



**Municipal First-on-the-Scene
Participant Manual
May 2014**

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Midwest Consortium for Hazardous Waste Worker Training

Acknowledgments

This curriculum has been developed by the Midwest Consortium for Hazardous Waste Worker Training under grant D42 ES07200 and cooperative agreement number U45 ES06184 from the National Institute of Environmental Health Sciences. Several member institutions of the Midwest Consortium contributed to the development of this program. See www.eh.uc.edu/mwc/ for a listing of contacts at each member institution and additional information. We encourage you to comment on these materials. Please give your suggestions to those teaching the program in which you are now enrolled, or forward them to the Midwest Consortium for Hazardous Waste Worker Training, University of Cincinnati, P.O. Box 670056, Cincinnati, Ohio 45267-0056 or click on 'contact us' at www.eh.uc.edu/mwc/.

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Disclaimer

This training is intended to meet the requirements of the OSHA Hazardous Waste Final Rule (29 CFR 1910.120 effective March 6, 1990) for first responder personnel (awareness level) who may be the first-on-the-scene at a hazardous materials incident. The training program covers basic hazard recognition, identification, reporting, and self-protection for individuals who may do preliminary observation of an event. It does **not** provide the necessary hazard recognition and protective skills required to perform emergency response activities. To undertake the activities of emergency responders, additional training is necessary.

For further information about this matter, consult the training instructor and/or your company's safety/emergency response plan or the Local Emergency Planning Committee for your city or county.

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WELCOME

You are here because you may be the first person on the scene at an incident which may involve hazardous materials. (The term "Hazardous Material" will be defined during the program.) Persons who may be first-on-the-scene include police officers, county officials, emergency personnel, and private citizens. Incidents may be discovered near an industrial facility, on a major highway, or on a country road. As the first-on-the-scene, your job is to observe and report conditions to appropriate personnel. As personnel arrive with specialized training and equipment, they will assume control of the incident.

Chapter Objectives

During this program you will learn about:

- ➡ Risks of hazardous materials.
- ➡ Possible outcomes of an emergency.
- ➡ Ways to recognize hazardous materials.
- ➡ Your role as the person who is first-on-the-scene.
- ➡ The need for other resources.

When you have completed this chapter, you will be better able to:

- ➡ Size up a scene.
- ➡ Communicate with hazmat response personnel.
- ➡ Work within the local system.

We want you to participate in the program. Please **ask questions** about anything that you do not understand and/or anything you would like to have discussed in more detail.

RIGHTS AND RESPONSIBILITIES

As the person first-on-the-scene, you must observe and report relevant information to the appropriate person. You have specific responsibilities that you must carry out to the best of your abilities. Along with these responsibilities, you should know about laws and regulations that provide worker rights.

Chapter Objectives

During this section you will learn about:

- ➡ Federal regulations and the Occupational Safety and Health Administration (OSHA).
- ➡ The Incident Command System.

When you have completed this chapter, you will be better able to:

- ➡ Understand the purpose of this training.
- ➡ Understand your rights as defined by law.
- ➡ Work within the Incident Command System.

"SARA" Is Your Friend

The Occupational Safety and Health Administration (OSHA) is the governmental agency that enforces health and safety regulations. In the Superfund Amendments and Reauthorization Act (SARA), Congress directed OSHA to develop requirements for training emergency responders.

OSHA's training requirements cover a wide range of emergency responders, from those first-on-the-scene to specialists. For those individuals who are likely to discover an incident during the course of their job, "awareness" training is required. This training was designed specifically to fulfill OSHA requirements for those who are first-on-the-scene.

The procedures covered during this training should also be followed when first-on-the-scene at an incident on or far away from the job.

OSHA requires that awareness-level training include:

1. An understanding of what hazardous materials are and the risks associated with them in an incident.
2. An understanding of the potential outcomes associated with an emergency created when hazardous materials are present.
3. The ability to recognize the presence of hazardous materials in an emergency.
4. The ability to identify the hazardous materials, if possible.
5. An understanding of the role of the first-on-the-scene awareness individual in the employer's emergency response plan. (This includes site security, site control, and the use of the U.S. Department of Transportation Emergency Response Guidebook.)
6. The ability to recognize the need for additional resources and to make appropriate notifications to the communication center.

Additional training is required to control or contain a spill, aid in clean-up, rescue victims, or perform other on-site duties. If you are interested in other types of training programs, contact your trainer or refer to the list of members of the Midwest Consortium for Hazardous Waste Worker Training that is provided in this manual.

What Rights Does SARA Give You as a Worker?

Under the regulation issued by OSHA, your employer must provide a medical exam if you are injured or overexposed while performing emergency responder's (including first-on-the-scene) duties at a scene on his/her behalf. If you are a state or local government employee and work in Ohio, Wisconsin, Tennessee, or Illinois, you are not covered by OSHA; however, the Environmental Protection Agency (EPA) has similar regulations that cover you. If you work for any private employer and are part of an organized emergency response activity, you are covered by OSHA. In all cases, a written emergency response plan is required. This plan must be available to you and your elected representatives, and you must be trained in your assigned role.

What Rights Does SARA Give You as a Citizen?

Under another part of SARA, known as SARA Title III, emergency response plans for communities must be developed. This is also known as the Emergency Planning and Community Right-to-Know Act. In order for communities and states to develop comprehensive plans, state and local committees have been established. The Local Emergency Planning Committee (LEPC) generates the Local Emergency Response Plan (LERP); similarly, the State Commission writes a State Emergency Response Plan (SERP). Under Title III, officials at facilities with hazardous substances must develop their own Emergency Response Plan (ERP), cooperate with the state and local committees, report releases, and make hazardous material information available to appropriate state and local officials, including the Local Emergency Planning Committee and Fire Department.

The Incident Command System ICS

Although every hazardous materials incident is unique, the need to respond in an organized and rational way calls for structure. The first-on-the-scene emergency responder is an important part of the structured response. Your response to the incident is the first step.

OSHA regulation 1910.120 requires that an Incident Command System be in place to deal with a hazardous materials response. The Incident Command System specifies the duties assigned to individuals as well as determines the chain of command for the emergency response. Regulation 1910.120 requires that individuals who are assigned specific duties as part of the Incident Command System must be trained in how to carry out these duties. An example organizational chart for the Incident Command System is shown on page 23.

If as part of your job you may be first-on-the-scene, to whom you should make your initial report and what your duties are are shown in your employer's Emergency Response Plan (ERP). After reporting the incident, you should then take the place in the chain of command to which you have been assigned.

If you discover an incident that has taken place away from your job, contact the local emergency response number or 911.

As a first-on-the-scene responder, you should know who is involved in your Local Emergency Planning Committee (LEPC) and the chain of command designated in the LERP.

- It is important that the correct person be notified and informed of the incident as quickly as possible.
- You should know whom to report to and take orders from after the emergency response team has arrived on the scene.

Why Use Incident Command?

- The Incident Command System (ICS) provides a standardized, on-scene, all-hazard incident management framework.
- ICS allows its users to expand or contract organizational structure to match incident demands.
- ICS is not hindered by organizational or jurisdictional boundaries and constraints.

ICS Helps Insure:

- Safety of emergency responders, bystanders and the community.
- Achievement of tactical objectives.
- Efficient use of response and recovery resources.

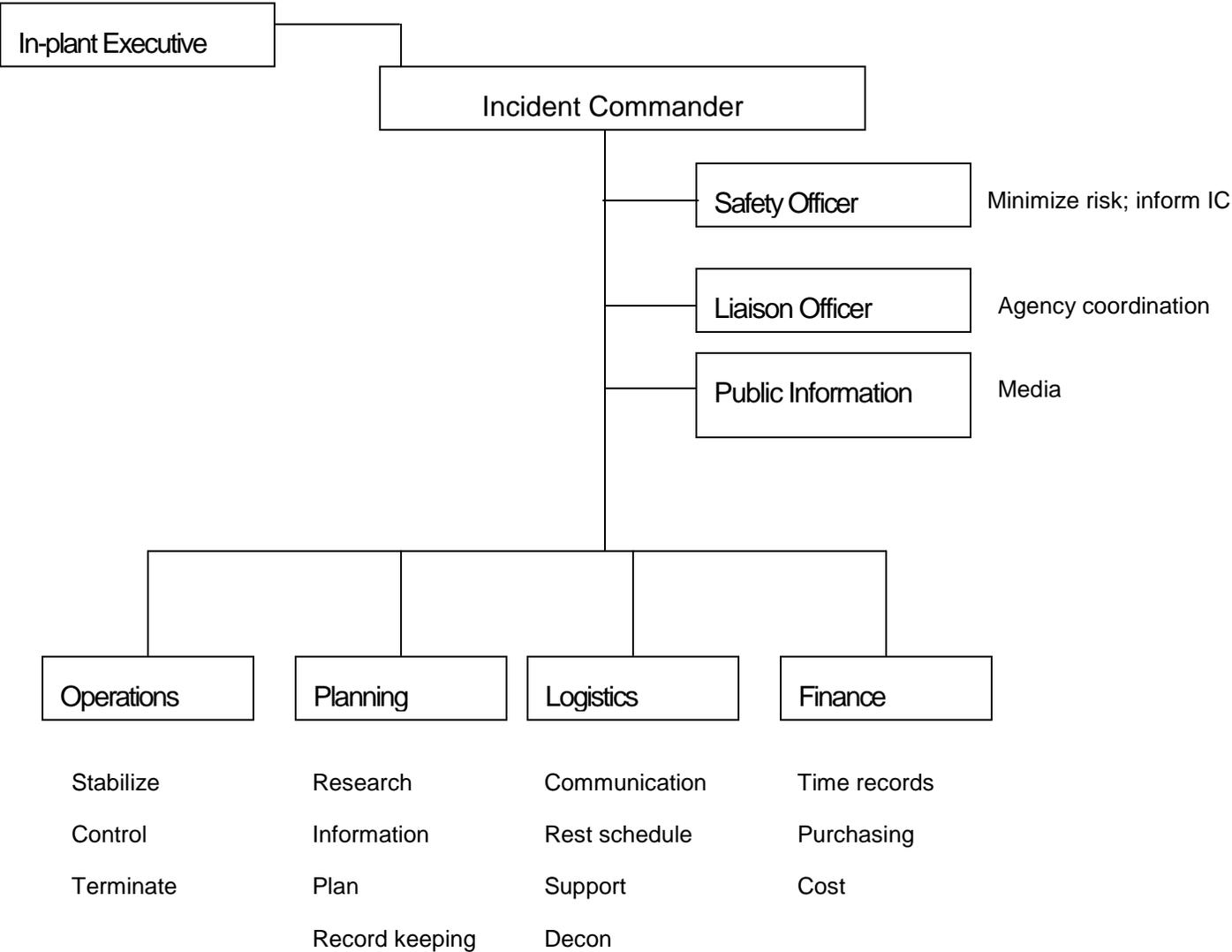
Incident Commander: Responsibilities

- Provides overall leadership for incident response.
- Directs /oversees development of the Incident Action Plan.
- Establishes and maintains liaison with all agencies participating in the incident response.
- Assesses need for staff.
- Delegates authority to others.
- Ensures incident and responder safety.
- Is responsible for all actions and functions he/she assigns to incident management personnel.

