Lesson Overview

After completing the preplanning activities, it is time to begin the process of assessing your jurisdiction's risk from HazMat incidents. The first step in this process, identifying hazards, will be covered in this lesson.

At the end of this lesson, you should be able to identify the HazMat hazards that are most likely to affect your jurisdiction.

Identifying Hazards

Your jurisdiction will not be able to plan for every conceivable incident. It is possible to narrow the range of incidents that require planning by identifying the hazards—chemicals—that are produced, stored, used, or transported in your jurisdiction.

Identifying all of the chemicals that pose a threat to your jurisdiction may be difficult because there are so many manufactured under so many names.

There are resources available to help, however. Using the sources available will make identifying the hazards more manageable.

Sources of Hazards Information

There are several key sources of information about chemical hazards in your jurisdiction. These sources include:

- The existing hazard analysis.
- The Local Emergency Planning Committee (LEPC).
- Producers and users of chemicals.
- Information produced by chemical manufacturers, such as Material Safety Data Sheets (MSDSs).
- Information required by Federal agencies.
- Commodity flow studies.

Each of these sources are described in this lesson.

Source of Information: Existing Hazard Analysis

Your jurisdiction should have completed a hazard analysis as part of its earlier planning efforts. The hazard analysis should include hazards posed by chemicals in addition to natural and technological hazards.

Think about what has changed in your jurisdiction since the hazard analysis was completed. Has a new facility opened? Has an obsolete facility shut down? Do new processes require different types and quantities of chemicals?

The answers to each of these questions will help you determine what chemicals may pose a risk.

Source of Information: Existing Hazard Analysis

After identifying the hazards that your jurisdiction faces, the planning team will need to analyze each to determine the degree of risk posed. Conducting a hazard analysis can help you to determine:

- What can occur.
- How bad the incident is likely to get.
- How the incident could affect your jurisdiction.
- How susceptible your jurisdiction is to the hazard.
- How vulnerable your jurisdiction is to the hazard.
- What security measures have been taken to safeguard the materials.

Susceptible means: How likely is it that a given hazardous incident would occur in your jurisdiction?
Vulnerable means: What are the likely consequences **if that incident occurs?**

What Is a Hazard Analysis?

A hazard analysis is a decisionmaking process that provides a basis for site-specific comparison of hazards in a jurisdiction. Hazards can be ranked according to the overall risks each poses.

Because most jurisdictions will not be able to plan for every situation, a hazard analysis will help you set priorities for the types of incidents that **should** be planned for. Completing a hazard analysis will allow you to address higher-priority hazards first, then gradually address lower-priority hazards.

Sources of Information: LEPCs

LEPCs can provide a broad range of technical assistance with regard to the:

- Chemicals in or near your jurisdiction.
- Characteristics of those chemicals and the risks that they pose.
- Special response requirements.
- Decontamination and treatment procedures for people, property, and the environment.

Sources of Information: Producers and Users of Chemicals

Ask the facility representatives on your planning team to provide complete information about:

- The **chemicals that they use**, including the chemical name and Chemical Abstracts Service (CAS) number for substances not claimed as trade secrets.
- **Quantities** of extremely hazardous substances normally present at the facility, including the total quantity at the site and the maximum quantity at specific locations at the site.
- The **conditions under which the chemicals are processed**, handled, or stored, including temperature, pressure, and other unique features.

Under OSHA regulations found at 29 CFR 1910.120(c)(8), businesses and industries that produce, use, store, or transport hazardous chemicals must make information about those chemicals available to their workers. A common way to do that is by providing Material Safety Data Sheets—or MSDSs.

Contact businesses and industries to get copies of their MSDSs and other information that they have about the chemicals they have onsite.

Sources of Information: MSDSs

MSDSs are a compilation of information required by OSHA to:

- Identify chemicals.
- Describe the hazards they pose.
- Describe precautions for safe handling.
- Provide response measures for spills or releases.

Chemical manufacturers are responsible for producing MSDSs. Many chemicals are produced by multiple manufacturers, so MSDSs do not all look alike. Even the section titles may be slightly different. All MSDSs **will** include the information **required by OSHA**.

