A local HAZMAT team plans their response to a reported chemical release.

Emergency Action Plans: Are you ready? (Part 3 - HAZMAT)

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HAZMAT/Toxic Chemical Releases

Ah! My personal favorite when it comes to types of emergencies! Hazardous Materials!
(Sorry, I'm a bit of a "*glow worm*".)

If you work at a facility that manufactures, stores, or is in any way involved with hazardous materials, you better be familiar with the procedures for this one! You may even want to involve the local fire department and/or HAZMAT team so that they can benefit from the facility pre-planning, as well. Unlike fires, however, you have multiple response options here: evacuate, shelter-in-place, or a combination of the two. Since every chemical release will be different in some aspect (e.g., quantity released, chemical released, location and direction of release), you will need to spend a little more time with your employees training them on how to determine the best response option in any given situation. While you may be able to sound the alarm or make a PA announcement, there may be situations in which an employee(s) will have to make their own decision.

Governing Bodies for Safe Handling of Hazardous Materials

Without going too deep into the response side of things, I do want to point out a few key stakeholders in the game. There are several governing bodies that dictate how hazardous materials are handled, so be sure to check with each applicable organization so that you can ensure you're staying compliant and up to par with industry best practices. Some of the most common governing bodies include:

Occupational Safety and Health Administration (OSHA)
Mine Safety and Health Administration (MSHA)
U.S. Department of Transportation (USDOT)
Environmental Protection Agency (EPA)
U.S. Chemical Safety and Hazard Investigation Board (CSB)
National Fire Protection Association (NFPA)
Local Authority Having Jurisdiction (AHJ) (State Fire Marshal's Office, Local City Ordinances, Etc.)

Key Questions To Ask Yourself:

Do you have a distinct notification system for this type of emergency so that employees know what it is?

If the chemical is in gas/vapor form, do you have a wind sock to determine wind direction? If so, do employees know where it's at?

Will the leak affect neighboring facilities? If so, have you notified them beforehand of the potential situation?

Do you have multiple rally points? HAZMAT situations are very dynamic. A safe rally point may become directly in the line of fire if the wind shifts directions and blows the vapor cloud towards employees. If this happens, you need to be prepared to have them move. Always remain upwind and uphill of any HAZMAT situation!

Do your employees know the content(s) and location(s) of your facility's most hazardous chemical(s)? Do they have a general idea of their characteristics, such as color, odor, etc.?

Does your facility have trained HAZMAT responders that will attempt to stop the release? Are they familiar with their assigned roles and responsibilities, who needs to notify, and what is outside of

When determining if the incident is too severe for the average employee to clean up, you need to refer back to OSHA's **Hazard Communication** and **HAZWOPER** standards to determine what is considered an "incidental spill" and what requires an "emergency response". According to an **OSHA letter of interpretation**, in order for the definition of "*emergency response*" to be satisfied:

The release or situation must pose an emergency. Examples are: it may cause high levels of exposures to toxic substances, it is life or injury threatening, employees must evacuate the area, it poses IDLH conditions, it poses a fire and explosion hazard (exceeds or has potential to exceed 25% of the LEL), it requires immediate attention because of danger, or presents an oxygen deficient condition. Nuisance spills, minor releases, etc., which do not require immediate attention (due to danger to employees) are not considered emergencies.

An ordinary spill that can be safely handled by the workers is **NOT** an emergency. Such employees must have the proper equipment and training under other OSHA standards such as the Hazard Communication Standard.

If the person handling the chemical has to evacuate the area, it automatically becomes an emergency response and requires first responders trained to OSHA's HAZWOPER Operations level or higher. If you have an internal HAZMAT response team trained to the appropriate level, great! If not, it's time to call 911!

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My recommendation is that everyone at the organization should be trained to the HAZWOPER Awareness level (at a minimum). This doesn't require extensive training, but it does require an annual refresher. There are several different acronyms out there, but one I personally like to use as an easy reminder of what "awareness level" responders are trained and authorized to do is "**R.A.I.N.**".

Recognize that a hazardous materials incident has occurred. Employees at the awareness level need to know how to recognize a chemical spill, leak, or release. Not every chemical is going to produce a green toxic cloud (but if it does, you should probably run!). They need to be able to recognize unusual odors, sounds, or smells. Just make sure they don't stand around too long, though!

Avoid contact with the hazardous materials substance. Awareness level responders are not trained to perform any type of offensive (stopping and cleaning up the leak) or defensive (containing the leak) procedures. Once they recognize the situation, they need to avoid it at all costs and make sure others in the immediate area do the same.

Isolate the area. Block off the area to prevent others from going into the danger zone. Depending on the size of the spill/leak/release, the initial isolation distance can be half a mile or further. The DOT's Emergency Response Guidebook (ERG) is a great tool for determining initial isolation distances for nearly any chemical.

Notify the appropriate authorities or response agencies. Employees should notify the appropriate parties, both internal and external to the company. Be sure to call 911 in order to get the local first responders on the way, then notify your company's emergency contacts. Once the first responders arrive, they will typically determine a response level based on the severity of the incident. This will then determine if they can handle it locally, or if they need to notify the state authorities, National Response Center (NRC), Coast Guard, EPA, FEMA, etc. Fingers crossed that it doesn't involve the latter organizations!

Summary

Responding to a hazardous materials incident requires technical skills and knowledge. Applying water to certain chemicals in an effort to dilute it can cause an exothermic reaction to occur if you don't flood it with copious amounts of water (e.g. sulfuric acid), whereas other chemicals may react

benefit analysis, evaluate the costs associated with training employees to HAZWOPER operations level or higher (e.g., chemical-protective clothing, administrative costs of training, etc.), and the level of knowledge and understanding of what you're dealing with. Consult with your local fire department or HAZMAT response team for help in determining how deep you should dive into it.

If you want to learn more about hazardous materials, I'll recommend two sources that are top notch! My personal favorite is "The HazMat Guys" podcast, which consists of two firefighters from FDNY (Mike Monaco and Bobby Salvesen) that cover everything from basic chemistry and air monitoring to "hot washes" and specific response procedures when dealing with "touchitforsureandianol" (no, that's not a real chemical...just sound it out...). My other recommendation is to follow HazMat Nation, which includes well-known HAZMATTERS Josh Fowler, Ryan Henry, Phil Ambrose, and many more SMEs. Regardless of where you go to learn, the key is to **NEVER STOP LEARNING**!

For more information about OSHA's emergency action plan standard, visit the OSHA website (**or click here**). It will provide the minimum requirements for EAPs. However, the most important thing is to continuously evaluate your program's effectiveness and look for ways to improve it. People's lives are depending on it!