The Commander may receive direction from agency/jurisdictional administrators and officials.

As the first-on-the-scene person, you may participate in the response, if properly trained and directed by the Incident Commander. Your first and primary responsibility is to report incident facts accurately and as completely as possible to the appropriate party.

ICS Response Team Structure



Note: This chart should be adapted for the location, specific event and the available personnel. Other personnel may be added.

Liaison Officer, Safety Officer, and Public Information Officer provide services for the entire organization.

Operations, Planning, Logistics, and Finance/Administration are assigned functional authority.

Key Points

- This training program was designed to meet OSHA requirements for first-on-the-scene awareness-level training.
- Regulations give you certain rights. Know what they are!!
- Federal regulations require state and local emergency response plans.
- The Incident Command System:
 - Sets the chain of command.
 - Assigns specific job duties to specific individuals.
 - Is developed **before** an incident takes place.

Review Questions

1. What do regulations developed because of SARA do for you as a worker?

2. What does SARA do for you as a citizen?

3. Why is an Incident Command System needed? What does it do?

UNSOLVED MYSTERIES

This section will give you an opportunity to think about some emergencies which have occurred and could happen again. The definition of a hazardous material (legal and practical) will also be discussed.

Chapter Objectives

During this activity, think about:

- ➡ Different situations involving hazardous materials.
- ➡ What kinds of information you think would be needed by emergency responders to deal appropriately with the situation.
- ➡ What is a hazardous material?

When you finish, you will be better able to:

- ➡ Recognize a hazardous situation.
- ➡ Identify the need for gathering information before actions are taken.
- ➡ Describe reasons to treat all potential incidents as hazardous materials incidents until it is known they are not.

Exercise Directions

1. During this activity, you will work in groups of two to six participants.
2. In your group, have one person volunteer to take notes and to report back to the class.
3. Have one person volunteer to read each mystery to the group.
4. Your trainer will tell you which mysteries you are to discuss. Spend three to five minutes on each mystery, answering all the questions. The trainer will announce the time every five minutes.
5. After the groups have completed all of their mysteries, the trainer will ask for group reports and will lead a discussion with the whole class.

NOTE: It is important to stay within the facts given.

Mystery A

It's 2:05 p.m. on a hot Friday in July. A call comes into the police department from a man who lives next door to a storage facility. The man reports that something is leaking from under a pile of old transformers stored at the facility next to his house. He reports that the liquid is slowly moving under the fence that surrounds the storage facility and into his driveway. A police officer is dispatched and arrives at the caller's home to find him standing in his driveway next to a pool of liquid.

Answer the following in your group:

1. What should the police officer do?

2. What "clues" were given that something serious may be happening?

Mystery B

While driving in the country with her family one spring Sunday afternoon, an off-duty police officer comes upon an overturned tank truck accident. The accident has just happened. No other law enforcement personnel have arrived.

The truck is lying on its side, and the product is leaking out of the dome covers onto the pavement. The driver is trapped in the cab. It is a warm, clear day with a brisk breeze blowing. The traffic is very light, but another driver stops soon after the off-duty officer arrives.

Answer the following in your group:

1. What should the officer do?

2. What information should the officer gather?

Mystery C

At 3:00 on Wednesday afternoon, a call is received for a TV news team at a vehicle accident on a major commuter route. Upon arrival at the scene, the team sees that a tractor trailer has overturned. The trailer has red placards (signs) on it. A liquid has spilled from 55-gallon drums onto the interstate shoulder. Many drums are leaking. One of the team members finds out that the driver, who was unconscious, was taken to the local hospital. Firefighters are applying foam to the liquid.

Answer the following in your group:

1. How close should the news team get to the accident?

2. What information should the team gather to protect their own safety and health? Whom should they ask for this information?

Mystery D

One May evening, firefighters respond to a structure fire at a nursery warehouse. When they arrive, the warehouse is totally engulfed in flames. Three employees of the nursery are trying to fight the fire with ordinary garden hoses. The firefighters immediately begin fighting the fire.

As the incident progresses, additional firefighters arrive. Soon after that, the crews are told that several chemicals are kept in the burning building and that self-contained breathing apparatus (SCBA) should be used.

A little while later, the firefighters who were first-on-the-scene and the employees who had been fighting the fire begin experiencing chest tightness, shortness of breath, abdominal cramps, nausea, and burning eyes, nose, and throat. They are all taken to the local emergency room for treatment.

Answer the following in your group:

1. What should the nursery workers have done? What should the firefighters have done?

2. What "clues" were given that a hazard, other than fire, existed?

*Adapted from a real incident.

Examples from Your Experiences

Have you ever been the first person to discover an emergency situation?

YES NO

What kind of emergency did you discover?

Were hazardous materials involved?

YES NO

How did you know?

What is a hazardous material?

What is a Hazardous Material?

"Hazardous material" is a legal term, and the legal definitions of hazardous materials are found in various environmental laws. A material is often legally defined as hazardous by noting that it is included on a given listing of substances which are considered to be hazardous materials. Sometimes non-hazardous materials will be considered hazardous when mixed with other materials. Generally, a hazardous material would be defined as any substance capable of producing unwanted effects on health, safety, or the environment.

In the interest of safety for those who may be first-on-the-scene, the following definition of a hazardous material is offered.

You should define a hazardous material as ANY UNKNOWN MATERIAL. Until you know that a scene is not a hazardous materials incident, treat it as if it is.

It is difficult (if not impossible) to detect some hazardous materials. For your safety and the safety of others at or around the scene, you should consider any unknown material guilty of being a hazardous material until proven innocent!

If you do not know for sure what a material is and that it is not dangerous; treat it as a hazardous material!

Key Points

- Every situation is different.
- Additional information is almost always needed before you can act safely.
- Incorrect actions can cause serious damage to your health (and the health of others!) as well as property.
- All unknown materials should be considered hazardous until proven otherwise.

Review Questions

1. Think about the different cases the class discussed. Why was each case considered a hazardous materials incident?

2. Think about the incidents from your personal experience. Why would they (or wouldn't they) be considered hazardous materials incidents?

HAZARD RECOGNITION

This section includes description of clues you should look for to better prepare yourself for what hazards to avoid as well as prepare the emergency responders for hazards they may face at an incident scene that you have discovered.

Chapter Objectives

During this section, you will learn about:

- ➡ **Physical hazards** that may put you or others at risk.
- ➡ **Biological hazards** and how to identify them.
- ➡ **Chemical hazards** and how to report what they could be.

When you finish, you will be better able to:

- ➡ Recognize the clues to safety and health hazards.
- ➡ Report hazards to an emergency response team.

Introduction

In order to recognize hazards and know "what's going on," two kinds of information are needed. The first kind of information concerns the type of health and safety hazards that are present at the scene. The second type of information concerns elements of the scene other than the health and safety hazards.

Health and safety hazards can be grouped into three main types:

- 1. Physical**
- 2. Biological**
- 3. Chemical**

Examples of each type of hazard are listed below.

1. Physical

- Ionizing radiation.
- Electricity.
- Stress.
- Heat and cold.
- Slips, trips, and falls.
- Falling or flying objects.
- Steam and chemical vapor clouds.
- Confined spaces.
- Noise.

2. Biological

- Infectious hospital wastes.
- Research materials.

3. Chemical

- Flammable liquids.
- Reactive materials.
- Oxidizing agents.
- Corrosives.
- Poisons (including carcinogens, or cancer-causing materials).

This section will provide you with some “clues” to help you recognize some physical, biological, and chemical hazards that may be present.

Besides knowing what hazards might be present on the scene, you will need to gather as much additional information about the scene itself as you can. These **characteristics of the scene** include such information as:

- Weather conditions.
- Wind direction.
- Fires that may be present.
- Nearby buildings.
- Access routes.

Characteristics of the scene can make the incident and the hazards present become even more dangerous. Any information about the characteristics of the scene must be relayed to the emergency responders.

Physical Hazards - Keep a Safe Distance

It is important to recognize the physical hazards at the scene not only to protect yourself, but also to include them as information you give to emergency responders.

Radiation

Radioactive sources are used in industry and medicine, and radioactive wastes result from energy and weapons production. The best indication that a radiation source is present is the symbol shown on the right. It is usually **magenta** or **purple-colored** on a **yellow** background. Workers should keep as far away as possible from any containers with this marking unless they have had specific training and know that they are adequately protected. Where radiation hazards exist, the company must include



Radiation Symbol

Standard Operating Procedures (SOPs) in the safety and health plan

As the first-on-the-scene, you should keep as far away as possible from any containers with the radiation marking.

Radiation exposure is minimized by **time, distance, and shielding** between you and the source. This means that the less time you spend near the source, the farther away from the source you stay, and the more shields (cars, walls, etc.) between you and the source---the safer you will be. All forms of radiation should be considered very hazardous -- **treat them with respect!**

Electricity

Power lines may be damaged in transportation accidents or incidents in which fire is involved. Downed lines represent a major risk of electrocution. Other risks of electrical and hazardous material exposure may be present at transformers and circuit boxes. **The presence of water will increase the hazard. Maintain a safe distance, and keep others out of the area.**

Stress

A first responder has to make a lot of decisions quickly. This can lead to a lot of stress for that person. The wrong decision may increase the hazards at the incident. As the first-on-the-scene, remember that your job is to gather as much information as you can as quickly as you can and call the local response personnel for help. **You are not trained to do everything. Just do what you are trained to do.**

Heat and Cold

Extreme temperatures put extra physical stress on the body. You will probably not be at the scene long enough to suffer these effects, but the response team may be at risk. If the temperature is extremely high or low, you should include this information in the report to local emergency response personnel.

In addition, whatever weather conditions exist at the scene should be included in your report. For example, hazardous conditions such as snow or sleet should be made known.

If you are asked to stay at the scene and assist with crowd control or help in another way, be sure that you are protected from the weather before you agree to stay. This means that you have the right clothing for cold weather and that you do not stay in extremely hot temperatures long enough to suffer from heat-related illnesses.

Slips, Trips, and Falls

Injured backs and broken limbs may result from slips, trips, or falls. Avoid any unstable footing. Don't climb steep slopes. Don't climb over equipment. Don't put yourself in situations which could result in injury. **If you fall and cannot alert the response team, response to the incident will be delayed,** and you may be exposed to hazardous materials while waiting for someone else to discover the accident.

Falling or Flying Objects

If the scene is very unstable (for example, shifting drums or explosions), go to a safe distance. If you are seriously injured or pinned under a falling object, you

cannot make a report to those who can control the incident. **Your job is to notice the changing conditions, not be a part of them.**

Steam or Chemical Vapor Clouds

Steam from ruptured lines can cause severe burns. **Maintain a safe distance.** The steam, or the heat from it, may also react with other materials to compound the problem at a hazardous materials incident scene. Steam will be carried by the wind. Stay upwind to further reduce the possibility of contact with the steam. **If there is steam at the scene, that information should be included in your report.**

It is possible that what appears to be steam may not actually be steam. Some chemicals may give off toxic clouds which may appear steam-like. Also, gases escaping from a pressurized container may look like steam. **Do not approach anything that looks like steam or a cloud.**

Confined Spaces

First-on-the-scene responders must keep in mind the dangers of entering confined spaces. Statistically over half of all confined spaced fatalities involve would-be rescuers. Confined spaces are areas like ditches, stream beds, trailers, tanks, railcars, basements, and storage closets. Entry into confined spaces poses many dangers. Entry into confined spaces may block your view of what else is happening around you. In addition, accumulations of chemical vapors can happen quickly in confined spaces and could prove deadly to you either through direct exposure or the increased risk of explosion. Don't attempt to rescue people from confined spaces unless you have special confined-space rescue equipment and have been trained. **Stay out of confined spaces.**

PHYSICAL HAZARDS CHECKLIST

What do I look for?

