

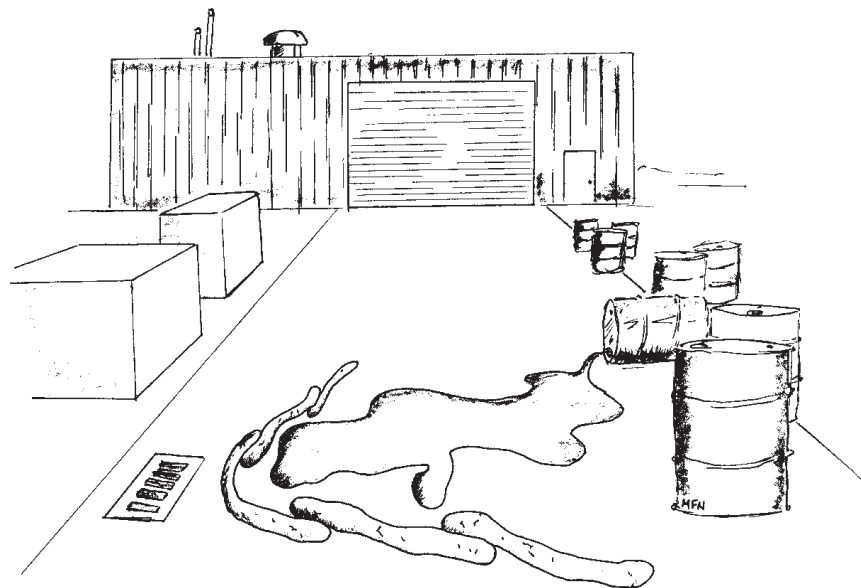
Section 11

Spill Control Procedures

Purpose



To know when and where to use defensive spill control techniques as an operations level responder.



Section 11

**What you will find
in this section...**



Page	Fact Sheet	Title
11-3	---	Task 1
11-6	#1	Two Heads Are Safer Than One
11-7	#2	Setting Up Work Zones and Site Control
11-9	#3	Spill Control for Operations Responders
11-12	#4	Containment - Not Your Job
11-13	#5	What Goes on a Crash Cart? Typical Emergency Equipment
11-16	---	Task 2
11-18	---	Summary

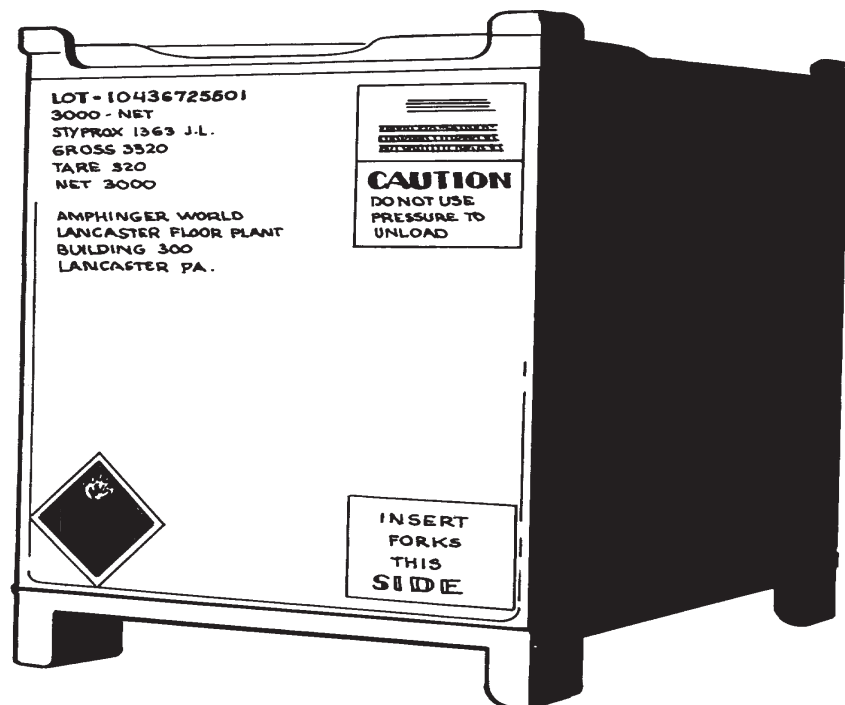
Task 1

- Read the scenario below.
- With your group, answer the questions which follow.

Two 2000 gallon containers filled with pickling waste are sitting outside the main facility at American Screw Company. This pickling solution is mostly **sulfuric acid**. Usually they are inside near the pickling tanks where coiled steel is surface treated. But today, they are to be picked up by the waste hauler and carted off for disposal.

A delivery truck has just arrived and is turning around to back into the loading bay. He can't see the waste containers and backs into them. Both of the containers are punctured and are leaking onto the ground.

There is a truck scale, a drainage ditch, and a manhole on that side of the facility.