The information contained in all MSDSs includes:

- The chemical name—the generic name, not a trade name.
- Components that are combined to make the chemical.
- Chemical characteristics. For example, is the chemical heavier or lighter than water?
- Fire and explosion hazards posed by the chemical.
- Reactivity data. That is, whether the chemical reacts when exposed to oxygen, water, etc.
- Health hazards, including exposure limits.
- Precautions for safe handling.
- Measures necessary for control and cleanup.

Manufacturers may include other information as well.

MSDS Information

Section 1: Chemical Name	▪ What the chemical is called on the label. ▪ Name and address of the manufacturer. ▪ Emergency contact information.
Section 2: Component Chemicals	▪ The component chemicals and percentages of hazardous ingredients (unless it is a trade secret). ▪ Worker exposure limits (i.e., Permissible Exposure Limit and Threshold Limit Value) or other safe exposure limits for an 8-hour work day.
Section 3: Chemical Characteristics	▪ The chemical's physical characteristics in its natural state. ▪ The chemical's characteristics, including freezing point, boiling point, and melting point; vapor pressure, vapor density, and evaporation rate; solubility and specific gravity; normal appearance; and odor.
Section 4: Fire and Explosion Risk	▪ Fire and explosion risk, including flash point (the minimum temperature at which the vapors from a liquid might be able to ignite) and flammability limits (the concentration of the chemical required for it to ignite). ▪ The type of fire extinguisher to use to put out a fire involving the chemical. ▪ Special hazards or firefighting procedures to follow.
Section 5: Reactivity Information	▪ Reactivity information—what could happen if the chemical was mixed with other chemicals, with water, or with air.
Section 6: Health Hazards	▪ Health hazards. ▪ Exposure routes. ▪ Signs and symptoms of exposure. ▪ Emergency first aid procedures.
Section 7: Handling and Storage Information	▪ What to do if there is a spill, leak, or release. ▪ Handling and use precautions. ▪ Disposal instructions.
Section 8: Control and Cleanup Measures	▪ Personal protective equipment required. ▪ Work and hygiene practices. ▪ Ventilation required to reduce potential for exposure.

Sources of Information: Tier I and Tier II Reports

Tier I and Tier II reports are required of facility owners and operators by SARA Title III. Tier I reports provide a general list of the quantities of listed chemicals onsite for the current reporting period.

Tier II reports provide information from the owner/operator about each chemical that is required to have an MSDS. Tier II reports list:

- Each chemical's description.
- Physical and health hazards.
- Inventory (in ranges).
- Storage locations and conditions.

Sources of Information: Commodity Flow Studies

Fixed facilities receive hazardous materials by highway, ship, and rail. It is important to look at the transportation routes, number of shipments, and quantities of chemicals carried in or near your jurisdiction.

The LEPC should have a commodity flow study for your area. Verify the date that the study was completed. Work with the LEPC to update it, if necessary.

Other Sources of Information

There are several other sources of information that you can access to identify hazards. These sources include:

- Historical data.
- National associations.
- The Federal Government.

Check each source of information until you have a complete list of the chemicals that could pose a risk to your jurisdiction.

Other Sources of Information: Historical Data

You may be able to gather information about hazards in, or passing through, your jurisdiction from historical data. Sources of historical data include:

- Newspapers and media outlets.
- Historical societies.
- Long-time residents.

While these data will be anecdotal, they are useful as a guide to the types of incidents that have occurred in the past, their locations, and their severity.

Other Sources of Information: National Associations

Chemical manufacturers' and distributors' associations and transportation associations may be another good source of information. These associations may be able to provide information about specific chemicals and their risks.

Other Sources of Information: The Federal Government

The Federal Government may also be able to provide information. For example, if your jurisdiction has a military installation nearby, the military should be able to provide information about the HazMat transported to or located at that installation. Government websites may be yet another source. The EPA's website includes the locations and contents of hazardous waste sites and their contents nationwide.

Be sure to check all potential sources of information until you are convinced that you have the HazMat information that you need.

Lesson Summary

Identifying hazards will help you to limit the types of incidents for which you must plan.

There are several key sources of hazard information that are readily available: Key sources include:

- The LEPC.
- Producers and users of chemicals.
- Information produced by chemical manufacturers, such as Material Safety Data Sheets (MSDSs).
- Information required by Federal agencies.
- Commodity flow studies.

There may be other sources of information as well.