Radiation sources and symbols

Damaged utility poles
or others sources of electricity

Signs of stress

Weather conditions

Unsafe and changing conditions

Steam or clouds

Confined spaces

How do I observe them?

From a distance

Upwind

With binoculars, if possible

Biological Hazards

The most common type of packaged biological waste is probably infectious waste from hospitals or other healthcare facilities. This type of waste should be in boxes, plastic containers, or **red** plastic bags. These containers should be marked on all sides with the **fluorescent orange** infectious materials symbol shown below. Examples of infectious materials include used needles and syringes, soiled bandages, test tubes, and disposable vials.

As with any hazardous waste, disposal containers may break open in transportation accidents. If you notice anything that looks like hospital waste lying around an accident site, move away from the area. **Do not pick up or touch the material.**

Less frequently encountered biological hazards would include biological research materials such as genetic materials and viral or bacterial cultures. If the research materials involve biological agents, the containers should be clearly marked. If you notice broken vials, flasks, or culture dishes at the site, stay clear and report this to the emergency responders.



Infectious Materials Label

BIOLOGICAL HAZARDS CHECKLIST

What do I look for?

Cardboard or plastic container

Red plastic bag

Infectious waste symbol

Used needles, syringes, test tubes, and vials

How should I observe them?

From a distance

Upwind

With binoculars, if possible

Chemical Hazards

The chemical hazards you face will depend on the properties of the material at the scene. Below are some definitions of properties that chemicals may have.

A **flammable** material gives off enough vapor to burn if there is a source of ignition.

A **reactive** material has the tendency to react with another component (including water).

An **oxidizing** material supports or speeds up burning by providing a source of oxygen.

A **corrosive** material is a liquid or solid that eats away or dissolves a material when it touches it.

A **poisonous** material can cause injury, illness, or death through exposure.

There can be a number of clues present at any incident that may provide information about the possible dangers from chemical hazards at the incident. This section describes some of the clues that you should look for to determine if chemical hazards are present. Clues to look for include labels and placards, characteristics of the containers that are present, and things you notice about the area around the incident (such as dead animals or vegetation).

**Remember: Even if you do not see any clues,
hazards may be still present.**

Recognizing Chemical Hazards

The National Fire Academy (NFA) has identified six kinds of information that will help you organize observations about potential hazards as the first-on-the-scene. These are:

1. Occupancy (use of the space) and Location (where)
2. DOT Placards and Labels
3. Markings and Colors (and we add: Other label systems)

4. Container Shapes and Sizes
5. Shipping Papers and Safety Data Sheets (SDSs)
6. Senses

Each of these topics provides information useful to the responders as they assess the hazards and develop a response plan and these topics are covered in this section.

1. Occupancy and Location

Identify the purpose or activity conducted in the area of the incident. If the location is the waste water treatment plant, you may know the process and be able to describe the materials used in the plant to responders; if you do not know about the process, it is sufficient to identify the waste water treatment plant. Plant or community responders will be able to identify any hazardous materials that may be in the location. Location can provide information on whether a hazard may be present. Certain areas of your facility may be known to contain hazardous materials. Releases or leaks in these areas (such as production vessels, laboratories, tank farms, reactors, etc.) should always be suspected of involving hazardous materials.

Location also requires a description of the area. This includes any:

- Drains
- Process or electrical equipment
- Water way
- Roadway/highway
- Buildings with occupants
- Buildings where materials are stored
- Weather conditions that affect the scene (wind, temperature, precipitation)
- Smoke, flames
- Steam or vapor clouds

2. DOT Placards and Labels

The DOT system of placards and labels is required on hazardous materials during shipment. It is important to understand the systems which are used to identify hazardous materials. Hazard information is included on DOT placards fixed to large containers (trailers, rail cars, tanks) and manufacturer labels fixed to small containers (drums, packages, boxes).

Caution must be exercised, because labels and placards may be missing, incorrect, or difficult to read.

The DOT system of placards and labels is used with hazardous materials during shipment. What does the DOT system look like?

- Diamond-shaped.
- Color-coded.

<u>Color</u>	<u>Hazard</u>
Orange	Explosive
Red	Flammable or combustible
Green	Non-flammable gas
Yellow	Reactive oxidizer or organic peroxide
White	Toxic/Poisonous or infectious substance
White and red vertical stripes	Flammable solid
White top with black bottom	Corrosive
Two colors	Two major hazards
Blue	Dangerous when wet
Yellow top with white bottom	Radioactive
White top with red bottom	Spontaneously combustible

- Word-coded (hazard class name).
 - For example:
 - Explosives.
 - Blasting agents.
 - Dangerous (may be used with mixed loads).
- Symbol-coded.

<u>Symbol</u>	<u>Hazard</u>
Bursting ball	Explosive
Flame	Flammable
“W” with slash	Dangerous when wet
Skull and crossbones	Poisonous
Circle and flame	Oxidizing material
Cylinder	Non-flammable gas
Propeller/Trefoil	Radioactive
Test tube/hand/metal	Corrosive
Special symbol	Infectious (discussed previously)

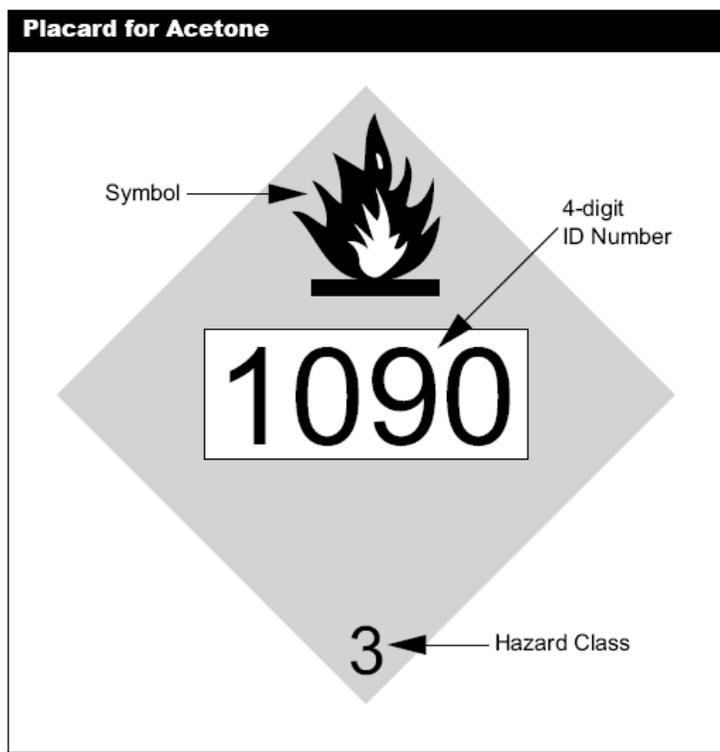
- Number-coded

A **four-digit** number in the **center** identifies a specific compound. These numbers are identified in the *Emergency Response Guidebook*. For example, 1223 is kerosene. This number may be in the center of the placard or on an orange-colored panel below the placard.

The **one-digit** number at the **bottom** is the Hazard Identification Code.

#	<u>Hazard Class</u>
1	Explosives
2	Gases (compressed, liquefied, or dissolved under pressure)
3	Flammable liquids
4	Flammable solids or substances, spontaneously combustible materials, and dangerous when wet materials/ water-reactive materials.
5	Oxidizing substances and organic peroxides
6	Poisonous and infectious substances

The placard displayed below is red with white symbols except for the black four-digit number. This placard tells you that the substance is Flammable (the flame and red background), a Flammable Liquid (Hazard Class 3), and Acetone (the four-digit number 1090).



The Acetone placard is called a “number placard,” which means that the number in the center of the placard specifies the exact contents of the container. “Word placards” are so named because a word designating a type of hazard (e.g., flammable) will be printed in the middle of the placard. Number placards must be displayed on large portable tanks, tank trucks, and rail cars. A word placard means that drums or smaller containers are present.

To use the guidebook, you need to know either the chemical name or the identification number.

Using the DOT Emergency Response Guide

You can find more information on what these placard numbers and symbols mean in the DOT Chart and the *DOT Emergency Response Guide*.

The **orange** pages are called the Guides. These pages are of use in determining the potential hazards of the chemical in question. Additionally, the Guides give a brief description of the emergency action that should be taken by appropriate emergency response personnel. In order to use the Guides, you must first find out the appropriate Guide Number by looking in the yellow or blue pages or referring to the Table of Placards.

The **yellow** pages list chemicals in numerical order based on their assigned ID number. If you are reading a placard or label which has a four-digit number in the center, you can look up the chemical name in the yellow pages, which will tell you the name of the chemical and the Guide number.

The **blue** pages list chemicals alphabetically by their name. From this listing you can determine each chemical's ID number and the Guide number.

The **green** pages indicate the Table of Initial Isolation and Protective Action Distances. This section of the DOT *Guide* describes the distances necessary for initial isolation around a chemical incident as well as the distance downwind that persons must be protected. Chemicals that are highlighted in green, in the blue and yellow pages, will be found in Table 1 (green pages). If the name of the material in Table 1 is followed by “(when spilled in water)”, consult Table 2 for toxic gases produced. If there is an asterisk next to the ID number in Table 1, also consult Table 3.

- If you know the name of the substance, use the **blue** pages to find the *Guide Number*. The *Guide* in the orange pages contains more detailed

information about the class of substance.

- If you know the number of the substance, use the **yellow** pages to find the *Guide Number*. The *Guide* in the orange pages contains more detailed information about the class of substance.

3. Markings and Colors (and other Label Systems)

In addition to DOT placards other information may be required on shipping containers. As appropriate, these markings include:

Package orientation arrows

Inhalation Hazard

Poison

Keep away from Heat

HOT

RQ (reportable quantity)

As the first-on-the-scene, make careful note of any marking on a container; the first responders will find all of the information useful.

Colors

Color is an important feature of the DOT placards and labels and of other systems. Your observation of the color of a placard or label will help emergency responders, even if other parts cannot be seen.

Other Label Systems

OSHA's 2012 update of the Hazard Communication Standard (HCS) to conform to the Globally Harmonized System (GHS) resulted in changes in chemical labeling requirements. These are described below, followed by two longstanding labeling systems for tanks and containers that will continue to be in use until HCS2012 is fully implemented at the end of 2015 --these are the NFPA system and the HMIS system.

Hazard Communication Standard 2012 – Globally Harmonized System for Labeling

The 2012 Hazard Communication Standard (HCS 2012) included major changes in labels for containers. Labels consistent with HCS 2012 are likely to appear in your workplace, but are not legally required until December 1, 2015. In the interim, an employer can comply with the 1996 version, the 2012 version or both. Until all labels have been updated, it is likely that both will be in place.

