Unit 4: Information Sources

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Unit 4 Objectives

The responder shall be able to;

- Locate and identify shipping papers used in different modes of transportation and identify and understand information about hazardous materials included in the shipping papers.
- Demonstrate how to properly use the Emergency Response Guidebook (ERG) to identify and understand basic information about hazardous materials including; potential hazards of the material, public safety actions, and emergency response.
- Demonstrate how to use a Safety Data Sheet to reference and identify specific information about the hazards and properties of a chemical. Using this information accurately complete a Chemical Hazard Profile for a specific hazardous material.

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Unit 4 Objectives

The responder shall be able to;

- Demonstrate the proper method of contacting CHEMTREC and identify the emergency incident information that should be communicated to CHEMTREC.
- Demonstrate the proper method of contacting the Virginia Emergency Operations Center and identify the emergency incident information that should be communicated to request assistance from the Regional Hazardous Material Officer.

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Information Sources

- **Written or Electronic Sources**
  - Shipping Papers
  - ERG - Emergency Response Guidebook
  - SDS- Safety Data Sheets
- **Technical Specialists**
  - CHEMTREC 1-800-424-9300
  - Virginia Emergency Operations Center (800) 468-8892
  - Regional Hazardous Material Officer

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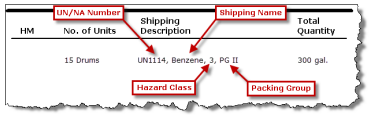
Shipping Papers

Shipping papers are documents required by the US Department of Transportation when materials are transported from one location to another.

Identified as a Hazardous Material
Proper Shipping Name
UN Identification Number
DOT Hazard Class/Division
Packing Group
Total Quantity of the Material
Emergency Response Number



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Mode of Transportation	Shipping Papers	Who is Responsible	Location
Highway	Bill of Lading	Driver	Truck Cab Pocket on driver's door, on drivers seat
Rail	Way Bill Consist	Conductor Engineer	Consist in cab of lead engine Way Bill may not be available
Air	Air Bill	Pilot	Cockpit
Marine	Dangerous Cargo Manifest	Captain of vessel	Pilot house
Highway Rail Marine	Hazardous Waste Manifest	As listed above	As listed above

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Emergency Response Guidebook

Developed for use by emergency services personnel who may be the first to arrive at the scene of a transportation incident involving hazardous materials.

The ERG was designed to assist the arriving emergency responders in making critical decisions at the scene of a hazardous materials incident.

While it was designed for highway and rail use, it may be of limited value at fixed-facility incidents.

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Emergency Response Guidebook ERG

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SKILL SESSION - Using the ERG

- Use the ERG as the information source
- Complete the ERG worksheets for the assigned scenarios

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SCENARIO 1 - Tuesday, July 23 at 1430 hours, a highway cargo trailer (DOT 406) overturns and spills all of the cargo. The material is identified by a red placard UN# 1203.

SCENARIO 2 - Saturday, October 6 at 0945 hours, a 55-gallon drum falls out of a cargo box truck. The drum is lying on its side with a 4-inch tear leaking a liquid. The material is identified by the product label as Hydrochloric Acid.

SCENARIO 3 - Monday, May 23 at 1300 hours, on a railroad siding a rail tank car is leaking a liquid form the bottom loading valve. There is a white vapor coming from the liquid release. The material is identified by placard and shipping papers as Sulfuric Acid, Fuming, UN# 1831. The wind is from the N at 3-5 mph.

SCENARIO 4 - Thursday, January 19 at 2300 hours, at a fixed facility a liquid is leaking from a 1,000 gallon above ground tank. The liquid is flowing down hill and into a river approximately 200 feet away. The wind is from the NE at 6-8 mph.

SCENARIO 5 - Sunday, April 20 at 0350 hours with wind form the W at 8-12mph, at the municipal water treatment plant there is a release of a green-yellow gas from the water treatment building. Pre-plan information states that there are five (5) one-ton containers of Chlorine stored inside the treatment building.

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Safety Data Sheets

Safety Data Sheets (SDS) are chemical-specific reference sources found in industrial settings. These documents may also accompany packages of chemicals while in transport.

Generated by the manufacturer of a chemical and is specific to the manufacturer's formulation or chemical blend.

Excellent resources for determining the chemical and physical properties of the material and for determining protective actions to be taken by the emergency responder.

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Safety Data Sheets SDS

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Chemical Hazard Profile

- The Chemical Hazard Profile is used to record and organize data collected about a specific Hazardous Material involved in an incident.
- Reference and record the pertinent information about the hazardous material in the assigned format and based on that data develop the hazardous profile.
- Evaluating the potential behaviors and hazards of the material is based on data collection and/or recording a NO or YES response to the criteria.
- The criteria for the hazardous profile are those items in the column at the right side of the worksheet.
- NOTE – Whenever there is conflicting information always evaluate the highest degree of harm and most dangerous behavior.

