

MAJOR PROGRAM POINTS

"DEALING WITH HAZARDOUS SPILLS"

Part of the "GENERAL SAFETY SERIES"

Quality Safety and Health Products, for Today...and Tomorrow

OUTLINE OF MAJOR PROGRAM POINTS

The following outline summarizes the major points of information presented in the program. The outline can be used to review the program before conducting a classroom session, as well as in preparing to lead a class discussion about the program.

- **Say the words "hazardous materials", and most people will think of:**
 - Leaking drums of toxic waste.
 - Superfund cleanup sites.
 - Overturned tractor-trailers spewing caustic chemicals across major highways.

- **Most of us don't think of:**
 - Gasoline that fuels our vehicles.
 - Cleansers janitors use.
 - Paint.

- **Yet these are all hazardous chemicals that can be found in many work areas.**
 - Despite their familiarity, these everyday items can cause serious problems.

- **A small spill in the wrong place can mean:**
 - Property damage.
 - Injuries.
 - Even death.

- **A spill of hazardous materials could happen at any time.**
 - If you don't know the right way to deal with one, you could endanger your entire facility... and put the lives of your coworkers in jeopardy.
 - By learning how to clean up small chemical spills now, you can be ready to respond when one does occur.

- **There are a number of ways to learn about spill cleanup procedures. Your company's Hazard Communication Program is a good place to start.**
 - It provides you with the information that you need to understand the hazards of the chemicals you work with.
 - Hazard Communication classes will teach you how to read chemical identification labels.
 - You'll also learn about Material Safety Data Sheets (MSDSs), which describe how to store and handle specific HAZMATs.
- **You should also read through your facility's Emergency Response Plan.**
 - This details how employees should report and handle emergencies at your facility.
 - A typical Emergency Response Plan includes information on how to prevent emergencies, as well as how to recognize if one is occurring.
- **The Plan details the roles of emergency response personnel, and the lines of authority to be followed during an incident. It also covers:**
 - Methods of communication.
 - Personal protective equipment (PPE).
 - Evacuation procedures.
 - Decontamination.
- **The Emergency Response Plan is meant to be read by everyone who works at your facility.**
 - Ask your supervisor where you can find a copy.
- **But you may be asked to go beyond just learning about spill cleanup.**
 - You may be trained to play an important role in an actual cleanup operation.
 - The functions that you would perform during a cleanup depend upon what type of training you go through.

- **There are five different levels of training designated by OSHA in the Hazardous Waste Operations and Emergency Response (HAZWOPER) regulation (1910.120). In order of increasing responsibility, they are:**
 - First Responder Awareness.
 - First Responder Operations.
 - Hazardous Materials Technician.
 - Hazardous Materials Specialist.
 - Incident Commander.

- **First Responder Awareness level training is for all workers who may witness an accidental spill of a hazardous material.**
 - This could include everyone who enters the facility, even employees who don't usually deal with chemicals... such as secretaries and other office personnel.
 - Awareness training takes a minimum of four class hours.
 - Trainees learn about the hazardous substances in their workplace, and the risks associated with these materials.
 - They are also taught how to recognize HAZMAT emergencies, and notify the proper personnel.

- **The next level, First Responder Operations, is for workers whose job is to keep spills from spreading, as well as to prevent unauthorized people from entering the spill area.**
 - More complex than First Responder Awareness level training, First Responder Operations courses consist of eight class hours.
 - In this course, Operations trainees learn hazardous materials terms and basic risk assessment techniques.

- **They are also taught how to:**
 - Use personal protective equipment (PPE).
 - Perform simple control and containment operations.
 - Implement basic decontamination procedures.

- **The next training level is for Hazardous Materials Technicians.**
 - These workers enter the spill area and stop spilled material from spreading.
 - The Hazardous Materials Technician course is at least twenty-four hours long.
 - It covers chemical and toxicological hazards, as well as risk-assessment techniques.

- **In addition, Hazardous Materials Technicians learn how to:**
 - Identify hazardous materials with field survey instruments.
 - Use advanced spill-control techniques.
 - Plug leaking containers.
 - Implement complex decontamination procedures.

- **As they do their jobs, Hazardous Materials Technicians are supported by workers who have gone through the next level of training, Hazardous Materials Specialists.**
 - HAZMAT Specialists are experts in how to handle all of the hazardous materials that can be found on your site.
 - They also act as liaisons with federal, state, local, or other government authorities.
 - Hazardous Materials Specialists receive a minimum of twenty-four hours of class training, including detailed information about chemical, radiological and toxicological hazards.

- **They are also taught how to:**
 - Select PPE for unique and unusual situations.
 - Perform specialized containment operations.
 - Determine what type of decontamination procedures should be used in complex HAZMAT situations.