As of June 1, 2015, all manufacturer labels will be required to have pictograms, a signal word, hazard and precautionary statements, the product identifier, and supplier identification. The Hazard Communication Standard (HCS) requires eight of the international pictograms. The environmental pictogram is not required by OSHA, as environmental hazards are regulated by the US EPA. The hazard pictograms and their corresponding hazards are shown on the next page.

- Under HCS 2012, the most hazardous chemicals are assigned to Category 1, with higher category numbers corresponding to reduced risks. **This is the opposite ranking from the long-standing practice used by the National Fire Protection Association and the HMIS system.** However, HCS category numbers do not appear on labels. They will be found in Section 2 of the Safety Data Sheet (SDS) for chemicals.

HCS Pictograms and Hazards

Health Hazard 	Flame 	Exclamation Mark 
<ul style="list-style-type: none"> • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity 	<ul style="list-style-type: none"> • Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides 	<ul style="list-style-type: none"> • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non Mandatory)
Gas Cylinder 	Corrosion 	Exploding Bomb 
<ul style="list-style-type: none"> • Gases under Pressure 	<ul style="list-style-type: none"> • Skin Corrosion/ burns • Eye Damage • Corrosive to Metals 	<ul style="list-style-type: none"> • Explosives • Self-Reactives • Organic Peroxides
Flame over Circle 	Environment (Non Mandatory) 	Skull and Crossbones 
<ul style="list-style-type: none"> • Oxidizers 	<ul style="list-style-type: none"> • Aquatic Toxicity 	<ul style="list-style-type: none"> • Acute Toxicity (fatal or toxic)

A sample HCS label is shown on the next page. As a first-on-the-scene responder, you may be able to read the pictograms on labels from a distance.

SAMPLE LABEL

PRODUCT IDENTIFIER

CODE

Product Name

SUPPLIER IDENTIFICATION

Company Name

Street Address

City

State

Postal Code

Country

Emergency Phone Number

PRECAUTIONARY STATEMENTS

Keep container tightly closed. Store in cool, well ventilated place that is locked.

Keep away from heat/sparks/open flame. No smoking.

Only use non-sparking tools.

Use explosion-proof electrical equipment.

Take precautionary measure against static discharge.

Ground and bond container and receiving equipment.

Do not breathe vapors.

Wear Protective gloves.

Do not eat, drink or smoke when using this product.

Wash hands thoroughly after handling.

Dispose of in accordance with local, regional, national, international regulations as specified.

In Case of Fire: use dry chemical (BC) or Carbon dioxide (CO₂) fire extinguisher to extinguish.

First Aid

If exposed call Poison Center.

If on skin (on hair): Take off immediately any contaminated clothing. Rinse skin with water.

HAZARD PICTOGRAMS



SIGNAL WORD

Danger

HAZARD STATEMENT

Highly flammable liquid and vapor.

May cause liver and kidney damage.

SUPPLEMENTAL INFORMATION

Directions for use

Fill weight:

Lot Number

Net weight: **Municipal First-on-the-Scene**

Expiration Date:

The 2012 update of the Hazard Communication standard requires that any alternative label must be consistent with the HCS2012--no conflicting hazard warnings or pictograms are allowed.

National Fire Protection Association (NFPA)—704 System

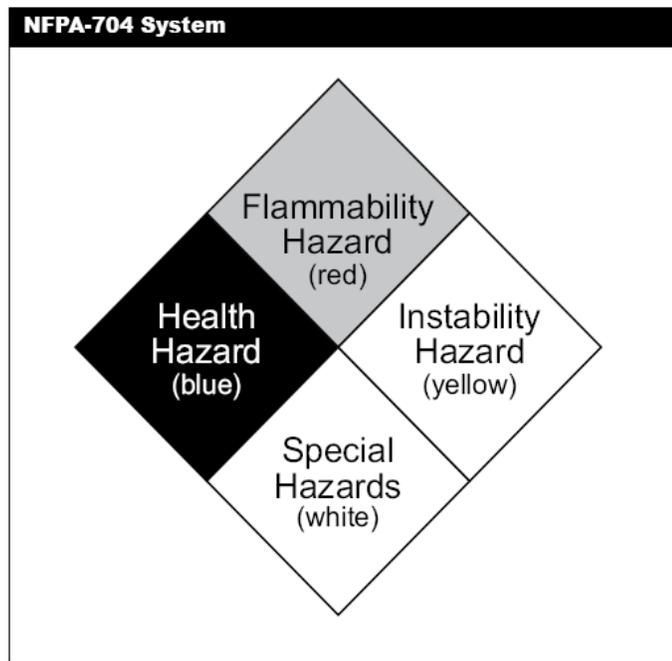
The National Fire Protection Association (NFPA) system may be used on storage vessels and containers at a stationary facility. Some facilities may use this system throughout their departments and put the NFPA label on all hazardous materials. The facility's hazard communication training can inform the worker if this warning system is being used at the work site.

What does the NFPA system look like?

- Diamond-shaped.
- Color-coded in four small diamonds.

<u>Color</u>	<u>Hazard</u>
Red	Flammability
Blue	Health
Yellow	Instability
White	Special Hazards

- Number-coded in the red, blue, and yellow diamonds—Ranks the potential flammability, health, and instability hazard. Ranges from 0 (least hazard) to 4 (highest hazard).



The Special Hazards (white) section of the NFPA-704 label may contain symbols (examples shown below) that give more information about the chemical. The following symbols might be found in the Special Hazards (white) section of the NFPA-704 label.

~~W~~

Do not use water

OX

Oxidizer

SA

Simple Asphyxiant

NFPA Standard Symbols

Non-Standard Symbols

- **COR:** Corrosives.
- **ACID** and **ALK** (Alkali) to be more specific.
- **BIO:** Biological Hazard.
- **POI:** Poisonous Material (e.g. strychnine)

- **CYL or CRYO:** Cryogenic Material (e.g. liquid nitrogen)
- Radiation warning (also known as a trefoil): Radioactive materials. (e.g. plutonium, uranium)
- The field may also be left blank if no special hazards are present.
- When multiple special hazards exist, add white panels below the placard to list the additional special hazards that apply.

The Hazardous Materials Information System (HMIS)

These labels are used on storage vessels and containers.

What does the HMIS label look like?

- Rectangular.
- Color-coded.

The labels alert workers to:

<u>Color</u>	<u>Hazard</u>
Blue	Health risk
Red	Flammability
Orange	Physical hazards
White	Personal protection

- Number-Coded.
 - Ranks the potential health, flammability, and physical hazard. Ranges from 0 (minimal hazard) to 4 (severe hazard).
- Letter-coded.
 - Identifies personal protective equipment used when working with the material.

HMIS Label

Health	<input type="checkbox"/> <input type="checkbox"/>
Flammability	<input type="checkbox"/>
Physical Hazard	<input type="checkbox"/>
Personal Protection	<input type="checkbox"/>

Note information on any visible label to report to responders.

Other Labels you May See

The most common type of packaged biological waste is probably infectious waste from a hospital or other health care facility. This type of waste should be in boxes, plastic containers, or **red** plastic bags. These containers should be marked on all sides with the **fluorescent orange** infectious materials symbol shown previously



**Infectious
Materials Symbol**

The best indication that a radiation source is present is the **magenta** or **purple-colored** propeller on a **yellow** background shown previously.



Radiation Label

LABELS AND PLACARDS CHECKLIST

What should I observe from labels/placards?

type of placard (word or number)

labeling system (DOT, NFPA-704M,
OSHA HCS2012, HMIS)

shape

color

words

numbers

symbols/labels/pictograms

How do I observe them?

From a distance

Upwind

With binoculars, if possible

Uphill

Placards and Labels Exercise

You will again work in your small group. Several placards and labels will be distributed by your trainer. Answer the following questions, and be ready to report back as a group.

Answer the following in your group:

1. What important features of the labels and placards should you note?

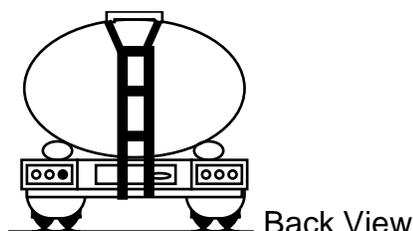
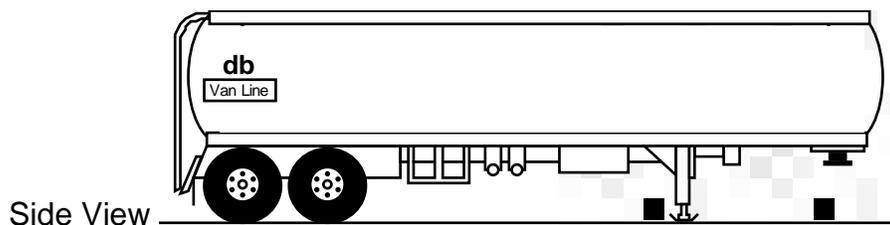
2. What are the hazards displayed on each of the placards and labels given to your group?

Containers

Another clue to the identity of chemical hazards may be the type or shape of the container in which the chemical substance is transported or stored. The container can usually be seen from a distance and may be the only information about chemicals that you can gather at some scenes. This section will show you some "clues" to look for to identify hazardous materials at different scenes such as highway accidents, railway accidents, or storage facilities. Some of the types of containers which give "clues" to their contents are identified in this section. There are many other types of containers (such as glass, jars, bottles, paper bags, boxes, barrels, and hoppers) that may not give any "clues" to their contents. **Report any suspect containers to emergency responders, regardless of type.**

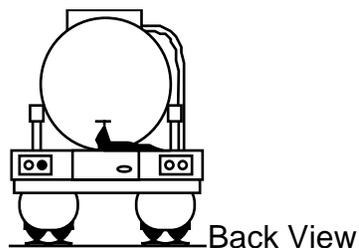
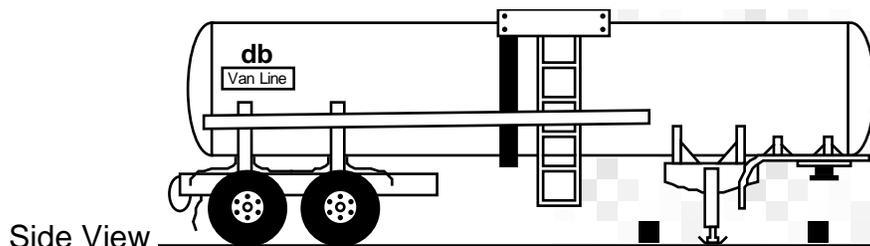
Atmospheric Pressure Tank Truck

Trailers shaped like this -- an oval cylinder -- generally carry flammable and combustible liquids, usually liquids lighter than water (especially petroleum products).



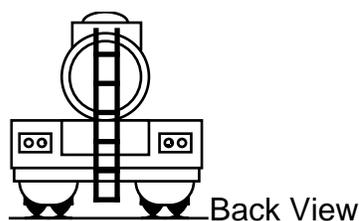
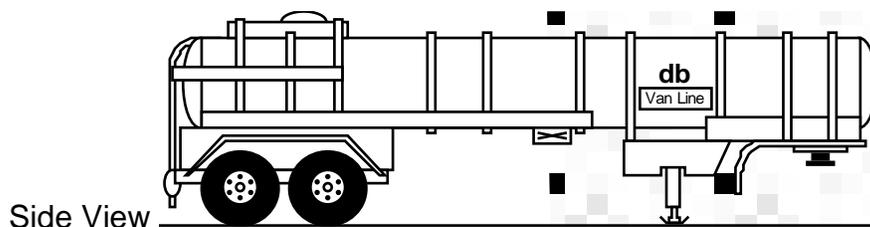
Low-Pressure Chemical Carrier

The trailer shown here -- a round cylinder often insulated with a double shell -- probably carries poisons, mild corrosives, or mild oxidizing solutions. This type of trailer may or may not have reinforcing rings. (Compare with Corrosive Liquid Carrier below.)



