (138) {1.38}
D. 25 (172) {1.72}

Which of the following statements regarding pressure tank cars is MOST accurate?

- A. Their fittings are visible at the sides of the car.
B. Their fittings are visible at the top and/or bottom of the car.
C. Their fittings are in ground-level cabinets on sides of the car.
D. Their fittings are out of sight under protective housing on top of the tank.

What types of materials may be carried in a cryogenic liquid tank car?

- A. Oxidizers
B. Flammable solids
C. Dry bulk materials
D. Liquefied natural gas

Which of the following government tank-safety specifications are most cargo tanks designed to meet?

- A. MC and DOT/TC standards
B. DOT/TC and NFPA® standards
C. DOT/TC and OSHA standards
D. International and domestic standards

Cargo tanks not meeting government tank-safety specifications are called ____ tanks.

- A. unspec
B. nonspec
C. unrequired
D. unconditioned

Which of the following is the definition of an intermodal container?

- A. Freight container used to transport hazardous materials via railroad
B. Freight container used to transport hazardous materials via highway
C. Freight container used interchangeably in multiple modes of transport
D. Refrigerated container used to transport low-temperature materials via water

Which of the following is the most common intermodal tank?

- A. Pressure intermodal tank
B. Dry bulk intermodal container

- C. Low-pressure intermodal tank
- D. Cryogenic liquid tank container

- B. Type B
- C. Excepted
- D. Industrial

_____ Which of the following vessel cargo carriers are not required to carry placards?

- A. Chemical carriers
- B. Petroleum carriers
- C. Cryogenic liquid carriers
- D. Liquefied flammable gas carriers

_____ Which of the following provides a uniform basis for development of harmonized regulations for all modes of transport?

- A. U.S. DOT
- B. Transport Canada
- C. UN Recommendations
- D. *Emergency Response Guidebook*

_____ Which type of cargo vessel has large holds to accommodate a wide range of products?

- A. Bulk carrier
- B. Container vessel
- C. Break bulk carrier
- D. Roll-on/roll-off vessel

_____ Which UN hazard class includes oxidizing substances and organic peroxides?

- A. Class 4
- B. Class 5
- C. Class 6
- D. Class 7

_____ Intermediate bulk containers have a maximum capacity of not more than ___ cubic meters (L; gal; ft³).

- A. 1 (1,000; 264; 35)
- B. 2 (2,000; 528; 70)
- C. 3 (3,000; 793; 106)
- D. 4 (4,000; 1 056; 141)

_____ What is included in UN Class 8?

- A. Explosives
- B. Corrosive substances
- C. Radioactive materials
- D. Toxic and infectious substances

_____ Ton containers are typically stored on:

- A. their ends.
- B. their sides.
- C. large barges.
- D. top of one another.

_____ The UN Recommendations on the Transport of Dangerous Goods assign a ___-digit identification number to each individual hazardous material.

- A. 1
- B. 2
- C. 3
- D. 4

_____ Which of the following is a container classified as nonbulk packaging?

- A. Pipeline
- B. Building
- C. Cylinder
- D. Machinery

_____ In North America, UN numbers must be displayed on:

- A. pipelines.
- B. military vehicles.
- C. cargo tank trucks.
- D. all nonbulk packages.

_____ Which type of container is used for radioactive materials that have very limited radioactivity and that present no risk to public or environment?

- A. Type B
- B. Type C
- C. Excepted
- D. Industrial

_____ A key to the UN identification numbers is provided in the ___-bordered pages of the *Emergency Response Guidebook (ERG)*.

- A. blue
- B. green
- C. yellow
- D. orange

_____ Which type of container is used to ship radioactive materials with relatively high specific activity levels?

- A. Type A

_____ DOT placards are ___-shaped.

- A. oval
- B. circular
- C. diamond

D. rectangular

DOT placards are required on which of the following items?

- A. MOTs
- B. ORM-Ds
- C. Flammable liquids
- D. Infectious substances

What size are DOT labels?

- B. 3.9 inch (100 mm) diamonds
- C. 9.3 inch (236 mm) squares
- D. 9.3 inch (236 mm) diamonds

Which of the following is a difference between Mexican transportation regulations and the U.S. HMR?

- A. Mexican placards will be written only in Spanish.
- B. The HOT mark used in the U.S. is not authorized in Mexico.
- C. Mexican standards require the use of the DANGEROUS placard.
- D. The United States does not authorize the ORM-D description as package marking.

Where are reporting marks found on railroad tank cars?

- A. Stamped into the tank heads
- B. Only on the ends of the tank car tank
- C. Only on the sides of the tank car tank
- D. Both sides and both ends of the tank car tank

NFPA® 704 is designated for which of the following situations? (133)

- A. Transportation
- B. General public use
- C. Indicating presence of hazardous materials at commercial facilities
- D. Explosives and blasting agents, including commercial explosive materials

On an NFPA® 704 marking, blue indicates:

- A. health.
- B. instability.
- C. flammability.

The Federal Hazardous Substances Act (FHSA) requires the signal word WARNING to indicate which degree of hazard?

- A. Minor health effects
- B. Highest degree of hazard
- C. Moderate hazards such as significant health effects
- D. In addition to DANGER on labels of highly toxic materials

Chemical Abstract Service® Numbers are assigned to which of the following products?

- A. Polymers
- B. Flammable liquids
- C. Combustible liquids
- D. Radioactive materials

Which of the following encourages the use of compatible hazard labels, SDSs, and other hazard communication information?

- A. NFPA® 704
- B. ISO Safety System
- C. Globally Harmonized System (GHS)
- D. Canadian Workplace Hazardous Materials Information System (WHMIS)

Which of the following statements regarding military markings is MOST accurate?

- A. Military markings are always uniform.
- B. Military markings are found on all buildings within a military base.
- C. Military markings are interchangeable with DOT and TC transportation markings.
- D. Military markings are used on fixed facilities and may be seen on military vehicles.

Where are pipeline markers required?

- A. Where pipelines cross under roads
- B. Where pipelines come near waterways
- C. Where pipelines run parallel to railroads
- D. Where pipelines run for stretches longer than 1 mile (1.6 km)

<hr/>	<p>Pesticide labels must contain the signal word CAUTION for pesticides with:</p> <ul style="list-style-type: none"> A. low toxicity. B. moderate toxicity. C. highly toxic materials. D. flash points below 80°F (27°C). 	<p>a hazardous materials incident.</p>
<hr/>	<p>What does the color orange indicate in the ANSI Z535.1 standard?</p> <ul style="list-style-type: none"> A. Stop B. Danger C. Caution D. Warning 	<p>Which of the following is a visual clue that PHYSICAL actions and reactions are taking place?</p> <ul style="list-style-type: none"> A. Exothermic heat B. Extraordinary fire conditions C. Rainbow sheen on water surfaces D. Unusual or unexpected temperature drop
<hr/>	<p>Which of the following must be found on shipping papers?</p> <ul style="list-style-type: none"> B. Manufacturer of material C. Proper shipping name of material D. Requirements for storage and disposal 	<p>Which of the following is a visual clue that CHEMICAL actions and reactions are taking place?</p> <ul style="list-style-type: none"> A. Frost or ice buildup near a leak B. Distinctively colored vapor clouds C. Wavy vapors over a volatile liquid D. Containers deformed by the force of an accident
<hr/>	<p>Which written resources are often the best sources of detailed chemical information to which firefighters have access?</p> <ul style="list-style-type: none"> A. Shipping papers B. Inventory records C. Safety data sheets (SDSs) D. <i>Emergency Response Guidebook (ERG)</i> 	<p>Which of the following is a physical sign and symptom of chemical exposure to hazardous materials?</p> <ul style="list-style-type: none"> A. Hair loss B. Hearing disturbances C. Foaming of the mouth D. Changes in respiration
<hr/>	<p>Which of the following is required on safety data sheets (SDSs)?</p> <ul style="list-style-type: none"> A. Manufacturer point of contact B. Radiological exposure hazards C. Physical and chemical properties D. Manufacturer address and phone number 	<p>Which of the following statements regarding the use of monitoring and detection devices is MOST accurate?</p> <ul style="list-style-type: none"> A. Detection devices require actual contact with the material. B. Detection devices are extremely unreliable and should be used sparingly. C. Detection devices are not often used to determine the presence of hazardous materials. D. Detection devices are often used by Awareness-Level personnel to determine the concentrations of particular hazardous materials.
<hr/>	<p>Which of the following statements regarding the <i>Emergency Response Guidebook (ERG)</i> is MOST accurate?</p> <ul style="list-style-type: none"> A. The <i>ERG</i> was developed by OSHA and TC. B. The <i>ERG</i> is primarily designed for use at air and waterway incidents. C. The <i>ERG</i> addresses all possible circumstances that may be associated with a hazardous materials incident. D. The <i>ERG</i> is designed for use by those who may be the first to arrive at the scene of 	<p>Which of the following is the difference between hazardous materials incidents and terrorist incidents?</p> <ul style="list-style-type: none"> A. Hazardous materials incidents specifically target people.

- B. Terrorist incidents have a lower risk of contaminated victims.
- C. Terrorists specifically target the public, first responders, or both.
- D. Hazardous materials incidents typically have a higher level of risk from structural collapse hazards.

- C. Presence of propane or other flammable gas cylinders in unusual locations
- D. Material that is hot or seems to emit heat without any sign of an external heat source

Which of the following is a cue to the possibility of a terrorist attack?

- A. Large number of sick people in one area of town
- B. Report of medical emergency in a public location
- C. Reported explosion at office building or government building
- D. Large number of people arriving at physicians' offices or medical emergency rooms

Which of the following is an indicator of a nuclear attack?

- A. Craters
- B. Glowing material
- C. Unusually fast burning fires
- D. Exceptionally large/powerful explosion

Which of the following is an indicator of a chemical attack?

- A. Presentation of specific unusual diseases
- B. Dissemination of unscheduled or unusual spray
- C. Illnesses associated with a common source of food, water, or location
- D. Unexplained odors or tastes that are out of character with the surroundings

Which of the following is an indicator of an explosive/incendiary attack?

- A. Electromagnetic pulse
- B. Abandoned spray devices
- C. Fragmentation damage/injury
- D. Individuals exhibiting signs and symptoms of radiation exposure

Which of the following is an indicator of a biological attack?

- A. Casualty distribution aligned with wind direction
- B. Unusual security, locks, bars on windows, or covered windows
- C. Suspicious packages that appear to weigh more than they should
- D. Surfaces exhibiting oily droplets or films and unexplained oily film on water surfaces

Which of the following is an exterior clue to the presence of illicit laboratories?

- A. Discarded chemical containers
- B. Excessive numbers of vehicles at the residence
- C. Large number of storage sheds behind main residence
- D. Large quantities of dead shrubs, trees, and flowers in the area

Which of the following is an indicator of a radiological attack?

- A. Mushroom cloud
- B. Incendiary device or bomb components

Which of the following is a way to protect against possible secondary attacks at terrorist attacks?

- A. Remove all items that may be used to conceal an explosive device
- B. Search for a secondary device after the incident has been resolved
- C. Evacuate victims and nonessential personnel as quickly as possible
- D. Remove all personnel from the area until the bomb squad can search the area

What is the purpose of predetermined procedures?