- **The highest level of HAZMAT training is for Incident Commanders.**
 - These are the individuals who are in charge of all cleanup operations.
 - Incident Commander training varies with the needs of each facility, but it must include at least twenty-four class hours of training equal to the First Responder Operations level.

- **The Incident Commander must have detailed knowledge of applicable state and local regulations, as well as know how to implement your facility's Emergency Response Plan.**
 - The Incident Commander must also be an expert on decontamination procedures, as well as the medical risks faced by employees working in chemical protective clothing.

- **While the Incident Commander is the highest level of authority during an emergency, every training level is critical.**
 - The system cannot work unless employees at all levels pull together, from the First Responder Awareness-level on up.

- **But if you work closely with spilled materials as an Operations Level First Responder or a Hazardous Materials Technician, you can't protect anyone else if you don't protect yourself.**
 - This means using the proper personal protective equipment (PPE) whenever you deal with hazardous materials.

- **Personal protective equipment is anything you wear to prevent exposure to a hazardous substance.**
 - PPE can be as simple as a pair of gloves, or as complex as a fully-encapsulating, chemical-protective suit.
 - PPE is grouped into four levels... A, B, C and D.
 - These levels are defined according to how much protection the equipment provides.
 - Level D PPE provides the least amount of protection, while Level A provides the most.

- **During a HAZMAT incident, Level D PPE would be worn by employees on the First Responder Awareness and Incident Commander levels... individuals who would not come close to the spill. Level D PPE typically consists of:**
 - Coveralls and hard hat.
 - Cloth or rubber work gloves.
 - Boots with steel toes and shanks.
 - Safety glasses or chemical splash goggles.

- **Level D PPE does not provide you with respiratory protection, or defend against corrosive materials.**
 - It is meant to shield you against nuisance contamination, such as materials that might stain your clothes, and to provide limited protection against injuries.
 - It also protects you to a limited extent against injuries.

- **For example:**
 - Coveralls can protect you from exposure to powders and light splashes.
 - Safety glasses can defend your eyes from some chemicals and sharp objects.
 - Work gloves can prevent you from cutting or burning your hands.

- **Level C PPE is a major step up from Level D, and provides significantly more protection.**
 - When a spill involves chemicals that pose a more serious hazard, Level C would be worn by employees on the First Responder Operations, Hazardous Materials Technician and Hazardous Materials Specialist levels (all of whom work closely with the released substances).

- **Level C PPE is used in situations where skin and respiratory hazards are present, and includes all of the equipment from Level D, plus:**
 - A chemical splash suit with a hood.
 - Some type of Air-Purifying Respirator (APR).

- **Air-Purifying Respirators filter contaminants out of the air before they can be inhaled.**
 - They use the power of your own breathing to keep air flowing into and out of the respirator.

- **Like Level C PPE, Level B protection is worn by workers on the Hazardous Materials Technician and Hazardous Materials Specialist levels.**
 - Level B PPE is also used in situations where skin and respiratory hazards are present, but where the air is too contaminated to be filtered by an APR.

- **Level B PPE has all of the equipment from Level C, but includes an Air-Supplying Respirator (ASR) instead of an Air-Purifying Respirator to protect wearers from contaminated air.**
- **There are two types of Air-Supplying Respirators:**
 - Self-Contained Breathing Apparatus (SCBA), which allows you to breathe air from a portable tank you carry with you.
 - Supplied-Air Respirators (SAR), which supply air through a hose from a source located some distance away.
- **Both SCBAs and SARs force a constant supply of fresh air into your facepiece, preventing contaminants from entering your air supply.**
- **The most protective of all PPE classes, Level A is worn by Hazardous Materials Technicians.**
 - Level A is used only in situations where skin and respiratory hazards are so extreme that you must be completely isolated from the outside air.
- **Level A PPE includes all of the equipment from Level B, plus a totally-encapsulating, chemical-protective suit.**
 - This suit completely covers you and your Air-Supplying Respirator, providing the maximum possible protection against all types of chemical exposure.
 - Depending on the situation, a chemical-resistant inner suit made of a material like Tyvek, and chemical-resistant outer and inner gloves can also be used with the suit.
- **In the majority of cases, the first person to report a spill is an Awareness-Level Responder.**
 - The Incident Commander then takes over the cleanup operation, ensuring that the appropriate actions are taken.

- **As soon as possible, an Operations-Level First Responder evacuates the area, then cordons off the incident site with warning signs or caution tape.**
 - If the spill has occurred indoors, the responder must also seal off any air ducts leading from the contaminated area to other parts of the building, and open windows and doors to the outside, allowing vapors to dissipate.

- **Next, the responder places barriers or absorbents around the spill, to prevent it from spreading.**
 - This technique is called "diking".
 - Common diking materials include absorbent socks made of polypropylene and flexible barriers of urethane or PVC.