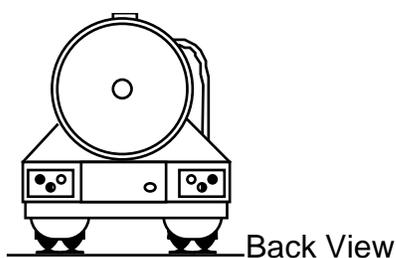
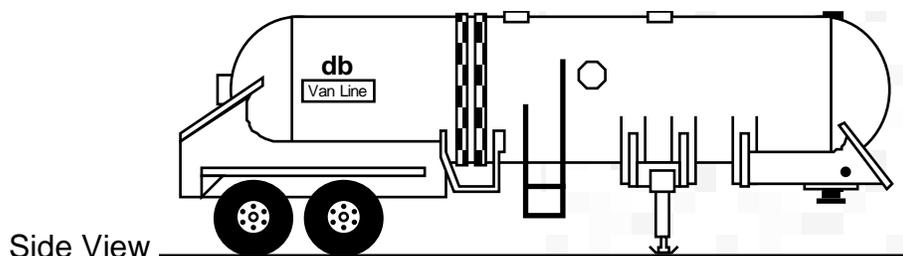
Corrosive Liquid Carrier

These tanks can be identified by their small circular diameter with exterior stiffening rings surrounding the primary vessel.



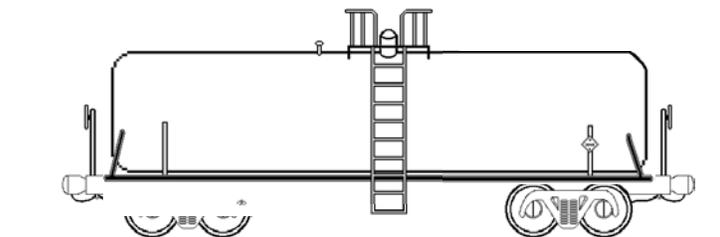
High-Pressure Liquefied Gas Tanker

These tanks are circular with rounded ends. They may carry propane, butane, or anhydrous ammonia under pressure.



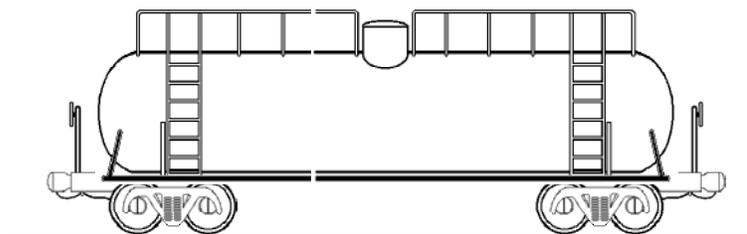
Non-Pressurized Rail Tank Cars

These rail tank cars are identified by the horizontal tank with flat ends and a manway at the top with valves and fittings. These tank cars carry flammable and combustible liquids, flammable solids, oxidizers, organic peroxides, poisons, and corrosives.



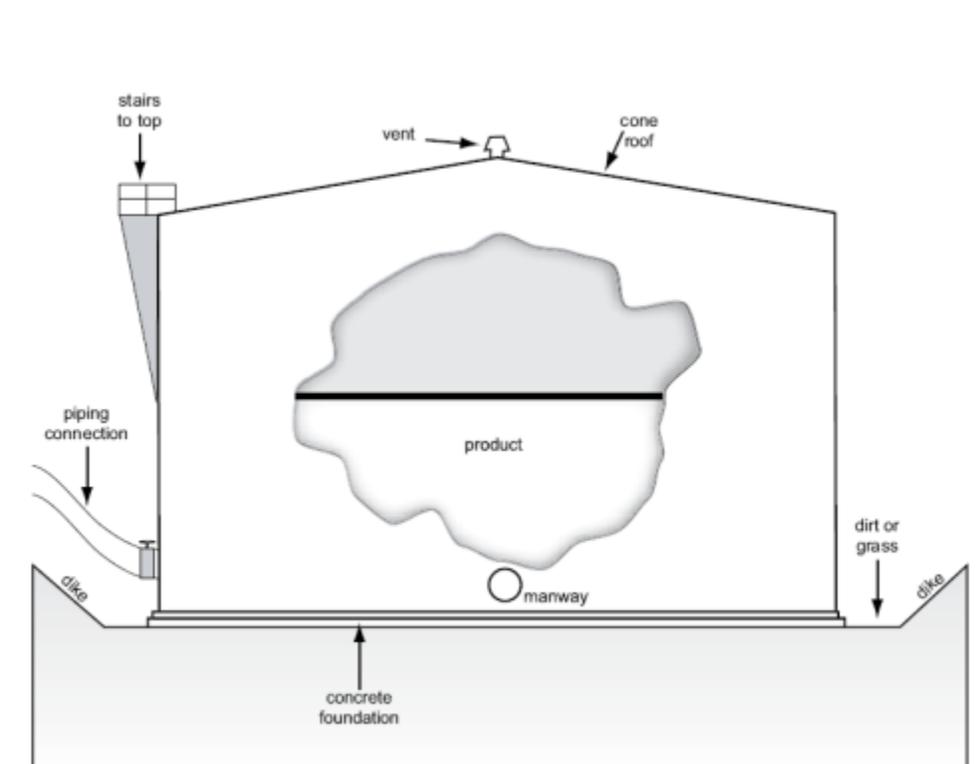
Pressurized Rail Tank Cars

These tank cars also have horizontal tanks but with **rounded ends**, unless they are double-shelled and have a bonnet (dome cover). These tank cars usually carry flammable and non-flammable gases and poisons.



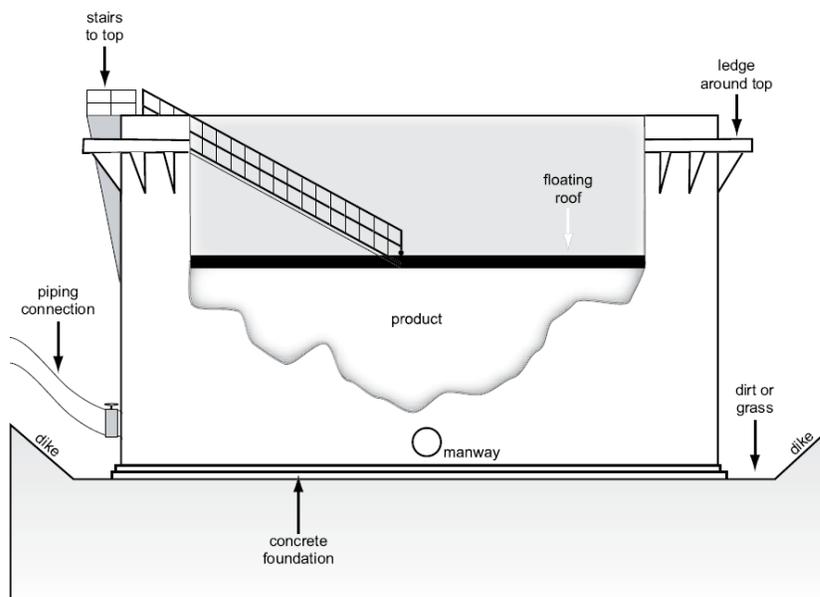
Cone Roof Tanks

These tanks are identified by their distinctive cone roof design. These tanks store flammable and combustible liquids.



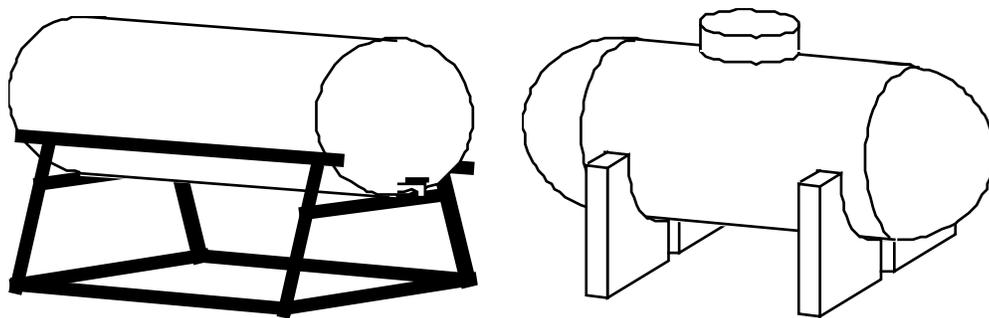
External Floating Roof Tanks

These tanks are easily identified by their roof almost appearing flat and vents around the edge of the tank. Floating roof tanks may also resemble cone roof tanks with the dome-shaped cover. They commonly store low flash point materials such as gasoline.



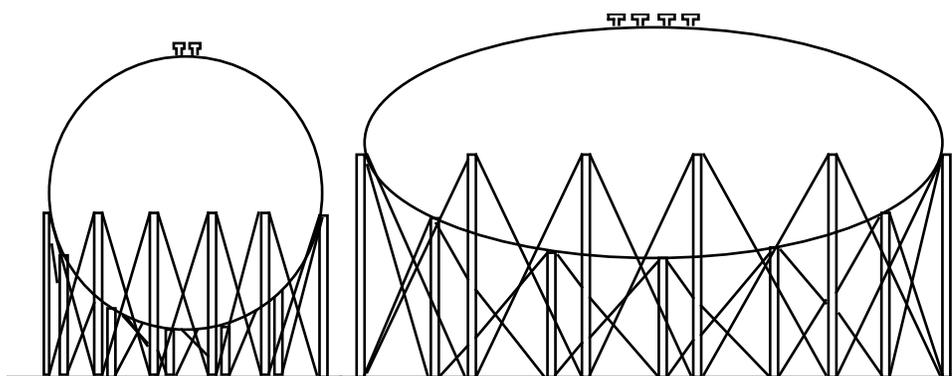
Horizontal Tanks

Horizontal tanks are horizontal cylinders which sit on the ground or on legs. These tanks usually store flammable liquids, corrosives, and poisons but may contain most anything. Pay close attention to the ends of cylinders. Rounded ends may be a clue that the container holds a pressurized liquid or gas.



Sphere Tanks

These may be round or elliptical and have large relief devices at the very top of the tank. Sphere tanks store pressurized materials such as methane, propane, LPG, heptane, ethane, and other light gases.



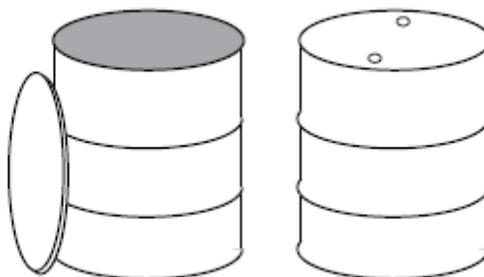
Drums

The "clues" to the contents of drums come from the material from which the drums are made as well as whether or not the drum is closed-top or open-top. Closed-top drums are sealed drums which have small openings in the top of the drum through which liquids can be poured. Open-top drums have removable lids and do not have the small openings characteristic of the closed-top drum.