- A. To spell out the role of personnel at emergency incidents

- B. To provide a place for critiques and follow-up of responses to an emergency services
- C. To detail the security issues that may be encountered at a hazardous materials incident
- D. To specify the training that must be done before personnel can respond to emergency incidents

- C. Notification requirements can only be initialized by the fire chief or chief officer.
- D. The first call at a hazardous materials incident should always be to the bomb squad.

Which of the following statements regarding predetermined procedures is MOST accurate?

- A. The principles are similar for every predetermined procedure.
- B. The procedures are similar for every predetermined procedure.
- C. The principles are exactly the same for every predetermined procedure.
- D. The procedures are exactly the same for every predetermined procedure.

Which of the following is a function of the *ERG*?

- A. Designed for use at incidents occurring at fixed-facilities
- B. Based on conditions commonly associated with fixed-facility locations
- C. Addresses all possible circumstances associated with a dangerous goods/hazardous materials incident
- D. Aids emergency responders in quickly identifying specific or generic hazards of materials involved in an emergency incident

Predetermined procedures must be ___ to be effective.

- A. written
- B. verbalized
- C. unchanging
- D. directed by Command

Which pages of the *ERG* provide an index list of hazardous materials in numerical order of ID number?

- A. Blue pages
- B. Green pages
- C. Yellow pages
- D. Orange pages

Which of the following is a function of predetermined plans?

- A. They are usually initialized by the first officer on the scene.
- B. They must be unchanging and without flexibility to be effective.
- C. They prevent duplication of effort and uncoordinated operations.
- D. They are based on those things that are different about each hazardous materials incident.

Which pages of the *ERG* provide an index of dangerous goods in alphabetical order by material name?

- A. Blue pages
- B. Green pages
- C. Yellow pages
- D. Orange pages

Which of the following statements regarding notification requirements is MOST accurate?

- A. Notification requirements are the same regardless of facility type.
- B. Notification requirements should be defined in predetermined procedures.

Which pages of the *ERG* provide safety recommendations and general hazards information?

- A. Blue pages
- B. Green pages
- C. Yellow pages
- D. Orange pages

Which pages of the *ERG* contain a table that lists toxic inhalation hazard (TIH) materials?

- A. Blue pages
- B. Green pages
- C. Yellow pages
- D. Orange pages

_____	<p>What does it mean if the material in the yellow or blue index of the <i>ERG</i> is highlighted?</p> <p>A. It is radioactive. B. It is extremely flammable. C. It releases gases that are TIH materials. D. It should never be handled by Awareness-Level personnel.</p>	_____	<p>A. 50 (15) B. 100 (30) C. 150 (45) D. 200 (60)</p>
_____	<p>Which of the following is located on the left-hand page of the orange pages of the <i>ERG</i>?</p> <p>A. First aid B. Safety related information C. Guidance for fire situations D. Guidance for spill or leak incidents</p>	_____	<p>Which of the following is the national, bilingual advisory response center used in Canada? (179)</p> <p>A. SETIQ B. CANUTEC C. CENACOM D. CHEMTREC®</p>
_____	<p>Which section of the orange pages of the <i>ERG</i> should be consulted first?</p> <p>A. First aid section B. Public safety section C. Potential hazards section D. Emergency response section</p>	_____	<p>Which of the following emergency response centers is not government operated?</p> <p>A. SETIQ B. CANUTEC C. CENACOM D. CHEMTREC®</p>
_____	<p>Which section of the orange pages provides general information regarding immediate isolation of the incident site and recommended type of protective clothing and respiratory protection?</p> <p>A. Fire section B. Spill or leak section C. Public safety section D. Potential hazards section</p>	_____	<p>Which of the following must be provided when calling an emergency response center?</p> <p>A. Exact time of incident B. Manufacturer of material involved C. Location and nature of the problem D. Color/density of the material released</p>
_____	<p>The initial isolation distance is the distance within which all persons should be considered for evacuation in which direction?</p> <p>A. North of the incident B. Upwind of the incident C. Downwind of the incident D. In all directions from the incident</p>	_____	<p>Which of the following responses would be provided by an emergency response center?</p> <p>A. Confirm that a chemical emergency exists B. Refer the caller to the shipper or manufacturer C. Transfer the call to the shipper of the material D. Provide technical assistance to the caller at a later time or date</p>
_____	<p>Small spills are defined as those that involve a single, small package of up to ___ gallons (L).</p> <p>A. 25 (95) B. 35 (132) C. 45 (170) D. 55 (208)</p>	_____	<p>Which of the following defines isolation?</p> <p>A. Does not include defending in place or sheltering in place B. Evacuating personnel and citizens in all directions from the haz mat spill or leak source C. Evacuating all contaminated or potentially contaminated individuals to the local hospital or medical center. D. Physically securing and maintaining the emergency</p>
_____	<p>Initial isolation distances will always be at least ___ feet (m).</p>	_____	

_____ scene by establishing isolation perimeters and denying entry to unauthorized persons

_____ Which of the following statements regarding the isolation perimeter is MOST accurate?

- A. Once set, the isolation perimeter may not be moved.
- B. The isolation perimeter is used to control access, but not egress.
- C. The isolation perimeter can only be set up by the superior officer.
- D. The isolation perimeter may be set up with ropes, cones, or barrier tape.

Directions: Write the correct letter on the blank before each question.

_____ Which state of matter is a substance that has both a specific shape and volume?

- A. Gas
- B. Solid
- C. Liquid
- D. Vapor

_____ Which of the following is the minimum temperature to which the fuel in air must be heated to initiate self-sustained combustion without initiation from an independent ignition source?

- A. Flash point
- B. Boiling point
- C. Melting point
- D. Autoignition temperature

_____ Which of the following is the temperature at which the vapor pressure of a liquid is equal to or greater than atmospheric pressure?

- A. Fire point
- B. Boiling point
- C. Melting point
- D. Freezing point

_____ Which of the following is the temperature at which a solid substance changes to a liquid state at normal atmospheric pressure?

- A. Fire point
- B. Flash point
- C. Melting point
- D. Autoignition point

_____ A vapor density ___ indicates a vapor heavier than air.

- A. less than 1
- B. less than 10
- C. greater than 1
- D. greater than 10

_____ The solubility of a substance can be useful in determining:

- A. spill cleanup methods.
- B. a chemical's reactivity.
- C. if the vapors will rise or settle.
- D. if the chemical will react violently with air.

_____ Which of the following is NOT a part of the reactivity triangle? (208)

- A. Oxidizing agent
- B. Reducing agent
- C. Chemical chain reaction
- D. Activation energy source

_____ Which of the following statements regarding the General Hazardous Materials Behavior Model (GEBMO) is MOST accurate?

- A. GEBMO is an offensive-mode action.
- B. GEBMO helps first responders predict the course of an incident.
- C. GEBMO explains that hazardous materials incidents have very different elements.
- D. GEBMO explains that hazardous materials incidents rarely follow the same sequence.

_____ Which common stressor is the physical application of energy resulting in container/attachment damage?

- A. Thermal
- B. Chemical
- C. Mechanical
- D. Radiological

_____ Breaches happen differently according to:

- A. time of day.
- B. temperature.
- C. chemical levels.
- D. container types.

_____ Which type of release is the fast release of pressurized hazardous materials through properly operating safety devices?

- A. Spill/leak
- B. Detonation
- C. Rapid relief
- D. Violent rupture

_____ Which dispersion pattern is a surface-following pattern of liquid hazardous material that is affected by gravity and topographical contours?

- A. Pool
- B. Cone
- C. Cloud
- D. Stream

_____ The FIRST incident priority at all haz mat incidents is: (233)

- A. life safety.
- B. incident stabilization.
- C. protection of property.
- D. protection of the environment.

_____ When coupled with ____, incident management systems provide a predetermined set of procedures to follow at every haz mat incident.

- A. occupancy surveys
- B. pre-incident surveys
- C. predetermined procedures
- D. standard operating procedures (SOPs)

_____ Incident management systems are required by NFPA®:

- A. 1001.
- B. 1500.
- C. 1561.
- D. 1651.

_____ Which of the following National Response Framework (NRF) groups serves as the national headquarters-level, multiagency coordination entity for domestic incident management?

- A. Homeland Security Council
- B. Unified Coordination Group
- C. Regional Response Coordination Center
- D. Interagency Incident Management Group

_____ Which of the following is the NRF's FIRST mission in the case of a catastrophic terrorist attack?

- A. Save lives
- B. Contain the event
- C. Preserve national security
- D. Protect critical infrastructure

_____ Which of the following is ultimately responsible for everything that takes place at the emergency scene?

- A. Safety Officer
- B. Incident Commander
- C. Support Group Leader

D. Operations Section Chief

_____ Which incident management system (IMS) section is responsible for the direct management of all incident tactical activities?

- A. Planning
- B. Logistics
- C. Operations
- D. Finance/Administration

_____ Which of the following is a component of the logistics section?

- A. Facilities
- B. Documentation
- C. Situation reports
- D. Compensation claims

_____ Command may be transferred:

- A. only once.
- B. no more than two times.
- C. no more than three times.
- D. several times as the incident grows.

_____ Which IMS haz mat position controls all movement of personnel and equipment between the control zones?

- A. Technical Specialist
- B. Assistant Safety Officer
- C. Site Access Control Leader
- D. Safe Refuge Area Manager

_____ Which of the following are external communication devices?

- A. Pagers
- B. Computers
- C. Noisemakers
- D. Visual signals

_____ An initial survey should include answers to which of the following questions?

- A. What effect can the weather have?
- B. Where was the container manufactured?
- C. Where is the nearest water distribution center?
- D. How long has it been since the incident was reported?

_____ Which of the following is size-up information to be evaluated when on scene?

- A. Weather
- B. Life hazards
- C. Time of day
- D. Occupancy type

Which incident level is rarely concluded by one agency?

- A. Level I
- B. Level II
- C. Level III
- D. Level IV

In the absence of value, which mode of operation is indicated?

- A. Offensive
- B. Defensive
- C. Involvement
- D. Intervention

In which mode of operation do responders take no direct actions on the actual problem?

- A. Offensive
- B. Defensive
- C. Intervention
- D. Nonintervention

Which of the following will happen if an incident action plan (IAP) is effective?

- A. The incident will grow in size.
- B. The incident should begin to stabilize.
- C. The IC will receive negative progress reports.
- D. Division and group leaders will take command from the IC.

Which of the following provides for the scene control required at hazardous materials and terrorist incidents?

- A. Staging area
- B. Security perimeter
- C. Isolation perimeter
- D. Hazard control zone

Which of the following zones is a place to decontaminate personnel and equipment?

- A. Hot
- B. Cold
- C. Warm
- D. Hazard-control

Which of the following is included in the cold zone?

- A. Research teams
- B. Notification area
- C. Decontamination of personnel
- D. Decontamination of equipment and tools

The FIRST priority at any incident is the protection of:

- A. property.
- B. the public.
- C. responders.
- D. the environment.

An IAP should contain an accountability system with which of the following elements?

- A. Procedure for releasing the public
- B. Procedure for evacuating the public
- C. Procedure for checking in at the scene
- D. Procedure for decontaminating personnel

If time allows, which is the best protection action for the public?

- A. Rescue
- B. Evacuation
- C. Sheltering in place
- D. Time, distance, and shielding

Which means of protecting the public may be most difficult to implement?