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Chemical Hazard Profile

- **Material Identification**
  - Proper Chemical Name
  - UN Identification Number
  - DOT Hazard Class/Division
  - NFPA 704 Hazard Marking
- **Physical State**
- **Energy Release Potential**
- **Evaluate Gas Hazards**
- **Evaluate liquid Hazards**
- **Evaluate Solid Hazards**

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Material Identification

DOT Hazard Class_____ UN Number_____ CAS Number_____

CHEMICAL NAME_____

NFPA 704 Health _____ Fire_____ Instability_____ Special_____

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Evaluate Energy Release Potential

HAZARD	EVALUATION	NO	YES	PROFILE
EXPLOSIVE	DOT Hazard Class 1 material?		___	___
EXPLOSIVE				
INSTABILITY	Chemically Unstable?		___	___
	Can the material Polymerize?	___	___	UNSTABLE
REACTIVE	Does it react with other Chemicals?	___	___	CHEMICALY
	Is it in contact with other Chemicals?	___	___	REACTIVE
	Must answer YES to both to be REACTIVE			
Water reactive?		___	___	
	Air reactive?		___	___
REACTIVE				
OXIDIZER	Is the material an oxidizer?	___	___	OXIDIZER
RADIOATIVE	DOT Hazard Class 7 material?	___	___	RADIOACTIVE

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Evaluate the Physical State of the Material

Ambient Temperature_____ Boiling Point_____ Melting Point_____

PROFILE	NO	YES	
Boiling Point Below Ambient Temperature	___	___	GAS
Boiling Point Below 300 F but above Ambient Temperature	___	___	
Liquid/Gas			
Boiling Point Above 300 F	___	___	Liquid
Melting Point above Ambient Temperature	___	___	Solid

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Evaluate the Gas Hazard

HAZARD	EVALUATION	PROFILE
VAPOR DENSITY _____	Less than 1 More than 1	Rise in air Sink in air
FIRE Flash Point _____	Below 100 F	FLAMMABLE
	Above 100F	
COMBUSTIBLE		
Ignition Temperature_____ LEL_____	UEL_____	

HEALTH

Inhalation Hazard Guide

Extreme – 10 ppm or less
High – 10 -100 ppm
Moderate - 100-1,000 ppm
Slight - 1,000 -10,000 ppm

IDLH_____
PEL _____
REL_____
LC50 _____

INHALATION HAZARD

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Evaluate the Solid Hazards

HAZARD	EVALUATION	PROFILE
Sublime	No___ Yes____	Evaluate Gas
Combustible	No___ Yes___	Combustible Solid
Soluble in water	No___ Yes ____	Soluble
Corrosive pH_____	No____ Yes_____	Corrosive

Dermal Hazard Guide
Extreme – 5 mg/kg or less
High – 5 -43 mg/kg
Moderate - 44- 340 mg/kg
Slight - 340 – 2810 mg/kg

IDLH _____
PEL _____
LD50 _____

DERMAL
CONTACT
HAZARD

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Evaluate the Liquid Hazards

HAZARD	EVALUATION	PROFILE
Soluble in water	No___ Yes____	Soluble
Specific Gravity	Less than 1 More than 1	Float on water Sink in water
Corrosive Acid Base pH_____	No____ Yes_____	Corrosive

Dermal Hazard Guide
Extreme – 5 mg/kg or less
High – 5 -43 mg/kg
Moderate - 44- 340 mg/kg
Slight - 340 – 2810 mg/kg

IDLH _____
PEL _____
REL _____
LD50 _____

DERMAL
CONTACT
HAZARD

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SKILL SESSION - Using the Safety Data Sheets and Chemical Hazard Profile Worksheet

- Use the SDS as the information source
- Complete the Chemical Hazard Profile worksheet for the assigned scenarios

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Chemical Transportation Emergency Center (CHEMTREC)

- Emergency contact telephone number – **(800) 424-9300**
- CHEMTREC provides immediate advice to emergency responders on:
  - Response to hazardous materials incidents
  - Technical chemical information
  - Emergency medical assistance due to exposure to hazardous materials
- CHEMTREC has access to numerous producers, shippers, and chemical engineers, as well as experts in other fields.

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When requesting assistance from CHEMTREC, the emergency responder must be able to provide some basic information.

- Caller's name and call-back telephone number
- Any information on the material that is available
- US DOT Emergency Response Guidebook guide number currently being followed
- Name of shipper or manufacturer
- Carrier's name
- Railcar report marks or highway cargo trailer identification number
- Consignee's name and contact information
- Local site and weather conditions

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Manufacturers and shipping companies can provide detailed technical information about a material and its movement.

- Manufacturer or shipper can send Material Safety Data Sheet to emergency responders for the specific product and concentration.
- Manufacturers can also provide expert advice on how to handle the material involved with the incident.
- Industrial hygienists or the chemical engineer can provide data on exposure control, toxic effects, and can suggest ways to mitigate the situation.
- CHEMTREC can often act as an intermediary to make sure the appropriate company people are contacted.

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Virginia Hazardous Material Response Program
Regional Hazardous Materials Officer

- The RHMO can provide detailed technical and scientific support, and advice on tactical control and management of HAZMAT/WMD incidents.
- The state Hazardous Materials Officers (HMOs) have numerous resources they can employ to provide assistance during an incident:
- Specialized response equipment, reference sources, and communication equipment
- Activation of regional hazardous materials response teams who have received specialized advanced training and equipment
- The coordination of assistance with other state resources such as the Virginia State Police, Virginia Department of Environmental Quality, and the Virginia Department of Transportation

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Thank You!

Virginia Department of Fire Programs

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