Some types of drums and what they contain are listed below.

1. Closed-top metal drums normally contain non-corrosive products in liquid form.
2. Closed-top plastic or composite drums (plastic inside metal or cardboard) drums usually contain corrosive liquids.
3. Open-top metal drums usually contain non-corrosive solids or sludges.
4. Open-top plastic drums usually contain corrosive solids or sludges.
5. Other types of drums such as stainless steel, nickel, and MONEL TM are used for chemicals that because of their specific properties require special containers for safe containment. These containers usually can be recognized by their metallic color.

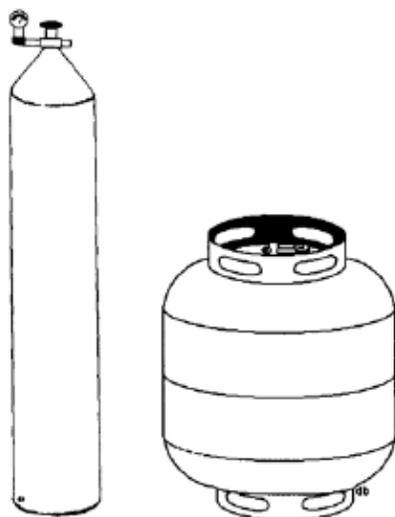
In general, be extremely wary of any drum which appears to be constructed from "special" materials!



Open-Top (Left) and Closed-Top (Right) Drums

Cylinders

Cylinders usually contain pressurized flammable or non-flammable gases. Cylinders may be involved in transportation incidents as well as storage incidents. Pressurized cylinders are to be considered dangerous because of their explosive capability, particularly in fire situations. Ruptures of the cylinders may cause them to become projectiles.



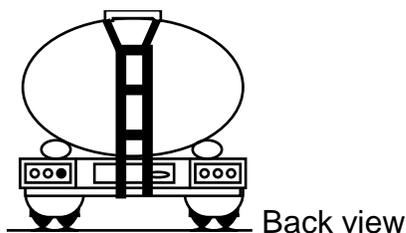
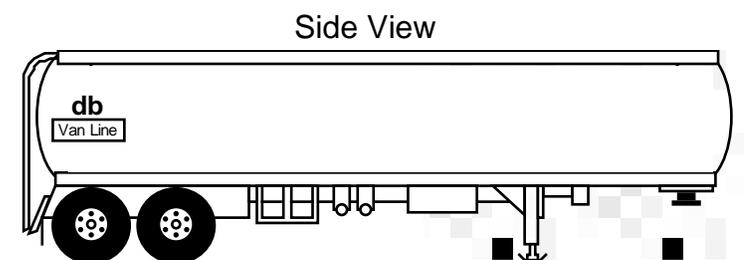
Other Containers

There are other types of containers that may contain hazardous materials. Liquid hazardous materials may be stored in glass containers. Dry materials may be stored in boxes, bags, or wooden barrels. Hazardous materials stored in these types of containers may be transported by any means or may be stored at any site. Just because a material is contained in one of these types of containers does not mean that it is safe. Although all containers should be labeled, they may not be, or you may not be able to see the label. **It is important that you make note of anything that contains an unidentified substance.**

Container Shapes Exercise

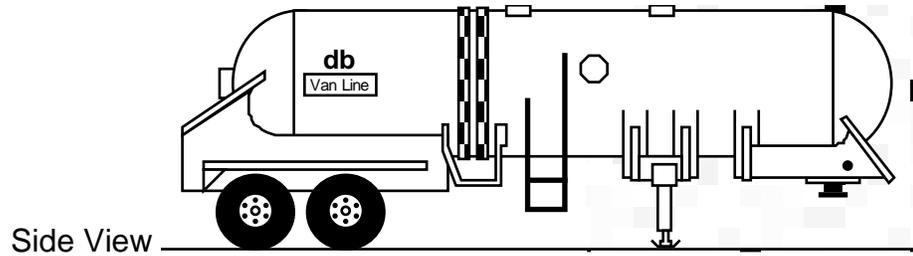
The class will be divided into groups. Working with your group, describe the containers shown on the following pages as you would if reporting an incident involving these containers.

Container Shape I

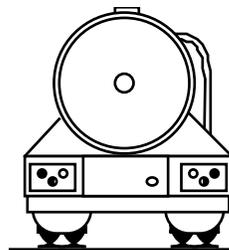


Description: _____

Container Shape II



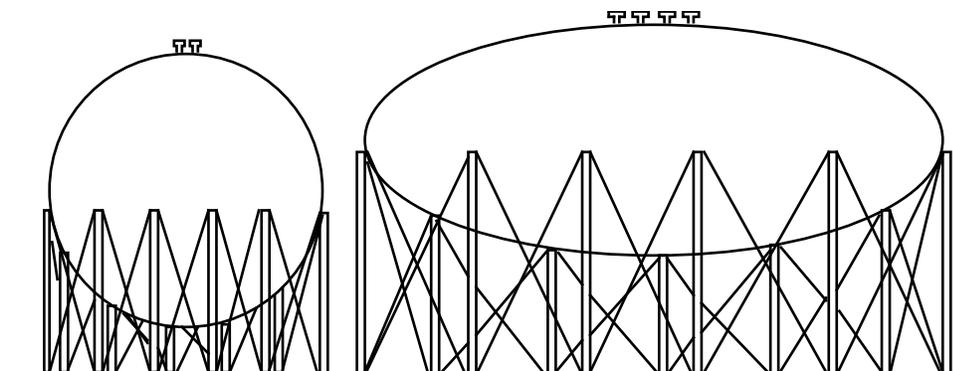
Side View



Back View

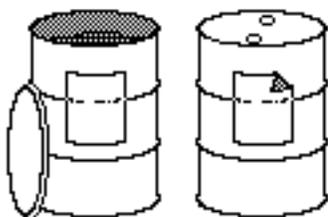
Description: _____

Container Shape III



Description:

Container Shape IV



Description:

5. Shipping Papers

Each shipment of hazardous materials must have paperwork documenting the specific contents of the shipment and relevant information. A driver or operator may have this with him at the scene. This paperwork has different names, depending on the type of transportation vehicle.

Transportation	Where Is It Kept	What's It Called
Truck	In the cab	Bill of Lading, Hazardous Waste
Train	With the conductor	Waybills, Consists, Wheel Reports
Barge/Ship	In the wheelhouse/on the barge	Dangerous Cargo Manifests
Airplane	In the cockpit	Shipper's Certification, Shipping paper, Airbill, Bill of lading

When a shipment arrives at a plant, a copy of the shipping papers is given to plant personnel. As part of site characterization, shipping papers may be found for materials ultimately transferred to the site.

Do not risk exposure to a potentially hazardous material by retrieving shipping papers from the transport vehicle.

Information Included in Shipping Papers

Shipping papers are required by the Department of Transportation (DOT). The shipper of the material provides this information. No standard format is required; however, the following points must be covered.

- Shipper's name and address.
- Receiver's name and address.
- Description of hazardous material.
- DOT hazard classification information.
- Quantity of material shipped to the location.

Another source of information on specific chemicals is the Safety Data Sheet (SDS). These are generally not available for municipal employees who discover an incident.

6. Senses

Your eyes and ears are important to gathering information when you are the first-on-the-scene of a release or other potential hazardous material incident.

Use your eyes to gather information to describe:

- Occupancy and Location
 - Activities conducted in area of incident
 - Location of incident
- Wind, temperature, precipitation
 - Dead or injured animals
 - Affected grass, trees
 - Smoke or flames
 - Steam or visible vapor release
- DOT Placards and Labels (and other label systems)
 - Markings and Colors
 - Container Shapes and Sizes
 - Shipping Papers and SDSs

Use your ears to gather information to describe:

- Communication heard from those involved, including injured
- Changes in pressure or pressure releases (hissing)
- Instability (contact sound as loads shift)

Be aware of any new sensation on your skin:

- Burn, tingle

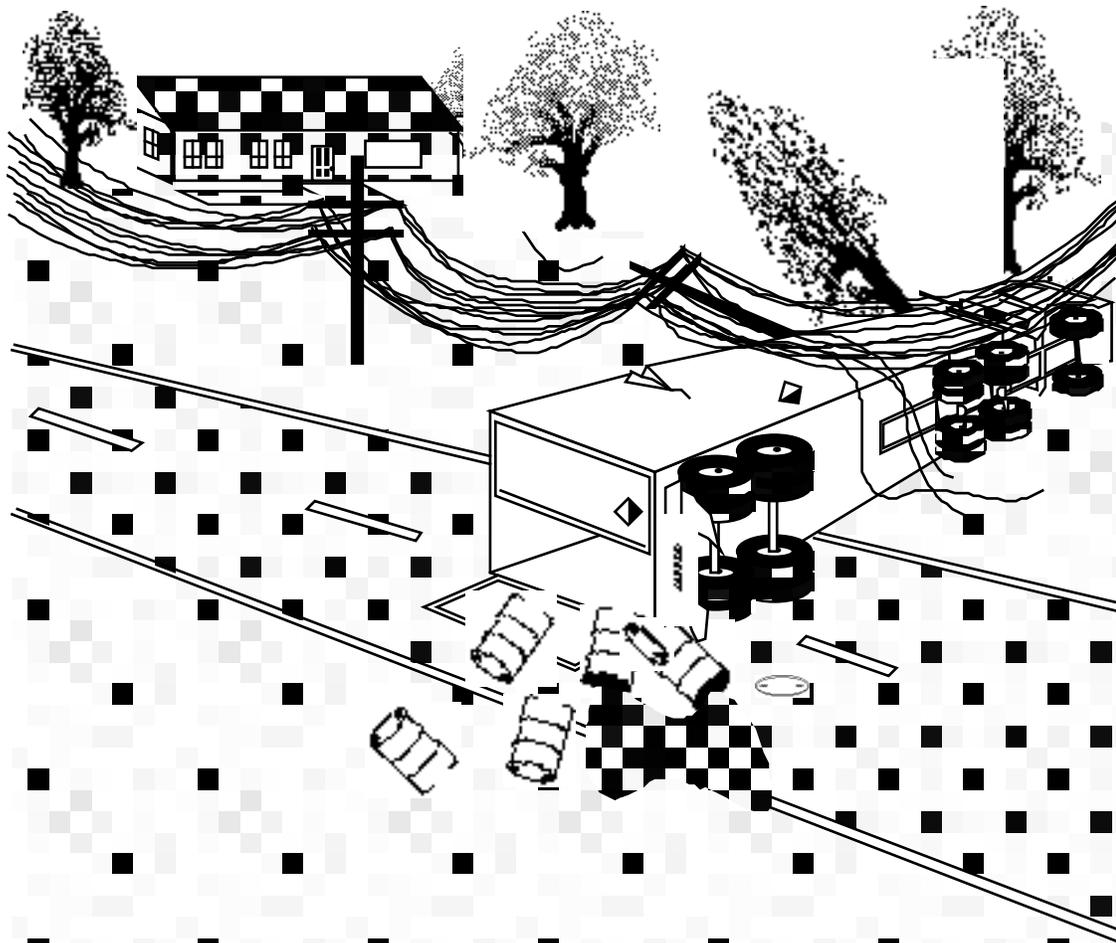
Do not rely on your nose.