- **While both types of dikes have the same objective, they function in different ways.**
 - Absorbent socks contain a spill by both blocking and partially absorbing it.
 - Socks cannot be decontaminated, however, and are considered hazardous waste after one use.
 - Federal law mandates that contaminated spill socks must be disposed of according to OSHA guidelines.

- **Flexible barriers, on the other hand, only block spills from spreading.**
 - They do not absorb the spilled materials.
 - Because of this, flexible barriers can be decontaminated and reused.

- **Sandbags should never be used to dike any type of spill. They are not made to absorb hazardous substances.**
 - Spilled chemicals can leak through sandbags, allowing contamination to spread.
 - In some cases, the sand itself could actually react with the spilled liquids.

- **No matter which method is used, the diking has to keep the spill from running into storm drains or sewers, contaminating the environment in the process.**
 - This is such a serious problem that you must contact your supervisor immediately if you ever spot chemicals leaking into a drain.

- **Once diking has been completed, the Operations-Level Responder is free to leave the scene and go to the decontamination area.**
 - A HAZMAT Technician then takes over.

- **Aided by information from a Hazardous Materials Specialist, the HAZMAT Technician first characterizes the spill site.**
 - This includes identifying the chemicals involved in the spill and determining the hazards that these materials present.

- **This is usually done with direct-reading instruments that provide instant information on environmental conditions. Examples of direct-reading instruments include:**
 - “Combustible gas monitors,” used to detect airborne contaminants that could be a fire hazard.
 - “Detector tubes” containing materials that change color in the presence of certain chemicals.
 - “Field survey meters,” used to detect radiation.

- **In addition to chemical threats, Hazardous Materials Technicians must also look for hazards such as open pits and unstable piles of material.**
 - These must be reported to management as soon as possible.

- **After characterizing the site, the Hazardous Materials Technician radios a report on the site conditions to the Incident Commander.**
 - The Commander will then consult a HAZMAT Specialist to determine if the situation requires special handling.

- **In most cases, the Technician's next step is to spread an absorbent compound over the spill, to soak up the hazardous material.**
 - These compounds are often called "sorbents."
 - They are commonly in a granular form, similar to cat litter in appearance.
 - Sorbents are chemically inert, which means that they do not react with the substances they absorb.
- **After a layer of sorbents has been spread over the spill, spill blankets are then placed on top of the absorbent compound to soak up any remaining material.**
 - Spill blankets are disposable, and are also made of chemically inert materials.
 - They come in various sizes, which can be cut to fit specific spills.
 - The blankets are also available in rolls, or individual pre-cut sheets.
 - Once the spill has been absorbed, the sorbent and the spill blankets can be shoveled into an OSHA-approved container for disposal.
- **Normally, this process is pretty routine, but there are two situations when Technicians must be especially careful.**
 - If the spilled chemical is flammable, Technicians should only use non-sparking tools (such as plastic shovels) to transfer the material to the disposal container.
- **Technicians must also be cautious around electrical equipment, because most liquids conduct electricity.**
 - Before cleanup operations begin, nearby machinery must be switched off at the main breaker.
 - This also decreases the possibility of the equipment's power switch producing a spark when it is turned off.
 - The breaker must then be locked and tagged out.
- **Once the contaminated material is sealed in its container, it should be removed to an EPA-approved hazardous materials treatment facility.**
 - Here, the material will be recycled into useful substances, or converted into a non-hazardous form and sent to a landfill.

- **After the spill has been cleaned up, everyone involved in the cleanup has to undergo decontamination.**
 - This usually takes place in a "Contamination Reduction Corridor" (CRC).
- **The CRC is a series of two to four stations where workers can have their PPE and tools decontaminated.**
 - As they pass through the CRC, workers are thoroughly washed with decontamination solution, which is normally a mixture of water and detergent.
 - The only exception to this occurs when you are dealing with water-reactive contaminants.
 - In these cases, a specialized decontamination mixture must be used.
- **The decontamination solution is then rinsed off in a low tub, such as a child's wading pool.**
 - Following the rinse-off, CRC technicians take PPE and other equipment from the decontaminated workers, who then report directly to an area where they can shower.
 - Once decontamination is complete, the decontamination solution must be disposed of according to OSHA guidelines.

*** * * SUMMARY * * ***

- **Cleaning up HAZMAT spills may look easy, but appearances can be deceiving. If you don't know what you're doing, disaster could result.**
- **Your best bet to stay safe is by learning how to handle a spill before one occurs.**
- **Participate in your company's Hazard Communication Program.**
- **Familiarize yourself with your Emergency Response Plan, and know who to notify when a spill occurs.**
- **No matter what your responder level, follow your facility's guidelines to the letter!**

- **You can never eliminate the possibility of a HAZMAT spill, but you can be prepared for it.**
- **Use your primary tool against hazardous materials emergencies... knowledge... and you will help to keep yourself and those around you safe!**