- A. Rescue
- B. Evacuation
- C. Sheltering in place
- D. Protecting in place

On-scene recovery is:

- A. mandated by OSHA.
- B. conducted in the form of a group discussion.
- C. directed toward returning the scene to a safe condition.
- D. conducted by fire and emergency services organizations.

Low explosives decompose:

- A. slowly.
- B. rapidly.
- C. slowly, but with no explosive effect.
- D. rapidly, but with no explosive effect.

Which type of explosives can be detonated by small amounts?

- A. Primary
- B. Tertiary
- C. Secondary
- D. Military-grade

Which types of explosives are less sensitive to initiating stimuli such as heat or flame?

- A. Primary
- B. Tertiary
- C. Secondary
- D. Military-grade

Which IEDs are the most common type found in the U.S.?

- A. Pipe bombs
- B. Vehicle bombs

- C. Package bombs
- D. Person-borne bombs

- C. Rickettsias
- D. Biological toxins

Which of the following is an indicator of a mail or package bomb?

- A. Cancelled postage
- B. Excessive postage
- C. Soft letter envelopes
- D. Professionally wrapped packages

Which category of biological agents are easy to produce and disseminate? (354-355)

- A. Category A
- B. Category B
- C. Category C
- D. Category D

Which of the following statements regarding nerve agents is MOST accurate?

- A. They usually travel quite far.
- B. They are dispersed as liquids.
- C. They are generally clear and colorless.
- D. They cause damage to the respiratory tract when inhaled.

Indoor biological attacks may be contained by:

- A. turning off elevators.
- B. opening doors or windows.
- C. turning on ventilation systems.
- D. spraying water and bleach on the agent.

Which nerve agent is a moderately volatile chemical agent that can be inhaled or absorbed through skin contact?

- A. Sarin
- B. Tabun
- C. Soman
- D. V-agent

Which of the following is a tactic at radiological and nuclear attack incidents?

- A. Call for expert guidance
- B. Avoid contact with possible evidence
- C. Establish background levels of oxygen
- D. Conduct overhaul operations as soon as possible

Which blood agent is extremely flammable, highly soluble, and stable in water?

- A. Arsine
- B. Hydrogen cyanide
- C. Cyanogen chloride
- D. Potassium chloride

What is the most important piece of equipment a responder can wear at a haz mat incident?

- A. Personal dosimeters
- B. Structural firefighting gear
- C. Chemical protective clothing (CPC)
- D. Self-contained breathing apparatus (SCBA)

Cyanogen chloride has what type of smell?

- A. Bitter almonds
- B. Freshly cut hay
- C. Mild garlic odor
- D. Pungent, biting odor

Which of the following is a disadvantage of SCBA?

- A. Limited vision
- B. Limited independence
- C. Limited maneuverability
- D. Lack of protection from toxic atmospheres

Which of the following statements regarding phosgene is MOST accurate?

- A. It is a liquid at room temperature.
- B. It has the odor of bitter almonds.
- C. Its vapor density is lighter than air.
- D. It is a colorless, nonflammable gas.

Which of the following statements regarding supplied air respirators (SARs) is MOST accurate?

- A. SARs provide better vision than SCBA.
- B. SARs are certified for firefighting operations.
- C. SARs are classified by NIOSH as Type A respirators.
- D. SARs provide up to 300 feet (91 m) of air supply hose.

Which types of biological agents are microscopic, single-celled organisms?

- A. Viruses
- B. Bacteria

_____ Vapor- and gas-removing filters:

- A. provide limited protection.
- B. protect against specific vapors and gases.
- C. may be used to protect against toxic dusts and mists.
- D. protect the respiratory system from large-sized particles.

- A. Level A
- B. Level B
- C. Level C
- D. Level D

_____ Which of the following provides loose fitting and lightweight protection?

- A. Escape respirators
- B. Supplied-air hoods
- C. Air purifying respirators
- D. Powered air purifying respirators

_____ Which U.S. EPA level of protection provides no respiratory protection and minimal skin protection?

- A. Level A
- B. Level B
- C. Level C
- D. Level D

_____ Which standard includes performance criteria, functioning, and test methods for Personal Alert Safety Systems?

- A. NFPA® 1951
- B. NFPA® 1971
- C. NFPA® 1982
- D. NFPA® 2112

_____ Typical EMS ensembles should include:

- A. a hood.
- B. overboots.
- C. a respirator.
- D. outer protective garments.

_____ Which type of high-temperature protective clothing allows a person to work in total flame environments for short periods of time?

- A. Proximity suits
- B. Fire-entry suits
- C. Encapsulating suits
- D. Non-encapsulating suits

_____ The person responsible for taking all the necessary steps to ensure that the protective ensemble performs as expected is the:

- A. end user.
- B. training officer.
- C. Incident Commander.
- D. union representative.

_____ Which type of chemical protective clothing (CPC) protects the wearer against chemical vapors or gases?

- A. Vapor-protective clothing
- B. Liquid-splash protective clothing
- C. Gas-permeable protective clothing
- D. Chemical-liquid protective clothing

_____ Which of the following may include removing contaminated clothing and putting it into a suitable container?

- A. Wet decontamination
- B. Dry decontamination
- C. Physical decontamination

_____ Which of the following makes the contaminant less harmful by changing it through some kind of chemical process?

- A. Wet decontamination
- B. Dry decontamination
- C. Physical decontamination
- D. Chemical decontamination

_____ Which of the following occurs when the characteristics of a material are altered through contact with chemical substances?

- A. Permeation
- B. Penetration
- C. Degradation
- D. Neutralization

_____ Which of the following is a general guideline for decontamination operations?

- A. Decontaminate emergency responders and victims together.
- B. Separate victims into ambulatory/nonambulatory and male/female.
- C. Decontaminate all emergency response personnel in the cold zone.
- D. Establish a medical triage area just before the decontamination zone.

_____ Which U.S. EPA level of protection is composed of a splash-protecting garment and an air-purifying device?

_____ In most instances, triage should be conducted in the ___ zone

after decontamination has been performed.

- A. hot
- B. cold
- C. warm
- D. hazard

Which of the following describes victims or responders who are unconscious, unresponsive, or unable to move unassisted?

- A. Deceased
- B. Cataleptic
- C. Ambulatory
- D. Nonambulatory

What is the goal of emergency decontamination?

- A. To provide decontamination with the highest regard for the environment
- B. To provide decontamination with the highest regard for property protection
- C. To remove the threatening contaminant from the victim as slowly as possible
- D. To remove the threatening contaminant from the victim as quickly as possible

Which of the following is a limitation of emergency decontamination?

- A. Can harm the environment
- B. Reduces contamination slowly
- C. Requires large amounts of equipment
- D. Requires a formal decontamination corridor

Which of the following is an example of an absorbent?

- A. Charcoal
- B. Baking soda
- C. Fuller's earth
- D. Activated carbon

Which type of technical decontamination is most accessible, speedy, and economical? (447)

- A. Dilution
- B. Sanitization
- D. Isolation and disposal

Which type of technical decontamination kills most of the microorganisms present?

- A. Disinfection
- B. Sanitization

- C. Sterilization
- D. Neutralization

Mass decontamination showers use:

- A. large volumes of low-pressure water.
- B. small volumes of low-pressure water.
- C. large volumes of high-pressure water.
- D. small volumes of high-pressure water.

The decontamination site ideally slopes:

- A. toward the hot zone.
- C. away from the hot zone.
- D. away from the cold zone.

Which spill control tactic results in one material being retained within the other?

- A. Adsorption
- B. Absorption
- C. Vapor suppression
- D. Blanketing/covering

Which fire-fighting foam is effective on hydrocarbon fuels but not on polar solvents?

- A. Fluoroprotein foam
- B. High-expansion foam
- C. Alcohol-resistant AFFF (AR-AFFF)
- D. Aqueous film forming foam (AFFF)

Which fire-fighting foam is the most commonly used foam concentrate today?

- A. Fluoroprotein foam
- B. High-expansion foam
- C. Alcohol-resistant AFFF (AR-AFFF)
- D. Aqueous film forming foam (AFFF)

Which fire-fighting foam minimizes water damage?

- A. Fluoroprotein foam
- B. High-expansion foam
- C. Alcohol-resistant AFFF (AR-AFFF)
- D. Aqueous film forming foam (AFFF)

Finished foam is composed principally of:

- A. air.
- B. water.
- C. carbon dioxide.
- D. foam concentrate.

_____ Which spill control tactic may use pressurized streams of water from hoselines or unattended master streams?

- A. Dilution
- B. Dispersion
- C. Neutralization
- D. Vapor dispersion

_____ Which spill control tactic is likely to spread the material over a wide area?

- A. Dilution
- B. Dispersion
- C. Neutralization
- D. Vapor dispersion

_____ Which spill control tactic rarely has practical applications at haz mat incidents?

- A. Dilution
- B. Dispersion
- C. Neutralization
- D. Vapor dispersion

_____ Which spill control tactic should only be conducted under the direction of a hazardous materials technician or allied professional?

- A. Dilution
- B. Dispersion
- C. Neutralization
- D. Vapor dispersion

_____ Improperly used water streams can _____ the size and intensity of flammable liquid fires.

- A. increase
- B. decrease
- C. have no effect on
- D. completely eliminate

_____ Which of the following is used for expressing the concentration of a gas or vapor in the air?

- A. Parts per billion (ppb)
- B. Milligrams per liter (mg/L)
- C. Grams per kilogram (g/kg)
- D. Milligrams per cubic meter (mg/m³)

_____ Concentrations that are high enough to kill or cause serious injury or illness are expressed in terms of:

- A. threshold limit value (TLV).
- B. permissible exposure limit (PEL).
- C. short-term exposure limit (STEL).
- D. immediately dangerous to life or health (IDLH).

_____ Which of the following is a safety precaution while monitoring?

- A. Move slowly
- B. Always stay in the cold zone
- C. Approach the hazard area from downwind
- D. Pay particular attention to large, open areas

_____ Which property of corrosives is the measurement of the hydrogen ions in a solution?

- A. pH
- B. Strength
- C. Intensity
- D. Concentration

_____ Fluoride test paper turns _____ in the presence of fluorides.

- A. pinkish-red
- B. bluish-purple
- C. yellowish-white
- D. greenish-yellow

_____ Oxygen levels above _____ are considered oxygen enriched.

- A. 19.5%
- B. 21.5%
- C. 23.5%
- D. 25.5%

_____ Oxygen meters are affected by all of the following EXCEPT:

- A. humidity.
- B. elevation.
- C. wind speed.
- D. temperature.

_____ Which victims are generally farthest from the release?

- A. Ambulatory victims within the line of sight
- B. Nonambulatory victims within the line of sight
- C. Ambulatory victims who are not in the line of sight
- D. Nonambulatory victims who are not in the line of sight

_____ Which rescue method is not practical for carrying an unconscious adult?

- A. Seat lift/carry
- B. Chair lift/carry
- C. Three-person lift/carry
- D. Cradle-in-arms lift/carry

_____ Which of the following rescue methods requires two rescuers?

- A. Incline drag
- B. Blanket drag
- C. Webbing lift/carry
- D. Extremities lift/carry

_____ During which response phase is the scene stabilized and secured?

- A. Tactical
- B. Operational
- C. Crime scene
- D. Remediation

- A. It can no longer be used.
- C. It must be cleaned with bleach.
- B. It must be technically decontaminated.
- D. It must be sterilized with alcohol wipes.