Many hazards (e.g., carbon monoxide, radiation) have no warning properties by smell.

Some hazards overwhelm the sense of smell and the odor is no longer detected by your nose—but it has not gone away (e.g., hydrogen sulfide or sewer gas).

What's going on here? - Exercise

You are driving down a country road and discover the scene below. What information should you gather to report to the emergency responders?



Write below the information that you would gather, and be ready to discuss your answers with the class.

The Scene

A material may be toxic to the health of people at the scene or can affect others far removed by traveling in the air or entering a waterway or sewer. Flammable or explosive materials may cause a chain reaction that will affect people and property far removed from the actual scene. Approach any scene **upwind** and cautiously. **Stay at a distance upwind and uphill whenever possible.** Use **binoculars** if available.

During the "What's going on here?" Exercise, did you only concentrate on trying to figure out what the hazards were? There is other important information that concerns the scene that you should gather. The following should also be noted before your size-up is complete.

1. Dead animals or vegetation.
2. Injured people.
3. Nearby buildings.
4. Other people at or near the scene (actual or probable).
5. Wind direction.
6. Sewers or drains.
7. Creeks, rivers, or waterways.
8. Local weather.
9. Amount of traffic and portion of road that is blocked.

By noting the presence or absence of the items stated above, you will be better able to protect yourself and inform the emergency responders of the critical nature of the incident. This information allows the emergency responders to better prepare for the possible consequences of the incident.

Key Points

- Treat any event as hazardous until you can prove otherwise.
- Physical hazards include radiation, electricity, stress, heat and cold, slips/trips/falls, flying or falling objects, steam/clouds, confined spaces and noise. These can be avoided by keeping your distance and staying upwind if you are outside.
- Biological hazards include infectious hospital waste and research materials. Look for the fluorescent orange infectious materials label and/or waste products such as used needles, syringes, and test tubes.
- Chemical hazards may be due to the different chemical properties such as the chemical being flammable, reactive, corrosive, poisonous, and/or an oxidizer.
- A direct clue to the presence of a chemical hazard can be found on labels or placards. Look for the shapes, colors, symbols, letters, pictograms and numbers on labels and placards.
- Other clues to chemical hazards include the type, location, size, and shape of the containers present.
- You need to observe other information as well, including:
 - Injured persons
 - Wind direction
 - Location of nearby buildings, people
 - Sewer or drains

Review Questions

1. List 4 physical hazards and situations in which each might occur.

2. List 4 clues to various types of chemical hazards which may be visible from afar.

3. An NFPA label has a "0" in the flammability diamond. Is it flammable?

4. What should be observed from labels/placards?

5. What should be observed about the container?

6. What should be observed about the scene?

7. What is a clue to the presence of a biological hazard?

8. How should you make observations at the scene?

HEALTH EFFECTS

In this section you will learn about health effects that may occur to people like yourself who may be first-on-the-scene at a hazardous materials incident. Recognizing the potential for a health effect is the first step in avoiding it.

Chapter Objectives

During this activity, you will learn about:

- ➡ When and where hazardous materials affect the body.
- ➡ How the body can react to hazardous substances.
- ➡ What kinds of substances can affect the body.
- ➡ What to do if you think you have been injured.

When you finish, you will be better able to:

- ➡ Recognize how an emergency situation may be hazardous to your health.
- ➡ Recognize the signs and symptoms which may be related to a chemical exposure.

How, When, and Where?

How Do Chemicals Enter Your Body?

Chemicals can enter your body through skin contact, ingestion, inhalation, or injection.

Skin Contact: If you come into physical contact with some types of chemicals, they may just irritate your skin, and/or they may be absorbed into your body through the skin.

Ingestion: Chemicals may enter your body through swallowing chemicals on your hands if you smoke or eat after being exposed.

Inhalation: Chemicals can enter your body through breathing of fumes given off by the chemicals. Some chemicals can also mix with steam that you might inhale. Liquid droplets and dusts may also be inhaled.

Injection: Chemicals can enter your body through other means. Chemicals can enter through cuts or other skin abrasions. If you receive any type of puncture wound at the scene, it is possible that whatever caused the puncture wound could be contaminated.

When Will Effects Appear?

Effects of chemicals may be considered acute and/or chronic.

Acute: Develops quickly, usually after exposure to high concentrations of a hazardous substance.

Example: Contact with concentrated nitric acid can cause an acid burn on skin.

Chronic: Takes a long time to develop or requires long exposures, usually at low concentrations.

Example: Breathing asbestos fibers can result in lung diseases many years following exposure.

Where Will Effects Appear?

Reactions to chemical exposure may be local or systemic.

Local: Develops where the substance enters the body or comes into direct contact with parts of the body.

Example: Breathing hydrochloric acid can immediately result in coughing and cause bronchitis.

Systemic: Develops at some place other than the point of contact.

Example: Benzene can be absorbed through the skin and cause anemia and other blood disorders.

The figures on the next two pages summarize what parts of your body may be affected by exposure, and how your body may react.

Are any of these exposures likely in your community at industrial sites, or could they be in trucks on the roadways?

What Affects Your Body?

Head: solvents, heat exhaustion, eye strain, noise, gases, vapor

Eyes: smoke, grease, fumes, acids, ultraviolet radiation

Ears: excessive noise

Teeth & Gums: acid fumes, cellulose, acetate production, lead poisoning

Nose & Throat: ammonia, caustic soda, dusts, resins, solvents, acid fumes, smoke

Chest & Lungs: cotton dust, TDI, detergent enzymes, beryllium solvents, long-term exposure to mineral dust (e.g., asbestos), metal oxides from welding, gases, vapors

Muscles & Back:

excessive or improper lifting, bending, vibration

Reproductive System:

lead, pesticides, radiation, polystyrene production, xylene, some solvents, benzene, lead, mercury, anesthetic gas

Stomach & Intestines:

vapors, fumes, ingested substances

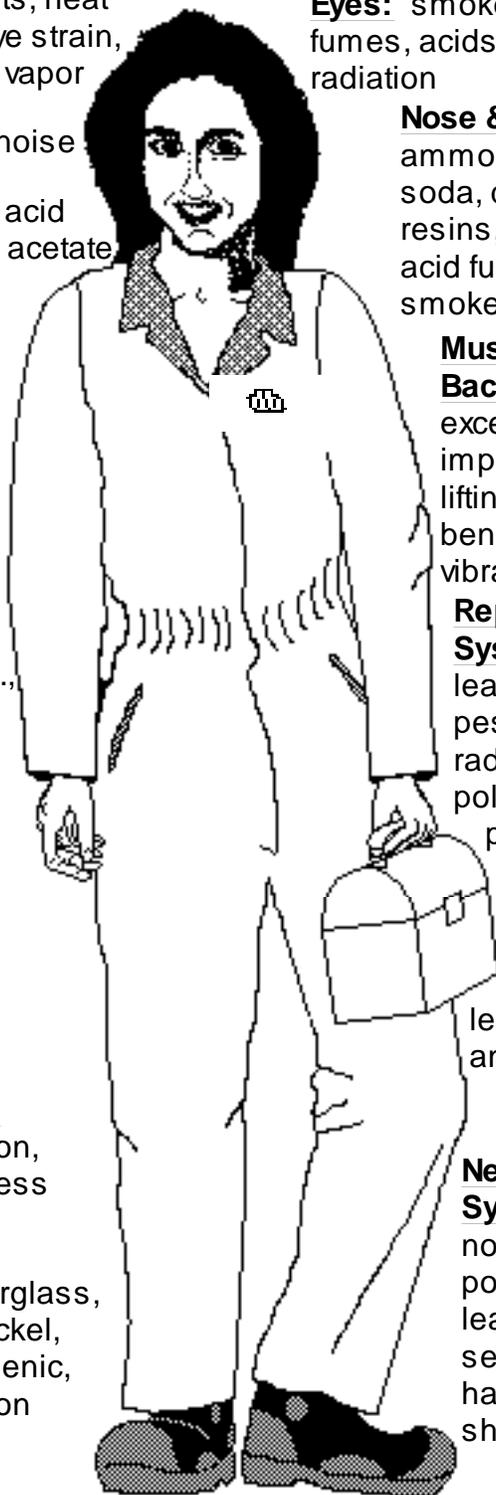
Bones & Joints:

excessive vibration, constant dampness

Skin: solvents, epoxies, oil, fiberglass, caustic soda, nickel, mineral oils, arsenic, pitch, tar, radiation

Nervous System:

noise, metal poisoning (e.g., lead, mercury), sexual harassment, shift work



adapted from the International Metal Worker's Union

How Does Your Body React?

Head: dizziness, headache

Eyes: redness, irritation, watering, grainy feeling, "welder's flash"

Teeth & Gums:
corrosion of tooth enamel, blue gums

Ears: ringing, temporary deafness, hearing loss

Chest & Lungs:
wheezing, congestion, shortness of breath on mild exercise, flu-like symptoms (e.g., "metal fume fever")

Nose & Throat:
sneezing, coughing, sore throat, nasal cancer

Stomach & Intestines:
vomiting, diarrhea

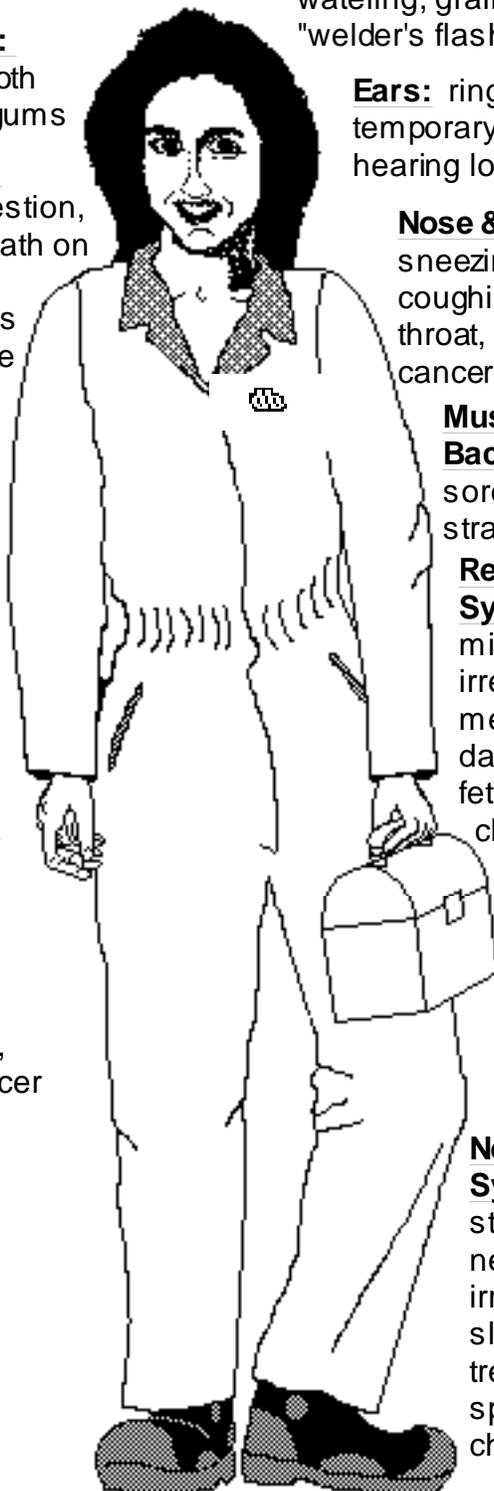
Muscles & Back:
soreness, strain

Bones & Joints:
arthritis

Reproductive System:
miscarriage, irregularities in menstruation, damage to fetus or chromosomes, sterilization

Skin: redness, dryness, itching, ulcers, skin cancer

Nervous System:
stress, nervousness, irritability, sleeplessness, tremors, speech changes



adapted from the International Metal Worker's Union

At the Scene

Your body may be able to help you pick up clues that will help describe the scene to the emergency responders. While many substances leave no clues that can be detected by your senses, you should include anything that your senses pick up in your report. **Do not move closer to the scene to see if you can "sense" something.**

Clues Your Senses Can Provide

Eyes	can spot hazards, read signs and placards, and/or display symptoms that can be caused by hazardous materials.
Skin	can tingle.
Ears	can hear unusual sounds.
Nose	can smell bad or unusual odors.

