

The Accidental Incident

Are you prepared in the event your company has a hazardous materials spill?

by Jeff Kacirek, CHMM

Whenever a company stores hazardous substances and materials, there is always the potential for a spill. Taking precautions in an effort to minimize spills is a company's best defence. Recognizing different types of spills and responding appropriately to spills is key to ensuring the hazards of spills are minimized and worker safety is protected.

Types of spills

In terms of recognition, spills can be categorized into three distinct groups:

- 1) Releases that are clearly incidental;
- 2) Releases that clearly require emergency response; and,
- 3) Releases that may be incidental or may require emergency response, depending upon circumstances.

Workers must be able to distinguish between "incidental spills" and "emergency response spills." An incidental release or spill is a release of a hazardous substance that does not pose a significant safety or health hazard to employees in the immediate vicinity or to the worker cleaning it up, nor does it have the potential to become an emergency. Incidental spills do not require an emergency response, and therefore do not require trained professionals for cleanup. These spills are typically managed by employees working in the area where the spill occurred or by maintenance personnel.

An emergency response spill is any event involving the spill or release of hazardous substances or materials, mixtures containing such substances or materials or hazardous waste that requires the intervention of spill cleanup professionals or an internal spill response team, including spills that are harmful to humans and/or the environment in which they live.



Every spill should be evaluated to determine whether professionals are required and if regulatory reporting is necessary. An initial assessment of the spill should be conducted to determine the substance spilled. Is the material hazardous? How much of the substance has spilled? A small volume spill is obviously less likely to pose a significant risk to workers than a large spill of the same material and is less likely to escalate into an emergency response. However, even a very small spill of a highly toxic chemical could cross the emergency response threshold.

The following are some factors that must be considered in the risk assessment:

- Nature of the hazard properties of the material (i.e., flammability, corrosivity, toxicity, etc.);
- Physical properties of the material and its

potential for exposure (i.e., respiratory hazard, for example);

- Degree of hazard and routes of entry, if toxic;
- Physical state (powder, granular, liquid, gaseous); and,
- Specific circumstances, such as the location of the spill, the level of ventilation and the knowledge and experience of personnel.

Incidental spill response personnel should be trained in hazard recognition and/or hazard communication and in the use of appropriate PPE. Incidental spill responders may absorb, neutralize, or otherwise control a spill of a familiar hazardous substance/material, so long as doing so does not expose them to significantly greater risk than the routine handling or use of that material. Consider the amount of material you anticipate might spill at one time and determine your storage limitations. Stock your absorbents and neutralizers in locations that will provide easy access and train your employees on these locations and on use of all absorbents. Absorbents can be a costly part of your spill response preparation. Therefore, it is important that your employees know when and how to use absorbents. Most absorbents and neutralizers have Materials Safety Data Sheets (MSDS), so don't forget to add these MSDSs to your management system.

If workers are unable to determine whether the spill is incidental or whether they are qualified to clean it up, they should err on the side of caution and contact emergency responders.

Emergency response

For larger, emergency response spills, preparing an emergency response assistance plan (ERAP) is an important step and often required depending on the types of hazardous substances or quantity of hazardous substances your company handles or trans-

ports. In addition, employee training and testing of the plan are critical to its success in an actual emergency.

Time must be provided for emergency response planning (including pre-emergency assessment for on-site teams), developing resources for cooperation, annual medical evaluations, developing safety and health programs, performing recurrent training, maintaining PPE programs, air monitoring equipment maintenance, and preparation for decontamination procedures.

Preparing to deal effectively with a significant spill of hazardous substance/material is good business, but an in-house emergency response team can be very costly and time consuming.

The alternative to an internal team is to outsource emergency response. Outsourcing means identifying and qualifying an emergency response contractor (or perhaps two, to ensure availability) to respond on an on-call basis to emergency events. Qualifying contractors is essential and best performed by an environmental professional aware of appropriate criteria and experienced in such evaluations. Alternatively, many companies contract with environmental, health, and safety information providers that pre-qualify local emergency response contractors and provide a call centre to manage emergency responses, interact with regulatory agencies, and perform subsequent reporting as necessary. In either case, the spill responders should have a knowledge base of similar incidents that can be leveraged when responding to your spill. It's important to provide a site-specific profile including the relevant internal procedures and the MSDSs for the materials you use. You should also have a contract agreement in place to ensure the responder understands your needs and expectations.

Whichever the selected approach — internal team development or outsourced assistance — the key to success in the event of a hazardous substance or material spill is preparation. ■■■■

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Cleaning Up Spills

by Jennifer Holloway

Are you using the right absorbent for your spill? Ian Goodland of Devcon says he finds many companies aren't.

"I find people are storing absorbents that are not capable of absorbing the type of liquids they are using," he says.

Some products are designed for aggressive chemicals while others are designed for everyday oil spills, he explains. Companies need to educate workers to ensure the proper absorbent is chosen. Oil spill absorbents won't absorb aggressive spills. And while products for aggressive chemicals will absorb an oil spill, they generally cost more, which is an added expense a company doesn't need to pay.

Devcon offers absorbents made from a wood fibre cellulose, which turns liquids into solids on contact. "You can literally pick it the solid with a gloved hand," Mr. Goodland notes. The products do not leach and therefore, do not cause secondary spills. The waste is accepted in all types of disposal options, including landfill, incineration and bioremediation. Devcon also does on-site evaluation of what chemicals are used, proper placement of spill kits, and training from the spill scenario through to disposal.

Neutralization

For acid and caustic spills, neutralizing the material avoids incineration costs and any potential hazardous leaching that sometimes occurs with traditional universal absorbents.

"The chemistry is simple," says Sergio Moskovitch of Cartier Chemicals in Montreal, the manufacturer of chemical neutralizers approved by Environment Canada. "When you have an acid you usually neutralize it with a caustic and vice versa."

Mr. Moskovitch says Cartier found its niche market when universal absorbents were introduced to the spill clean-up market. The company tested these products and noted that they did not fully absorb highly concentrated acids or caustics, instead the materials only adhered to the surface of the absorbent. "It meant that the materials needed to be diluted considerably, so that the particular absorbent would open up and absorb the material," he explains. But even when weak acids and caustics are absorbed, there is still a hazardous waste that needs to be incinerated to be properly disposed of.

So instead of diluting the spilled material, Cartier promotes neutralization. The spilled material is rendered harmless, is safer to handle, and can be disposed of in a landfill. Cartier also provides customized emergency response programs that incorporate their products.

Bioremediation

When a truck and trailer unit dumped its diesel tank into a ditch along the side of the highway near Williams Lake, B.C. in 1998, bioremediation came to the rescue.

"Otherwise, they would have excavated all of the contaminated soil and hauled it off to a special waste landfill, or incinerated it, and then replaced all that soil," says Ron Van Luven of Gator Canada. "It's very costly way to do it."

Instead the company used Oil Gator, a microbial bioremediation product made from cotton seed lint. Oil Gator absorbs and encapsulates the oil. Then indigenous microbes eat the hydrocarbons a food source and break them down into hydrogen and water. "You just put it down, leave it and let it do its thing," explains Mr. Van Luven. Sixteen weeks after the Williams Lake spill, samples taken from the area indicated there were no hydrocarbons present.

While Oil Gator is used for soil and gravel, the company offers Cell-U-Sorb for oil spills to water and Floor Gator for surface oil spills. These products do not contain the microbes, but Oil Gator can be added to the used product in a bio-cell to remediate that waste. ■■■■