_____ During which response phase does law enforcement obtain search warrants?

- A. Tactical
- B. Operational
- C. Crime scene
- D. Remediation

_____ The majority of drug labs are set up to produce:

- A. meth.
- B. heroin.
- C. cocaine.
- D. marijuana.

_____ Responders operating during the crime scene phase at a WMD incident should:

- A. limit the number of personnel into the scene.
- B. remain at the site after public safety issues are addressed.
- C. take samples for the appropriate law enforcement authority.
- D. process the scene before contacting law enforcement authorities.

_____ Which of the following is a clue to the presence of meth labs?

- A. Increased activity during the day
- B. Windows covered with dark curtains
- C. Large numbers of vehicles parked at property
- D. Discoloration of structures, pavement, and soil

_____ Responders operating during the crime scene phase at a WMD incident should NOT:

- A. identify and mark potential evidence.
- B. collect samples for public safety and health.
- C. limit the number of personnel into the scene and record their names.
- D. process the crime scene before contacting law enforcement authorities.

_____ Which of the following is an indicator of a chemical agent lab?

- A. Ethyl ether
- B. Red phosphorus
- C. Anhydrous ammonia
- D. Presence of cyanides or acids

_____ When approaching the scene, personal protective equipment (PPE) will be determined by the:

- A. time of day.
- B. hazards at the scene.
- C. lowest level of PPE available.
- D. highest level of PPE available.

_____ After drug labs, which of the following are the most common type of labs discovered?

- A. Biological labs
- B. Explosives labs
- C. Radiological labs
- D. Chemical agent labs

_____ Evaluating evidence is performed in which zone?

- A. Hot
- B. Cold
- C. Warm
- D. Hazard

_____ Which of the following is an indicator of a biological lab?

- A. Bleach
- B. Propane
- C. Gasoline
- D. Anhydrous ammonia
- C. Radiological labs
- D. Chemical agent labs

_____ What should happen if sampling equipment touches a non-sterile surface?

_____ Which of the following is an indicator of a biological lab?

- A. Bleach
- B. Propane
- C. Gasoline
- D. Anhydrous ammonia

APPENDIX A

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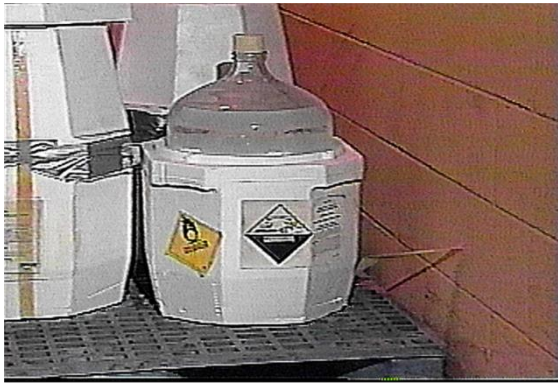
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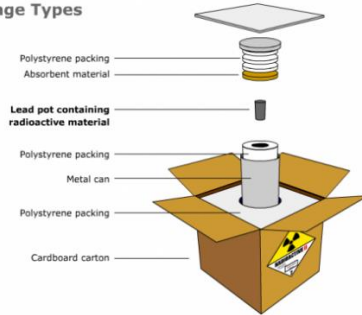
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APPENDIX B

1 Package Types



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APPENDIX C

RESTRICTED USE PESTICIDE

FOR RETAIL SALE TO AND USE ONLY BY CERTIFIED APPLICATORS OR PERSONS UNDER THEIR DIRECT SUPERVISION AND ONLY FOR THOSE USES COVERED BY THE CERTIFIED APPLICATOR'S CERTIFICATION.

GROUP

1B

INSECTICIDE

VULCAN®

For control of listed insects infesting certain field, fruit, nut, and vegetable crops.

ACTIVE INGREDIENT

Chlorpyrifos: 0,0-diethyl-0-(3,5,6-trichloro-2-pyridinyl) phosphorothioate 39.50%

OTHER INGREDIENTS*: 60.50%

TOTAL 100.0%

Contains 3.76 pounds of Chlorpyrifos per gallon.

* Contains petroleum distillates.



KEEP OUT OF REACH OF CHILDREN CAUTION / PRECAUCIÓN

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.
(If you do not understand this label, find someone to explain it to you in detail.)

Manufactured for:

Makhteshim Agan of North America, Inc.
3120 Highwoods Blvd., Suite 100
Raleigh, NC 27604

How can we help? 1-866-406- 6262

Vulcan is an emulsifiable concentrate (EC) insecticide formulated as part of the Voxien family of products

EPA Reg. No. 66222-233

EPA Est. No. [REDACTED]

NET CONTENTS:

FIRST AID Organophosphate	
IF SWALLOWED:	<ul style="list-style-type: none">• Call a poison control center or doctor immediately for treatment advice.• Do not give any liquid to a person.• Do not induce vomiting unless told to do so by a poison control center or doctor.• Do not give anything by mouth to an unconscious person.
IF IN EYES:	<ul style="list-style-type: none">• Hold eye open and rinse slowly and gently with water for 15-20 minutes.• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.• Call a poison control center or doctor for treatment advice.
IF ON SKIN OR CLOTHING:	<ul style="list-style-type: none">• Take off contaminated clothing.• Rinse skin immediately with plenty of water for 15-20 minutes.• Call a poison control center or doctor for treatment advice.
IF INHALED:	<ul style="list-style-type: none">• Move person to fresh air.• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.• Call a poison control center or doctor for further treatment advice.

Note to Physician: This product contains an organophosphate that inhibits cholinesterase. Treat symptomatically. If exposed, plasma and red blood cell cholinesterase tests may indicate significance of exposure (baseline data are useful). Atropine, only by injection, is the preferable antidote. Oximes, such as 2-PAM/protopam, may be therapeutic if used early; however, use only in conjunction with atropine. In case of severe acute poisoning, use antidote immediately after establishing an open airway and respiration. Contains petroleum distillate. Vomiting may induce aspiration pneumonia.

Have the product container or label with you when calling a poison control center or doctor or going for treatment. For emergency medical treatment information, call Prozar 24 hours a day at 1-877-250-9291.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Harmful if swallowed. Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Mixers and loaders using a mechanical transfer loading system and applicators using aerial application equipment must wear:

- Long-sleeved shirt and long pants
- Shoes and socks
- Protective eyewear

In addition to the above, mixers and loaders using a mechanical transfer loading system must wear:

- Chemical-resistant gloves made of barrier laminate or viton > 14 mils.
- Chemical-resistant apron
- A minimum of a NIOSH approved filtering face piece respirator with any R or P filter (TC-84). You can also use other NIOSH approved particulate respirators that offer more protection, such as a half face or full face respirator with any filter or a powered air purifying respirator with an HE filter.

See **Engineering Control Statement** for additional requirements.

All other mixers, loaders, applicators and handlers must wear:

- Coveralls over long-sleeved shirt and long pants
- Chemical-resistant gloves made of barrier laminate or viton > 14 mils.
- Chemical-resistant apron when mixing or loading or exposed to the concentrate
- Chemical-resistant footwear plus socks
- Chemical-resistant headgear for overhead exposure
- A minimum of a NIOSH approved filtering face piece respirator with any R or P filter (TC-84). You can also use other NIOSH approved particulate respirators that offer more protection, such as a half face or full face respirator with any filter or a powered air purifying respirator with an HE filter.

User Safety Requirements

- Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.
- Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

ENGINEERING CONTROL STATEMENT

Mixers and loaders supporting aerial applications must use a mechanical transfer system that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4)] for dermal protection, and must:

- Wear the personal protective equipment required above for mixers/loaders
- Wear protective eyewear

Pilots must use an enclosed cockpit in a manner that meets the requirements listed in the WPS for agricultural pesticides [40 CFR 170.240(d)(6)]. Use of human flaggers is prohibited. Mechanical flagging equipment must be used.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the WPS for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish, aquatic invertebrates, small mammals, and birds. Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment washwater or rinsate.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are foraging the treatment area. Protective information may be obtained from your cooperative agricultural extension service.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

Read entire label before using this product. This label must be in the possession of the user at the time of pesticide application.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the Agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of:

- **4 days for fruit trees**
- **5 days for citrus**
- **3 days for cauliflower**
- **24 hours for all other crops not listed above**

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is:

- Coveralls over short sleeved shirt and shirt pants
- Chemical-resistant gloves made of barrier laminate or viton > 14 mils.
- Chemical resistant footwear plus socks
- Chemical Resistant headgear for over head exposures.

Certified crop advisors or persons entering under their direct supervision under certain circumstances may be exempt from the early reentry requirement pursuant to 40 CFR Part 170.

Notify workers of the application by warning them orally and by posting warning signs at entrances to treated areas.

NON AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides [40CFR Part 170]. The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. Keep children, pets and other unprotected persons out of treated area until sprays have dried.

PRODUCT INFORMATION

Part of the Voxien family of products. Vulcan insecticide forms an emulsion when diluted with water and is suitable for use in all conventional spray equipment. Consult your State Agricultural Experiment Station or State Extension Service for proper timing of applications.

When an adjuvant is to be used with this product, Makhteshim Agan of North America, Inc. suggests the use of a Chemical Producers and Distributors Association certified adjuvant.

USE RESTRICTIONS

Do not formulate this product into other end use products. **Attention:** Do not cut or weld container.

RESISTANCE MANAGEMENT

Vulcan contains a Group 1B insecticide. Insect/mite biotypes with acquired resistance to Group 1B may eventually dominate the insect/mite population if Group 1B insecticides/acaricides are used repeatedly in the same field or in successive years as the primary method of control for targeted species. This may result in partial or total loss of control of those species by Vulcan or other Group 1B.

To delay insecticide resistance consider:

- Avoiding the consecutive use of Vulcan or other group 1B insecticides/acaricides that have a similar target site of action, on the same insect/mite species.
- Using tank-mixtures or premixes with insecticides/acaricides from a different target site of action Group as long as the involved products are all registered for the same use and have different sites of action.
- Basing insecticide/acaricide use on a comprehensive IPM program.
- Monitoring treated insect/mite populations for loss of field efficacy.
- Contacting your local extension specialist, certified crop advisors, and/or manufacturer for insecticide/acaricide resistance management and/or IPM recommendations for the specific site and resistant pest problems.

SPRAY DRIFT MANAGEMENT

Avoiding spray drift at the application site is the responsibility of the applicator and the grower. The interaction of many equipment-and weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions regarding spraying.

Apply only as a medium or coarser spray (ASABE standard 572.1) or a volume mean diameter of 300 microns or greater for spinning atomizer nozzles.

Apply only when the wind speed is 2 – 10 mph at the application site.

For ground applications

- Wind speed must be measured adjacent to the application site on the upwind side, immediately prior to application.
- For ground boom applications, apply using a nozzle height of no more than 4 feet above the ground or crop canopy.
- For airblast applications, turn off outward pointing nozzles at row ends and when spraying the outer two rows. To minimize spray loss over the top in orchard applications, spray must be directed into the canopy.

For aerial applications

- The distance of the outermost nozzles on the boom must not exceed 3/4 the length of the wingspan or 90% of the rotor blade diameter. Nozzles must always point backward parallel with the air stream and never be pointed downward more than 45°.

Where states have more stringent regulations, they should be observed.

The applicator should be familiar with and take into account the information covered in the ***Spray Drift Management*** section.