WARNING - Your nose will not be able to detect many substances.

Even substances that have a smell may be missed if you become "used to" the odor. Many substances have no smell.

Never breathe hazardous materials on purpose.

Before You Leave the Scene

Maintain a safe distance from the scene, stay upwind and uphill, and use binoculars in order to avoid possible contamination by chemicals at the scene.

In the event that you are having an effect from something at the scene or any unknown substance at the scene comes into contact with your skin or clothing, back off immediately and request information about possible contamination from either your call-in person or emergency responders. Reiterate what has happened to the incident commander or health and safety officer when s/he arrives to verify whether or not there is a possibility of contamination. They will advise you of the necessity to seek medical attention. If your skin or clothing becomes contaminated, make note of your movements and try not to contact other surfaces, because whatever you contact may also become contaminated.

After You Have Left the Scene

You should be aware of any symptoms that you may be having. If you are having any symptoms after being first-on-the-scene, you should:

- **Keep a log or diary** of any symptoms you experience. Record specific dates and times of the incident and of any symptoms you are having.
- **Get information** about the chemicals involved in the incident.
- **See a doctor.** You may need to see an occupational physician who is trained to recognize signs and symptoms of chemical exposures. Your family doctor may not have the training or experience to do this.
- **Notify the agency** (fire department, State EPA, or other agency) in charge of responding to the incident. Others who were at the scene may be experiencing similar symptoms.

Key Points

- Chemicals can enter your body through skin contact or puncture, ingestion, or inhalation.
- Health effects may show up immediately or may not show up until years after exposure.
- Exposures affect different parts of the body.
- Your senses may help you spot clues, but they are not a reliable way to evaluate whether a hazard exists.
- If you have any symptoms or know you have come into contact with an unknown substance, back off and make a call-in.
- If you have any symptoms after an emergency, see an occupational physician right away.

Sizing-Up the Scene

This exercise will give you an opportunity to pull together all the information that was covered in the previous sections of this program.

Chapter Objectives

During this activity, think about:

- How different settings affect a hazardous materials incident response.
- What kinds of information are needed for responders in different settings.
- How many different hazards can be present at one hazardous materials incident.

When you finish, you will be better able to:

- Pull together information to size up a scene.

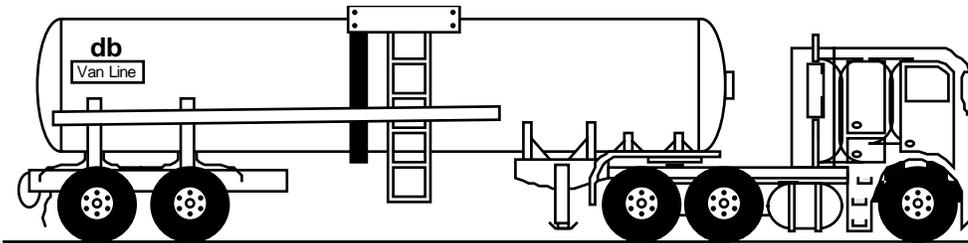
Sizing Up the Scene Exercise

Directions

1. During this activity, you will work in groups. The instructor will divide the class into small work groups.
2. In your group, appoint one person to take notes and to report back to the class.
3. Each group will be given a larger version of the map that is shown on the next page. Note the legend on the map. Your group's incident location will be marked on the map.
4. Along with the map of the incident area, your instructor will give you a "fact sheet" which will contain other information that you will need.
5. Use your map, fact sheet, and the scenario given on the following page to develop your incident.
6. Discuss the questions following the scenario with your group, and be ready to have a class discussion about each group's incident, how they are alike, and how they are different.

Scenario

You are driving down the road and see the tanker shown below. The tanker has overturned and is laying on the side of the road. A substance is leaking out of the tanker and forming a pool on and beside the road. It is 2:30 PM on a Wednesday afternoon. There is no one else on the road.



Add the information from your map and the fact sheet to the scenario. Then turn to the next page and answer the questions in your group:

Sizing-Up the Scene Questions

1. What are all of the potential hazards that may exist in this scene?

2. Where would you observe the scene from?

3. What information should you include in a report of the incident?

4. What is the worst thing that could happen at this scene? (Note: Use only the information that you know about the scene.)

Sizing-Up the Scene KEY POINTS

- Every situation is different.

Treat any event as potentially hazardous until all the facts are known.

- You should safely collect as much information as possible about an incident before you report it to emergency responders.
- The setting of an incident combines with the hazardous material(s) to create a variety of problems that the emergency responders will have to understand and control.

WHAT DO I DO?

This section tells you steps that you should follow between the time when you have finished sizing-up the scene and when the emergency response team arrives.

Chapter Objectives

During this activity, you will learn about:

- ➡ What to do after you have sized-up the scene and called for help.
- ➡ What to do when others arrive.
- ➡ What to do after you leave the incident.

When you finish, you will be better able to:

- ➡ Fulfill your responsibilities as the first-on-the-scene.
- ➡ Deal with questions from news people.
- ➡ Provide relevant information after you leave the scene.

After Sizing-Up the Scene

Your first responsibility at a scene is to gather information and notify appropriate personnel of the specifics of the incident while staying safe.

Call 911 unless there is a special number in your area. As a first-on-the-scene responder, keep any specialized contact information on your phone or readily available.

Above all, it is extremely important that **all relevant information** be given when you call in so that the nature and extent of the emergency can be known.

Exercise: What would you tell them when you call?

List the basic information you would report if you had to call in a hazardous materials incident.

What should you tell them when you call?

Take a look at what you said you would report on the previous page. Did your report include all of the things listed below? Your report should include all the following elements from sizing-up the scene and can be structured as:

Who: Who are you?

What: What has happened or is happening?

rail, highway, or fixed site

shape of container

placard/labels

physical hazards

wind direction

others at risk--people in vicinity

injured persons--conscious or unconscious

drains, sewers, or surface waters

When: When did you get there?

Where: Where are you?

Where is the scene?

residential area

remote area

Before the Emergency Responders Come

After you have notified the appropriate personnel, you should move to a safe area or to staging areas designated by emergency response personnel.

If you return to the site (if you had to leave to call), you should continue to maintain a safe distance while noting any changes in the scene that may have happened while you were away making the call for emergency responders. Keep up-to-date on what is happening or has happened at the scene so you can give a complete picture of the incident when the emergency responders arrive.

Remember, it is not your responsibility to control or contain the incident.

You have a very important additional responsibility while waiting for the emergency responders to arrive: **Do Not Let Unauthorized People Enter the Scene!!**

If the media arrive

The media may arrive before the emergency responders or before you have the incident completely sized up. Their arrival raises several concerns:

- Who will they interview, and how will they get information?
- How can they be protected from the hazardous material?
- How can they get their story without endangering emergency responders or the public?

If the media arrive before those in the Incident Command System, here are some tips for dealing with them:

- Advise them for their own safety to stay uphill, upwind and as far away as possible.
- Remain calm, and do not exaggerate the seriousness of the situation. Tell them authorized, knowledgeable personnel will be arriving soon.
- When the Incident Commander or Public Information Officer arrives, direct the media to him/her.

When Others Arrive

Once the emergency responders and/or Site Control personnel arrive, you will be under the control of the Incident Command System. These are your basic responsibilities in the Incident Command System:

- Provide a complete report to the highest-ranking officer who arrives. In most states this person will be the Incident Commander until someone of higher rank arrives. This report should include any changes in the incident which have occurred since the report was called in.
- Handle duties as assigned so long as they are within your scope of training or/and expertise.
- If you will not be involved with emergency response or site control, move to a safe area and await further instructions.
- Notify Incident Command before you leave.

When You Leave

It is very important to write a detailed report of your observations and actions. Even if you are not required by the Incident Commander or your employer to write a report, you need one for your own personal protection. You should write this report especially if the incident results in loss of life, significant personal injury, substantial property damage or causes significant environmental damage. You may be subpoenaed to testify in court about the incident.

The report should include:

- Date and location of incident.
- Description of the initial incident and sequence of events. (Note times.)
- People involved -- victims, witnesses, and other responders
(names/addresses/agencies).
- Actions you took (in time sequence).
- Your concerns, if any.
- Any possible health effects you experienced.

Key Points

- **Do** include all relevant information when you call in the incident report.
- **Do** keep unauthorized personnel away from the scene.
- **Do** report immediately to the Incident Commander when he or she arrives.
- **Do** make a written report, even if only for yourself.

Review Questions

1. What are the elements of a complete call-in?

2. What are your responsibilities as a first-on-the-scene emergency responder?

3. What should you include in a write-up of the incident?

PUTTING IT ALL TOGETHER

This section will help you to tie together the information that has been presented during this training program.

Chapter Objectives

During this activity, you will learn about:

- ➡ **Recognizing** an emergency situation.
- ➡ **Contacting** appropriate emergency response personnel.
- ➡ **Reporting** adequate information to the response personnel.
- ➡ **Protecting** yourself and others at a hazardous materials incident scene.

When you finish, you will be better able to:

- ➡ Use the information that has been covered in this class to respond correctly if you discover a hazardous materials incident scene.
- ➡ Protect yourself and others at a hazardous materials incident before emergency responders take control of the scene.

After you have worked the exercise, the trainer will discuss the answers with the class. Please ask questions or raise issues that you think are important during that discussion.

SWIMS Exercise

The trainer will give you instructions in how to perform the online SWIMS exercise. Please bear in mind that, in many cases, there may be more than one correct answer to each question. Please try to find ALL of the correct answers. The computer-based exercise will give you several attempts to find all the correct answers, if necessary.

This exercise is intended to simulate a situation such as one that might be encountered in real life. Material learned in all the preceding chapters will be applied to the solution of the problem.

CLOSING AND EVALUATION

Thank you for participating in this program.

This is an opportunity to ask any questions you may have, or to discuss how the knowledge and skills learned can be used at work.

Finally, we ask that you take 10 minutes to complete the program evaluation forms. These are important for improving the program. The Midwest Consortium does take your comments seriously and has made changes in content and the skill exercises based on feedback. Your comments are anonymous.

We hope to see you at another Midwest Consortium program in the future