To avoid spray drift, do not apply under windy conditions. Avoid spray overlap as crop injury may result.

Information on Droplet Size

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential but will not prevent drift if applications are made improperly or under unfavorable environmental conditions (see ***Wind, Temperature and Humidity and Temperature Inversions*** sections).

APPENDIX D

SAFETY DATA SHEET

Ammonia

Airgas
an Air Liquide company

Section 1. Identification

GHS product identifier	: Ammonia
Chemical name	: ammonia
Other means of identification	: ammonia; Aqueous ammonia; Aqua ammonia; anhydrous ammonia; ammonia solution; Ammonia, anhydrous (I); Ammonia dissolved in water; Gaseous Ammonia; Potassium octanoate; Ammonia,pure,ref.grade; ammonia anhydrous
Product type	: Gas.
Product use	: Synthetic/Analytical chemistry.
Synonym	: ammonia; Aqueous ammonia; Aqua ammonia; anhydrous ammonia; ammonia solution; Ammonia, anhydrous (I); Ammonia dissolved in water; Gaseous Ammonia; Potassium octanoate; Ammonia,pure,ref.grade; ammonia anhydrous
SDS #	: 001003
Supplier's details	: Airgas USA, LLC and its affiliates 259 North Radnor-Chester Road Suite 100 Radnor, PA 19087-5283 1-610-687-5253
24-hour telephone	: 1-866-734-3438

OSHA/HCS status	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture	: FLAMMABLE GASES - Category 2 GASES UNDER PRESSURE - Liquefied gas ACUTE TOXICITY (inhalation) - Category 4 SKIN CORROSION - Category 1 SERIOUS EYE DAMAGE - Category 1 AQUATIC HAZARD (ACUTE) - Category 1

GHS label elements

Hazard pictograms



Signal word

: Danger

Hazard statements

: Flammable gas.
May form explosive mixtures with air.
Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.
Harmful if inhaled.
Causes severe skin burns and eye damage.
Very toxic to aquatic life.

Precautionary statements

General

: Read and follow all Safety Data Sheets (SDS'S) before use. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Always keep container in upright position. Approach suspected leak area with caution.

Prevention

: Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Avoid breathing gas. Wash hands thoroughly after handling.

Section 2. Hazards identification

Response : Collect spillage. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician. IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce

Section 3. Composition/information on ingredients

Substance/mixture : Substance
Chemical name : ammonia
Other means of identification : ammonia; Aqueous ammonia; Aqua ammonia; anhydrous ammonia; ammonia solution; Ammonia, anhydrous (I); Ammonia dissolved in water; Gaseous Ammonia; Potassium octanoate; Ammonia,pure,ref.grade; ammonia anhydrous
Product code : 001003

CAS number/other identifiers

CAS number : 7664-41-7

Ingredient name	%	CAS number
ammonia	100	7664-41-7

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
- Inhalation** : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Get medical attention immediately. Call a poison center or physician. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : As this product is a gas, refer to the inhalation section.

Section 4. First aid measures

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : Harmful if inhaled.
- Skin contact** : Causes severe burns.
- Frostbite** : Try to warm up the frozen tissues and seek medical attention.
- Ingestion** : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:., pain, watering, redness
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:., pain or irritation, redness, blistering may occur
- Ingestion** : Adverse symptoms may include the following:., stomach pains

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

Specific hazards arising from the chemical : Contains gas under pressure. Flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. This material is very toxic to aquatic life. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
nitrogen oxides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

- Environmental precautions** : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

Methods and materials for containment and cleaning up

- Small spill** : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.
- Large spill** : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Do not get in eyes or on skin or clothing. Do not breathe gas. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Store and use away from heat, sparks, open flame or any other ignition source. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Store locked up. Eliminate all ignition sources. Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F). Refer to ANSI/CGA G-2.1, Section 5.13 for electrical classification of anhydrous ammonia storage and handling areas. Where anhydrous ammonia is stored indoors, use electrical (ventilating, lighting and material handling) equipment with the appropriate electrical classification rating and use only non-sparking tools.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
ammonia	<p>California PEL for Chemical Contaminants (Table AC-1) (United States). PEL: 25 ppm 8 hours. STEL: 35 ppm 15 minutes.</p> <p>ACGIH TLV (United States, 3/2017). TWA: 25 ppm 8 hours. TWA: 17 mg/m³ 8 hours. STEL: 35 ppm 15 minutes. STEL: 24 mg/m³ 15 minutes.</p> <p>OSHA PEL 1989 (United States, 3/1989). STEL: 35 ppm 15 minutes. STEL: 27 mg/m³ 15 minutes.</p> <p>NIOSH REL (United States, 10/2016). TWA: 25 ppm 10 hours. TWA: 18 mg/m³ 10 hours. STEL: 35 ppm 15 minutes. STEL: 27 mg/m³ 15 minutes.</p> <p>OSHA PEL (United States, 6/2016). TWA: 50 ppm 8 hours. TWA: 35 mg/m³ 8 hours.</p>

- Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Section 8. Exposure controls/personal protection

- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Gas. [Compressed gas.]
- Color** : Colorless.
- Odor** : Pungent.
- Odor threshold** : Not available.
- pH** : Approx. 11.6
- Melting point** : -77.7°C (-107.9°F)
- Boiling point** : -33°C (-27.4°F)
- Critical temperature** : 132.85°C (271.1°F)
- Flash point** : Not available.
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Extremely flammable in the presence of the following materials or conditions: oxidizing materials.
- Lower and upper explosive (flammable) limits** : Lower: 16%
Upper: 25%
- Vapor pressure** : 114.1 (psig)
- Vapor density** : 0.59 (Air = 1)
- Specific Volume (ft³/lb)** : 22.7273
- Gas Density (lb/ft³)** : 0.044
- Relative density** : SPECIFIC GRAVITY (AIR=1): @ 70°F (21.1°C) = 0.59
- Solubility** : Not available
- Solubility in water** : 540 g/l
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : 651°C (1203.8°F)
- Decomposition temperature** : Not available.
- Viscosity** : Not applicable.
- Flow time (ISO 2431)** : Not available.
- Molecular weight** : 17.03 g/mole
- Aerosol product**
- Heat of combustion** : -18589392 J/kg

Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

Ammonia

Section 10. Stability and reactivity

Incompatible materials : Oxidizers

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
ammonia	LC50 Inhalation Gas.	Rat	7338 ppm	1 hours

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye damage.

Inhalation : Harmful if inhaled.

Skin contact : Causes severe burns.

Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following: pain, watering, redness

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following: pain or irritation, redness, blistering may occur

Section 11. Toxicological information

Ingestion : Adverse symptoms may include the following: , stomach pains

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Other information : IDLH : 300 ppm

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
ammonia	Acute EC50 29.2 mg/l Marine water	Algae - Ulva fasciata - Zoea	96 hours
	Acute LC50 2080 µg/l Fresh water	Crustaceans - Gammarus pulex	48 hours
	Acute LC50 0.53 ppm Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 300 µg/l Fresh water	Fish - Hypophthalmichthys nobilis	96 hours
	Chronic NOEC 0.204 mg/l Marine water	Fish - Dicentrarchus labrax	62 days

Persistence and degradability

Not available.

Bioaccumulative potential

Not available.

Mobility in soil






Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1005	UN1005	UN1005	UN1005	UN1005
UN proper shipping name	AMMONIA, ANHYDROUS	AMMONIA, ANHYDROUS; OR ANHYDROUS AMMONIA	AMMONIA, ANHYDROUS	AMMONIA, ANHYDROUS	AMMONIA, ANHYDROUS
Transport hazard class(es)	2.2 	2.3 (8) 	2.3 (8) 	2.3 (8) 	2.3 (8) 
Packing group	-	-	-	-	-
Environmental hazards	Yes.	Yes.	Yes. The environmentally hazardous substance mark is not required.	Yes.	Yes. The environmentally hazardous substance mark is not required.

“Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product.”

Additional information

DOT Classification

: Inhalation hazard
This product is not regulated as a marine pollutant when transported on inland waterways in sizes of ≤5 L or ≤5 kg or by road, rail, or inland air in non-bulk sizes, provided the packagings meet the general provisions of §§ 173.24 and 173.24a.
Reportable quantity 100 lbs / 45.4 kg. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
Limited quantity Yes.
Quantity limitation Passenger aircraft/rail: Forbidden. Cargo aircraft: Forbidden.
Special provisions 13,T50

TDG Classification

: Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2), 2.40-2.42 (Class 8), 2.7 (Marine pollutant mark).
The marine pollutant mark is not required when transported by road or rail.
Explosive Limit and Limited Quantity Index 0
ERAP Index 3000
Passenger Carrying Ship Index Forbidden
Passenger Carrying Road or Rail Index Forbidden

Section 14. Transport information

Special provisions

- Mexico Classification** : Toxic Inhalation Hazard Zone D
- IMDG** : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.
- IATA** : The environmentally hazardous substance mark may appear if required by other transportation regulations.
- Quantity limitation** Passenger and Cargo Aircraft: Forbidden. Cargo Aircraft Only: Forbidden. Limited Quantities - Passenger Aircraft: Forbidden.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption:** Not determined
Clean Water Act (CWA) 311: ammonia

Clean Air Act (CAA) 112 regulated toxic substances: ammonia

Clean Air Act Section 112 : Not listed

(b) Hazardous Air Pollutants (HAPs)

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
ammonia	100	Yes.	500	-	100	-

SARA 304 RQ : 100 lbs / 45.4 kg

SARA 311/312

Classification : Refer to Section 2: Hazards Identification of this SDS for classification of substance.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	ammonia	7664-41-7	100
Supplier notification	ammonia	7664-41-7	100

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : This material is listed.

Section 15. Regulatory information

- New York : This material is listed.
 New Jersey : This material is listed.
 Pennsylvania : This material is listed.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

- Australia : This material is listed or exempted.
 Canada : This material is listed or exempted.
 China : This material is listed or exempted.
 Europe : This material is listed or exempted.
 Japan : **Japan inventory (ENCS):** This material is listed or exempted.
 Japan inventory (ISHL): This material is listed or exempted.
 Malaysia : This material is listed or exempted.
 New Zealand : This material is listed or exempted.
 Philippines : This material is listed or exempted.
 Republic of Korea : This material is listed or exempted.
 Taiwan : This material is listed or exempted.
 Thailand : Not determined.
 Turkey : This material is listed or exempted.
 United States : This material is listed or exempted.
 Viet Nam : Not determined.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	/	3
Flammability		1
Physical hazards		2

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)

Section 16. Other information



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
FLAMMABLE GASES - Category 2	Expert judgment
GASES UNDER PRESSURE - Liquefied gas	Expert judgment
ACUTE TOXICITY (inhalation) - Category 4	Expert judgment
SKIN CORROSION - Category 1	Expert judgment
SERIOUS EYE DAMAGE - Category 1	Expert judgment
AQUATIC HAZARD (ACUTE) - Category 1	Expert judgment

History

Date of printing : 1/23/2018
 Date of issue/Date of revision : 1/23/2018
 Date of previous issue : 10/30/2017
 Version : 1

Key to abbreviations : ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 IATA = International Air Transport Association
 IBC = Intermediate Bulk Container
 IMDG = International Maritime Dangerous Goods
 LogPow = logarithm of the octanol/water partition coefficient
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 UN = United Nations

References : Not available.

☑ Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

APPENDIX E

SAMPLE SHIPPING PAPER FOR TRAINING USE ONLY

HAZMAT CHEMICAL COMPANY Inc.

AT DEER PARK TX	SHIPPER'S ID NO. 141 A04602	B/L SEQ. NO. 978	CARRIER NAME MATLACK 6189	SHIPPING DATE 11-05-98
FOR CHEMICAL EMERGENCY CALL CHEMTREC DAY OR NIGHT 1-800-424-9300	ROUTE CODE	ROUTE		
CUSTOMER NUMBER 39300001	SEAL NO(S) 88288-90	CUSTOMER ORDER NO. 90576 R-4		
CONSIGNEE TO JOHN OGORMAN 1123 DATELOG WAY HOUSTON, TX 77090		BILL TO JPO INDUSTRIES P.O. BOX 90674 HOUSTON, TX 77090		
ORDERED BY AND DATE MO DAY YR. 11 01 98	SUGGESTED SHIPPING DATE 11 04 98	REQUESTED DELIVERY DATE 11 06 98		
ORDERER'S INITIALS AMH 713-444-2430				

HM	NO. & KIND PACKAGES	PRODUCT NAME	HAZARD CLASS	UN NO.	GUIDE PAGE
X	1 T/T	EPICHLOROHYDRIN,	6.1,	UN 2023,	RQ, GUIDE 131
	LINE 01		4,500	GAL	
	GROSS WT	TARE	NET		
	70,240	25,960	44,280		

SPECIAL INSTRUCTIONS	
<ul style="list-style-type: none"> ANY UNLOADING DETENTION CHANGES BILL TO CONSIGNEE EQUIP. T/T WITH 2" CAMLOCK FITTING for UNLOADING and 2" MALE CAMLOCK FITTING for VENTING DELIVER 10 AM - 3 PM 11/06 	
IF SHIPPMENT IS PREPAID MAIL FREIGHT BILL IN DUPLICATE WITH NO. 4 COPY OF B/L TO:	HAZMAT Chemical Company Inc. P.O. Box 1876 Houston, Texas 77251 Attention: Chemical Products Accounting Freight Accounting
SHIPPMENTS VIA MOTOR CARRIER	DOT HAZARDOUS MATERIALS PLACARDS FURNISHED BY: <input type="checkbox"/> SHIPPER <input type="checkbox"/> CARRIER
Carrier certifies that the container supplied by Carrier for this shipment is a proper container for transportation of the Materials as described above. Carrier _____ Per Agent _____	DELIVERY RECEIPT - Received in good condition Customer/Customer's Carrier certifies that the container supplied by it for this shipment is a proper container for transportation For _____ By _____

9 GBRX 700039 T5I L HAZMAT ESTJOH PNWR 130 PORTLAWRR LINNTON OR
48

FL FLAMMABLE

>>> KEY SHIPMENT (TWENTY) <<<

* HAZMAT * 1 TK // 189039 LB
UN1987 // ALCOHOLS, N.O.S.

(ALCOHOLS, N.O.S.)

EMERGENCY CONTACT: 8004249300 PG II
SHIPPER CONTACT: RPMG INC
HAZMAT STCC 4909152

RAIL CONSIGNEE RAIL SHIPPER
CARSON OIL COMPANY INC RPMG INC
1157 VALLEY PARK DRIVE SUITE 1
LINNTON OR 55379 BENSON MN

10 TILX 191288 T5I L HAZMAT ESTJOH PNWR 129 PORTLAWRR LINNTON OR
52

FL FLAMMABLE

>>> KEY SHIPMENT (TWENTY) <<<

* HAZMAT * 1 TK // 191035 LB
UN1987 // ALCOHOLS, N.O.S.

(ALCOHOLS, N.O.S.)

EMERGENCY CONTACT: 8004249300 PG II
SHIPPER CONTACT: RPMG INC
HAZMAT STCC 4909152

RAIL CONSIGNEE RAIL SHIPPER
CARSON OIL COMPANY INC RPMG INC
1157 VALLEY PARK DRIVE SUITE 1
LINNTON OR 55379 BENSON MN

11 TILX 190545 T5I L HAZMAT ESTJOH PNWR 128 PORTLAWRR LINNTON OR
56

FL FLAMMABLE

>>> KEY SHIPMENT (TWENTY) <<<

* HAZMAT * 1 TK // 190361 LB
UN1987 // ALCOHOLS, N.O.S.

(ALCOHOLS, N.O.S.)

EMERGENCY CONTACT: 8004249300 PG II
SHIPPER CONTACT: RPMG INC
HAZMAT STCC 4909152

RAIL CONSIGNEE RAIL SHIPPER
CARSON OIL COMPANY INC RPMG INC
1157 VALLEY PARK DRIVE SUITE 1
LINNTON OR 55379 BENSON MN

12 TILX 191306 T5I L HAZMAT ESTJOH PNWR 129 PORTLAWRR LINNTON OR
60

FL FLAMMABLE

>>> KEY SHIPMENT (TWENTY) <<<

	RAIL CONSIGNEE		RAIL SHIPPER
	CARSON OIL COMPANY INC		RPMG INC
	1157 VALLEY PARK DRIVE SUITE 1		BENSON MN
	LINNTON OR 55379		
13 TAEX	2230 T5I L HAZMAT EPASCO	127 TIDEWATERMIN EPASCO	WA
	*****	1 TK // 195250 LB	
*	HAZMAT *	UN1814 // POTASSIUM HYDROXIDE,	
	*****	SOLUTION	
		8	
	EMERGENCY CONTACT: 8004249300	PG II	
	SHIPPER CONTACT: ERCO WORLDWIDE USA INC	RQ (POTASSIUM HYDROXIDE)	
		HAZMAT STCC 4935230	

	RAIL CONSIGNEE		RAIL SHIPPER
	TESORO REFINING AND MARKETING		RPMG INC
	19100 RIDGEWAY PKWY		BENSON MN
	PASCO WA 78259		
14 TILX	191189 T5I L HAZMAT EPASCO	130 TIDEWATERMIN EPASCO	WA
		68	
	FL FLAMMABLE		
	>>> KEY SHIPMENT (TWENTY) <<<		
	*****	1 TK // 191029 LB	
*	HAZMAT *	UN1987 // ALCOHOLS, N.O.S.	
	*****	(ALCOHOLS, N.O.S.)	
		3	
	EMERGENCY CONTACT: 8004249300	PG II	
	SHIPPER CONTACT: RPMG INC	HAZMAT STCC 4909152	

	RAIL CONSIGNEE		RAIL SHIPPER
	TESORO REFINING AND MARKETING		RPMG INC
	19100 RIDGEWAY PKWY		BENSON MN
	PASCO WA 78259		
15 NATX	302145 T5I L HAZMAT EPASCO	129 TIDEWATERMIN EPASCO	WA
		72	
	FL FLAMMABLE		
	>>> KEY SHIPMENT (TWENTY) <<<		
	*****	1 TK // 190301 LB	
*	HAZMAT *	UN1987 // ALCOHOLS, N.O.S.	
	*****	(ALCOHOLS, N.O.S.)	
		3	
	EMERGENCY CONTACT: 8004249300	PG II	
	SHIPPER CONTACT: RPMG INC	HAZMAT STCC 4909152	

Train Totals 124 Cars 58 Loads 66 Empties 9728 Tons 8030 Feet
(124 Railcars) 78.5 TOB Avg 219 Loco
0 RSSM Car Count 8249 Total

Haz Totals:

Haz Railcars 18 Cars 18 Loads 0 Empties 2317 Tons 1048 Feet

Haz Containers - 0 Haz Vans - 0

CLASSIFICATION: (FLAMMABLE LIQUID)

COMMODITY NUMBER IS: 4909152

UNNA IS: UN1987

DENATURED ALCOHOL (ALCOHOLS, N.O.S.)

(FLAMMABLE LIQUID)

CLASS 3 (FLAMMABLE LIQUID)

UN1987

(FLAMMABLE LIQUID)

DENATURED ALCOHOL IS A CLEAR, COLORLESS LIQUID WITH A CHARACTERISTIC ODOR. IT HAS A FLASH POINT NEAR 55 DEG. F. IT IS LIGHTER THAN WATER AND SOLUBLE IN WATER. ITS VAPORS ARE HEAVIER THAN AIR. IT IS USED AS A FUEL, SOLVENT, ANTIFREEZE, AND TO MAKE OTHER CHEMICALS.

IF MATERIAL ON FIRE OR INVOLVED IN FIRE

DO NOT EXTINGUISH FIRE UNLESS FLOW CAN BE STOPPED

USE WATER IN FLOODING QUANTITIES AS FOG

SOLID STREAMS OF WATER MAY BE INEFFECTIVE

COOL ALL AFFECTED CONTAINERS WITH FLOODING QUANTITIES OF WATER

APPLY WATER FROM AS FAR A DISTANCE AS POSSIBLE

USE ""ALCOHOL"" FOAM, DRY CHEMICAL OR CARBON DIOXIDE

IF MATERIAL NOT ON FIRE OR NOT INVOLVED IN FIRE

KEEP SPARKS, FLAMES, AND OTHER SOURCES OF IGNITION AWAY

KEEP MATERIAL OUT OF WATER SOURCES AND SEWERS

BUILD DIKES TO CONTAIN FLOW AS NECESSARY

ATTEMPT TO STOP LEAK IF WITHOUT UNDUE PERSONNEL HAZARD

USE WATER SPRAY TO KNOCK-DOWN VAPORS

PERSONNEL PROTECTION

WEAR APPROPRIATE CHEMICAL PROTECTIVE GLOVES, BOOTS AND GOGGLES

WASH AWAY ANY MATERIAL WHICH MAY HAVE CONTACTED THE BODY

WITH COPIOUS AMOUNTS OF WATER OR SOAP AND WATER

FIRST AID RESPONSES

MOVE VICTIM TO FRESH AIR; SEEK MEDICAL ATTENTION IMMEDIATELY.

IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION.

REMOVE AND ISOLATE CONTAMINATED CLOTHING AND SHOES AT THE SITE.

IN CASE OF CONTACT WITH MATERIAL, IMMEDIATELY FLUSH SKIN OR EYES WITH

RUNNING WATER FOR AT LEAST 20 MINUTES. REMOVE CONTACT LENSES IMMEDIATELY.

KEEP VICTIM QUIET AND MAINTAIN NORMAL BODY TEMPERATURE.

EFFECTS MAY BE DELAYED, KEEP VICTIM UNDER OBSERVATION.

ENVIRONMENTAL CONSIDERATIONS - AIR SPILL

APPLY WATER SPRAY OR MIST TO KNOCK DOWN VAPORS

ENVIRONMENTAL CONSIDERATIONS - LAND SPILL

DIG A PIT, POND, LAGOON, HOLDING AREA

TO CONTAIN LIQUID OR SOLID MATERIAL

COVER SOLIDS WITH A PLASTIC SHEET

TO PREVENT DISSOLVING IN RAIN OR FIRE FIGHTING WATER

DIKE SURFACE FLOW USING SOIL, SAND BAGS,

FOAMED POLYURETHANE, OR FOAMED CONCRETE

ENVIRONMENTAL CONSIDERATIONS - WATER SPILL

USE NATURAL BARRIERS OR OIL SPILL CONTROL BOOMS TO LIMIT SPILL TRAVEL

55 CARS FROM HEAD END UTLX630403
CLASSIFICATION: (CORROSIVE MATERIAL)
COMMODITY NUMBER IS: 4935230
UNNA IS: UN1814
POTASSIUM HYDROXIDE, SOLUTION
(CORROSIVE MATERIAL)
CLASS 8 (CORROSIVE MATERIAL)

UN1814

(CORROSIVE MATERIAL)
ENVIRONMENTALLY HAZARDOUS SUBSTANCE (RQ-
1000 POUNDS (454 KILOGRAMS))
(CORROSIVE MATERIAL)

POTASSIUM HYDROXIDE, SOLUTION IS THE WATER SOLUTION OF A WHITE SOLID. THE CONCENTRATED SOLUTION WILL DISSOLVE IN ADDITIONAL WATER WITH EVOLUTION OF HEAT. IT IS CORROSIVE TO METALS AND TISSUE. IT WEIGHS 12.8 LBS./GAL. IT IS USED TO MAKE SOAPS, OTHER POTASSIUM COMPOUNDS, IN LIQUID FERTILIZERS, AND FOR MANY OTHER USES.

IF MATERIAL ON FIRE OR INVOLVED IN FIRE
SOLID STREAMS OF WATER MAY BE INEFFECTIVE
EXTINGUISH FIRE USING AGENT SUITABLE FOR TYPE OF SURROUNDING FIRE
USE WATER IN FLOODING QUANTITIES AS FOG
APPLY WATER FROM AS FAR A DISTANCE AS POSSIBLE

IF MATERIAL NOT ON FIRE OR NOT INVOLVED IN FIRE
KEEP MATERIAL OUT OF WATER SOURCES AND SEWERS
BUILD DIKES TO CONTAIN FLOW AS NECESSARY

PERSONNEL PROTECTION
AVOID BODILY CONTACT WITH THE MATERIAL
WEAR APPROPRIATE CHEMICAL PROTECTIVE GLOVES, BOOTS AND GOGGLES
DO NOT HANDLE BROKEN PACKAGES UNLESS WEARING
APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT
WITH COPIOUS AMOUNTS OF WATER OR SOAP AND WATER
IF CONTACT WITH THE MATERIAL ANTICIPATED,
WEAR APPROPRIATE CHEMICAL PROTECTIVE CLOTHING

FIRST AID RESPONSES
MOVE VICTIM TO FRESH AIR; SEEK MEDICAL ATTENTION IMMEDIATELY.
REMOVE AND ISOLATE CONTAMINATED CLOTHING AND SHOES AT THE SITE.
IN CASE OF CONTACT WITH MATERIAL, IMMEDIATELY FLUSH SKIN OR EYES WITH
RUNNING WATER FOR AT LEAST 20 MINUTES. REMOVE CONTACT LENSES IMMEDIATELY.
KEEP VICTIM QUIET AND MAINTAIN NORMAL BODY TEMPERATURE.

ENVIRONMENTAL CONSIDERATIONS - AIR SPILL
APPLY WATER SPRAY OR MIST TO KNOCK DOWN VAPORS

ENVIRONMENTAL CONSIDERATIONS - LAND SPILL
DIG A PIT, POND, LAGOON, HOLDING AREA
TO CONTAIN LIQUID OR SOLID MATERIAL
DIKE SURFACE FLOW USING SOIL, SAND BAGS,
FOAMED POLYURETHANE, OR FOAMED CONCRETE

ENVIRONMENTAL CONSIDERATIONS - WATER SPILL
NEUTRALIZE WITH DILUTE ACID

COMPATIBLE PROTECTIVE EQUIPMENT CONSTRUCTION MATERIALS INCLUDE:
NITRILE RUBBER/POLYVINYL CHLORIDE
POLYURETHANE
POLYVINYL CHLORIDE
STYRENE-BUTADINE RUBBER

.... END OF REPORT

APPENDIX G

SAMPLE SHIPPING PAPER FOR TRAINING USE ONLY

*** ATTACHED SHEET ***
OF DECLARATION OF DANGEROUS GOODS

2017/02/20
F-4

DEST CODE 104U HAISEN CTL NO P051 VESSEL NAME GEORGE WASHINGTON BRIDGE
SAILING ON OR ABOUT 20170222 FROM NAGOYA, JAPAN
IMO CLASS: 9 UN-NO: 3090 LABEL: 9 Pg: 11

TOYDPO51

CONTAINER NO	GOODS	QTY	PCS	M/W(KGS)	B/W(KGS)	M3
BSIU9635752	BATTERY HAYDAY	1	48	10.00	12.00	0.042
BSIU9692205	BATTERY HAYDAY	1	96	20.20	23.90	0.082
KKFU7829358	BATTERY HAYDAY	1	144	30.30	36.10	0.133
KKFU7925490	BATTERY HAYDAY	1	48	10.10	11.30	0.043
KKFU7927908	BATTERY HAYDAY	1	96	20.10	23.40	0.084
KKFU7943215	BATTERY HAYDAY	1	144	30.20	35.20	0.123
KKFU8102820	BATTERY HAYDAY	1	96	20.10	23.60	0.083
TCLU4477961	BATTERY HAYDAY	1	48	10.10	11.80	0.042
TCNU4416624	BATTERY HAYDAY	1	144	30.20	35.30	0.123
TCNU9526268	BATTERY HAYDAY	1	96	20.20	24.20	0.081
TOTAL	BATTERY HAYDAY	12	960	201.50	237.00	0.862

危険物明細書
DECLARATION OF DANGEROUS GOODS FOR MULTIMODAL TRANSPORT

コンテナ危険物明細書
DECLARATION OF DANGEROUS GOODS IN CONTAINER & CONTAINER PACKING CERTIFICATE FOR MULTIMODAL TRANSPORT

MESSRS: _____ 社名: _____

Date. (日付) _____

TOYDPO

This summarizes the requirements of ICAO Annex 18, regulation 8.2; MARPOL 73/78, Annex II, regulation 1 and the IMDG Code chapter 5.4

1 船主の名前又は名称及び住所: Shipper / Consignor / Sender TOYOTA MOTOR CORPORATION 1, TOYOTA-CHO, TOYOTA, AICHI, JAPAN		2 ブッキング番号: Booking No. NATDP051	
3 荷主の名前又は名称及び住所: Consignee TOYOTA MOTOR MANUFACTURING KENTUCKY, INC. 1001 CHERRY BLOSSOM WAY GEORGETOWN, KENTUCKY 40324		4 Page 1 of _____ of _____ 5 貨物運送票名目番号: Freight forwarder's reference number(s) 6 船主/船荷役の責任者(会社名): Carrier / 運送人の記入 (to be completed by the carrier) K'LINE	
7 以下の危険物の詳細・包装、積上及び積卸しは危険物の輸送及び特別規制に適合し、かつ、全ての面に於て適切に標識された状態であることを証明します。 SHIPPER'S DECLARATION I hereby declare that the contents of this consignment are fully and accurately described by the proper shipping name, and are classified, packaged, marked and labelled / placarded and are in all respects in proper condition for transport according to the applicable international and national governmental regulations.		8 署名人の氏名、職名、所属: Name / status company / organization of signatory TOYOTA MOTOR CORPORATION K.YAMAMOTO MANAGER 9 署名の場所及び日付: Place and date 21-Feb-2017 NAGOYA, JAPAN 10 署名人の署名: Signature on behalf of shipper 	
11 この船舶は、乗客、貨物、または両方を含む。: PASSENGER AND CARGO AIRCRAFT / CARGO AIR CRAFT ONLY		12 予防処置、保護具、応急処置用品: Prevention Measures, Protection equipment, EMS code No., Medical First Aid or MFAG table No. MFAG table No.: See IMO MFAG, EMS No.: F-A, 9-1 CHEMTREC (CCN22632): * AS SEE BELOW	
13 船名、航路番号及び船積予定日: Vessel/flight No./Voy No. and date GEORGE WASHINGTON BRIDGE Voy No. 086E 22-Feb-2017		14 積込場所: Port/place of loading TACOMA	
15 積出場所: Port/place of discharge GEORGETOWN, KY, USA		16 特別事項: Additional handling information * International 24-Hour Number: 1-703-627-3887 US & Canada 24-Hour Number: 1-800-424-5300	
17 荷印及び番号: Shipping marks & number(s)		18 危険物の説明: * Description of dangerous goods. The basic description should be in order to UN number, proper shipping name, class, Compatibility group (for Class 1) Subsidiary hazard class (where assigned) and packing group (where assigned). 船主/船荷役会社、国番号、品名、クラス、副危険種(クラスの場合) 副危険種(船積する場合)及び包装等級(船積する場合)のみに記載されなければならぬ。 19 容器、包装の種類及び数量、総重量又は容積: Numbered kind of packages, Gross mass(es) Net mass(es) Cube(m3)	
20 UN番号(国連番号): UN 3090		21 固有の危険性: alloy batteries	
22 固有の危険性(品名): LITHIUM METAL BATTERIES (including lithium)		23 包装等級: CLASS 9	
24 副危険性(品名): CLASS 9		25 包装等級(品名): CLASS 9	
26 包装等級(品名): CLASS 9		27 追加の説明(例として): "FLASH POINT" "MARINE POLLUTANT" etc. OUTER: 4A	
28 船主/船荷役会社その他の住所: AS PER ATTACHED SHEET		29 総重量: AS PER ATTACHED SHEET	
30 船主/船荷役会社その他の住所: AS PER ATTACHED SHEET		31 総重量: AS PER ATTACHED SHEET	

APPENDIX H

SAMPLE SHIPPING PAPER FOR TRAINING USE ONLY

Sender's Copy

Form ID No. **0200**

Retain this copy for your records.

1 From Please print and print hard.
Date _____ Sender's FedEx Account Number _____
Sender's Name _____
Company _____
Address _____ Dept./Floor/Suite/Room _____
City _____ State _____ ZIP _____

2 Your Internal Billing Reference
First 25 characters will appear on invoice.

3 To
Recipient's Name _____ Phone (_____) _____
Company _____
Recipient's Address _____ Dept./Floor/Suite/Room _____
Address _____
City _____ State _____ ZIP _____

4a Express Package Service
FedEx Priority Overnight Next business morning*
FedEx Standard Overnight Next business day*
FedEx 2Day Second business day*
FedEx Express Saver Third business day*
FedEx 1Day Freight* Next business day*
FedEx 2Day Freight Second business day*
FedEx 3Day Freight Third business day*

4b Express Freight Service
FedEx Envelope* Call for Confirmation.
FedEx Pak* Includes FedEx Small Pak, FedEx Large Pak, and FedEx Heavy Pak.
FedEx Tube *Declared value limit \$200.
Other

5 Packaging
Special Handling Includes FedEx address in Section 3.
SATURDAY Delivery Available ONLY for FedEx Priority Overnight, FedEx 2Day, FedEx 1Day Freight, and FedEx First Overnight. Freight to select ZIP codes.
HOLD Weekday at FedEx Location NOT Available for FedEx Priority Overnight, FedEx 2Day, and FedEx First Overnight. Freight to select ZIP codes.
HOLD Saturday at FedEx Location Available ONLY for FedEx Priority Overnight, FedEx 2Day, and FedEx First Overnight. Freight to select ZIP codes.

6 Special Handling
Does this shipment contain dangerous goods?
No Yes Includes match for class, UN number, hazard label, and required shipping instructions.
DANGEROUS GOODS (Including Dry Ice) require special handling in FedEx packaging.
Dry Ice UN 1845
Cargo Aircraft Only

7 Payment Bill to: Recipient Third Party Credit Card Cash/Check
Sender's Bill Sender's Bill (to be paid by biller)
FedEx Acc. No. _____
Credit Card No. _____

Total Packages _____ Total Weight _____ Total Declared Value* \$ _____
*Your liability is limited to \$100 unless you declare a higher value. See back for details.

8 Sign to Authorize Delivery Without a Signature
By signing this Airbill you agree to the terms and conditions on the back of this Airbill and in our contract Service Guide. Signature required to insure contents and to release liability. Signature required to release liability. Signature required to release liability.

Try online shipping at fedex.com.
Questions? Visit our Web site at fedex.com or call 1.800.Go.FedEx.1.800.463.3338.

467

Dangerous Goods in Excepted Quantities

847096588010

Include this statement and check this box.

APPENDIX I

NFPA 704-Standard System for the Identification of the Hazards of Materials for Emergency Response. Quincy, Massachusetts, 2007. National Fire Protection Association.

NFPA Fire Protection Guide on Hazardous Materials. 19th edition. Quincy, Massachusetts, 2006. National Fire Protection Association.

NFPA 1971, Standard on Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting. National Fire Protection Association, Quincy, Massachusetts, 2007 edition.

NFPA 1991, Standard on Vapor-Protective Ensembles for Hazardous Materials Emergencies. National Fire Protection Association, Quincy, Massachusetts, 2005 edition.

NFPA 1992, Standard on Liquid Splash-Protective Ensembles and Clothing for Hazardous Materials Emergencies, 2005 edition.

NFPA 1994, Standard on Protective Ensembles for First Responders to CBRN Terrorism Incidents, 2007 edition.

NFPA Hazardous Materials/Weapons of Mass Destruction Response Handbook, 2008.

NIOSH Pocket Guide to Chemical Hazards. Washington, D.C., 2005. National Institute for Occupational Safety and Health.

DOT Emergency Response Guidebook, Washington, D.C. 2012, U.S. Department of Transportation

Pocket Guide to Chemical Hazards, Washington, D.C. 2006, National Institute for Occupational Safety and Health.

Northwest Environmetrics Hazmat Awareness and Operations, *Train the Trainer,* 2013

Safety Education Technologies, *Hazmat Awareness & Operations,* 2004

Airgas Industries, Chlorine SDS, 2013

Valent, 2015; Safari Pesticide Label

Test A (To be completed with Appendix A)

Course: Hazardous Materials Operations Level Course

Subject: Hazardous Materials Container Identification

<u>Container type</u>	<u>Product Stored</u>
1. _____	A. Nonpressure intermodal
2. _____	B. Nonpressure facility tank
3. _____	C. Bag
4. _____	D. Nonpressure (Low Pressure) tank car
5. _____	E. Cryogenic liquid facility tank
6. _____	F. Drum
7. _____	G. Cylinder
8. _____	H. Pressure tank car
9. _____	I. Pressure facility tank
10. _____	J. Cryogenic liquid cargo tank
11. _____	K. Cryogenic intermodal
12. _____	L. Pressure intermodal
13. _____	M. Carboy
14. _____	N. Pressure cargo tank
15. _____	O. Corrosive liquid cargo tank
16. _____	P. Cryogenic liquid tank car
17. _____	Q. Non Pressure liquid cargo tank
18. _____	R. Low Pressure liquid cargo tank
19. _____	S. Ton Cylinder
20. _____	T. Y Cylinder

Test B (To be completed with Appendix B)

Course: Hazardous Materials Operations Level Course

Subject: Radioactive Materials Container Identification

Container Type

1. _____ Type A
2. _____ Type B
3. _____ Excepted

Test C (To be completed with Appendix C)

Course: Hazardous Materials Operations Level Course

Subject: Pesticide Label Information

1. Name of Pesticide _____
2. Name of Signal Word _____
3. EPA Registration Number _____
4. Name of Precautionary Statement _____
5. Name of Hazard Statement _____
6. Name of Active Ingredient _____
7. Describe significance of information gathered: _____

Test D (To be completed with Appendix D)

Course: Hazardous Materials

Subject: Hazard and Response Information Identification

References: Skills test handout (includes the scenario, SDSs, shipping papers),
and an ERG

Examinee's Answer Sheet: Identify the following hazard and response information.

Chemical #1: (name) _____

(UN ID #) _____ **WHAT SECTION?** _____

Physical and chemical characteristics: **WHAT SECTION?** _____

Physical state _____

Boiling point _____

Vapor pressure _____

Vapor density _____

Specific gravity _____

pH _____

Solubility (H₂O) _____

Physical appearance (color) _____

Odor _____

Physical hazards of the material: **WHAT SECTION?** _____

Flashpoint _____ LEL (% in air) _____ UEL (% in air) _____

Fire extinguishing agents _____

Health Hazards of the material: **WHAT SECTION?** _____

Target organs _____

Route of entry (circle all that are applicable): **WHAT SECTION?** _____

Inhalation

Ingestion

Absorption

Contact

Signs and symptoms of exposure:

WHAT SECTION? _____

Permissible exposure limits:

WHAT SECTION? _____

TLV/TWA _____ LC50/LD50 _____ PEL _____
PEL-C _____ STEL _____

Responsible party contact:

WHAT SECTION? _____

Name of manufacturer _____
Emergency contact number _____

Precautions for safe handling:

WHAT SECTION? _____

Spill procedures (hygiene practices, protective measures) _____

Applicable control measures including personal protective equipment:

WHAT SECTION? _____

Respiratory protection _____

Eye/Skin protection _____

Emergency first aid procedures _____

Name two places where you can obtain an SDS

Test E (To be completed with Appendix E, F, G, & H)

Appendix E

What form of Transportation is this? _____

Where would this paperwork be located? _____

Who has this paperwork? _____

What is the Hazmat? _____

For a small spill, what is the initial standoff distance? _____

Appendix F

What form of Transportation is this? _____

Where would this paperwork be located? _____

Who has this paperwork? _____

What are the Hazardous Materials? _____

For a small spill, what is the initial standoff distance? _____

Appendix G

What form of Transportation is this? _____

Where would this paperwork be located? _____

Who has this paperwork? _____

What is the Hazmat? _____

For a small spill, what is the initial standoff distance? _____

Appendix H

What form of Transportation is this? _____

Where would this paperwork be located? _____

Who has this paperwork? _____

Test F
DOT ERG 2016 Exercise

- 1) Given a placard with only the number “1.4” visible, which Guide Number would you use until more information became available?
- a. Guide 111
 - b. Guide 112
 - c. Guide 113
 - d. Guide 114

- 2) A cargo tanker identified as a DOT 412 is leaking and no other information is available. Which guide number would you use?

- a. Guide 117
- b. Guide 137
- c. Guide 115
- d. Guide 111

- 3) If the following placard (→) is visible with no identification wording, which ERG guide page would you utilize?

- a. Guide 111
- b. Guide 125
- c. Guide 159
- d. Guide 136



- 4) What guide page would you use if the only detection clue available were a white over red placard?

- a. Guide 136
- b. Guide 155
- c. Guide 112
- d. Guide 148

- 5) What does the “X668” Hazard Identification Code on the top half of the orange panel affixed to intermodal containers mean?

- a. Poisonous flammable liquid and gas
- b. Highly toxic substance, corrosive, which reacts dangerously with water
- c. Highly corrosive solid emitting toxic gas
- d. Corrosive liquid, flammable, which reacts dangerously with water

- 6) What is the UN # for Organophosphorus compound, poisonous, n.o.s.?
- a. UN 1955
 - b. UN 3278
 - c. UN 2762
 - d. UN 3279
- 7) If a tank, rail car, or tank truck of this material (identified in question #6) is NOT involved in a fire, and has a spill exceeding 55 gallons, you should first ISOLATE for:
- a. 500 meters
 - b. 600 feet
 - c. 500 feet
 - d. 2640 feet
- 8) If a cargo container of Liquefied gas, poisonous, flammable, n.o.s. is on fire, what is the recommended isolation and protective action distance?
- a. 1/2 mile
 - b. 2 miles
 - c. 1600 meters
 - d. 1900 meters
- 9) Calcium hydrosulfite (UN 1923) has a general hazard as substance-spontaneously combustible. Which of the following extinguishing materials are recommended to utilize if there is a fire?
- a. Carbon dioxide
 - b. Aqueous Film Forming Foam
 - c. Flooding amount of water
 - d. Dry chemical extinguisher, Dry sand, Soda ash, Lime
- 10) For a small spill of the dangerous goods, "Other regulated substances, liquid, n.o.s.", first ISOLATE in all directions as an immediate precautionary measure?
- a. 50 meters
 - b. 80 feet
 - c. 50 yards
 - d. 1/2 mile

11) What is the recommended initial isolation distance for a large spill of “Chloropicrin” not on fire?

- a. 600 feet
- b. 250 feet
- c. 500 feet
- d. 700 feet

12) How far should an incident commander establish initial isolation distances and downwind protection distances for all persons during a large spill of Sulfur Dioxide from multiple ton cylinders during nighttime conditions with moderate winds and not involved in fire?

- a. 4 km / 2.5 miles
- b. 1 mile / 1600 meters
- c. ½ mile / 1800 feet
- d. 6000 meters / 2.9 miles

13) A recommendation for emergency response and minimum evacuation distances for responders when dealing with a 4000L/1544 Gal propane (LPG) container involved with fire posing a BLEVE potential is?

- a. 1600 meters / 1 mile
- b. 295 feet / 801 feet
- c. 459 feet / 1,722 feet
- d. 577 feet / 2169 feet

14) The mandatory evacuation distance and preferred evacuation distance for a SUV/ Van with a potential IED is?

- a. 400 feet / 2,400 feet
- b. 263 meters / 1143 meters
- c. 640 feet / 2,750 feet
- d. 98 meters / 457 meters

15) “Ethylene Oxide” has a Guide Number of 119P. What hazard does the “P” represent?

- a. Polymerizing material
- b. Pyrophoric material
- c. Polar miscible material
- d. Polarizing material

- 16) This organization must be immediately notified for releases of dangerous goods and hazardous substances spilled into the environment a reportable quantity (RQ) of a hazardous substance or a material identified as a marine pollutant?
- NRC
 - CANUTEC
 - CHEMTREC
 - DOT
- 17) What amount is considered to be a small spill in the DOT - ERG?
- Approximately 3785 liters (1000 gallons) or less
 - Approximately 200 liters (50 gallons) or less
 - Approximately 208 liters (55 gallons) or less
 - Approximately 37 liters (10 gallons) or less
- 18) The emergency number to contact the Nationwide Poison Control Center (US only) is?
- 1-800-851-8061
 - 1-800-424-9300
 - 1-800-222-1222
 - 1-888-226-8832
- 19) What would the Downwind Protective Action Distance be for a rail tank car of Chlorine (UN 1017) for a DAY spill with HIGH WINDS?
- 3.2 Miles
 - 6 Miles
 - 0.5 Miles
 - 2 Miles
- 20) According to the UN Hazard Classification System, which hazard class and division would include Organic Peroxide
- 8
 - 7
 - 6.2
 - 5.2