Task 1

continued

- **Read the scenario below.**
- **With your group, answer the questions which follow.**

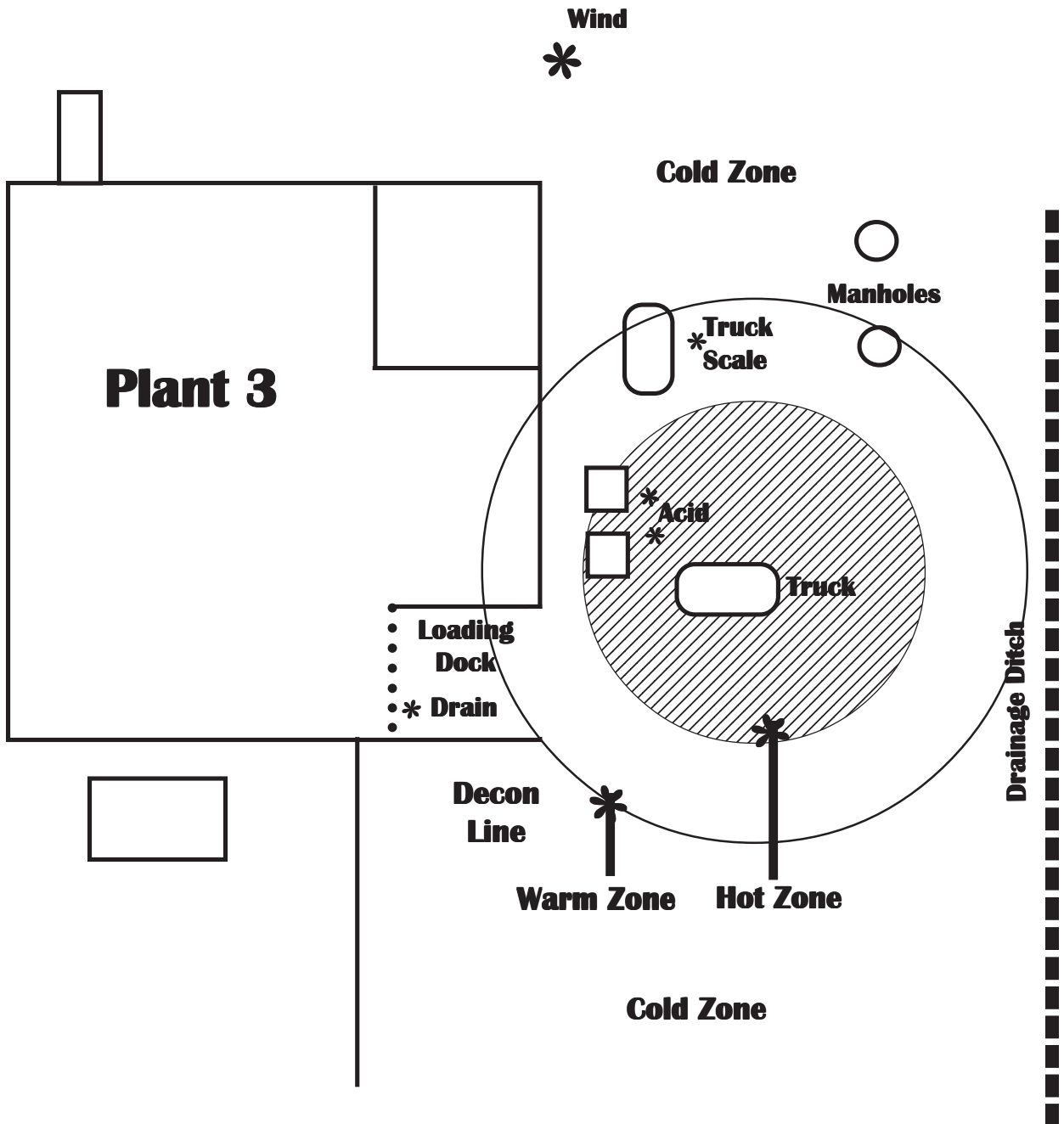
1. Work zones have been drawn on the map of the site. How would you change the set-up of the hot, warm, and cold zones and why?
2. As an operations responder, which confinement techniques could you use to control the spill?
3. Where would you place confinement material? Mark the material on the site map.
4. What material would you use to confine the spill?
5. Your supervisor gives you a patch and tells you and your buddy to plug the leaks and stop the spill. Remember, you are operations-level responders. What would you do?

Task 1

continued

- Read the scenario below.
- With your group, answer the questions which follow.

Site Map:



Fact Sheet #1

Two Heads Are Safer Than One

During an emergency, it is never safe to work alone. Emergencies are unpredictable — that’s their nature. You should always have a partner while carrying out any emergency response task.

Working with one or two partners is called the “buddy system.” Your most important responsibility is to keep an eye on your buddy while you are responding to the spill. Never leave your buddy, and never let your buddy leave you alone. If you or your buddy were to get hurt or go down, the other would be able to get help quickly.

- ② Always use the buddy system when you respond to an emergency.**

Source: OSHA’s HAZWOPER standard 1910.120 (q)(3)(v).

Fact Sheet #2

Setting Up Work Zones and Site Control

After evacuation of the area around the spill and size up, the next step is to establish the work zones. The Incident Commander will establish these zones, based on the size-up, results of any air monitoring, and any information the IC has quick access to. The three zones are:

- **Hot Zone** (sometimes called the exclusion zone)

The entire area affected by the haz mat incident. The hot zone should extend far enough to keep people outside the zone from being exposed to hazardous materials or dangerous surprises (fire, explosion, change in wind).

- **Warm Zone** (or decontamination zone)

The area where the decon line is set up. It starts out clean, but will become contaminated as the entry team leaves the hot zone. All people and equipment entering and leaving the hot zone must pass through this zone.

- **Cold Zone** (sometimes called the clean zone or support zone)

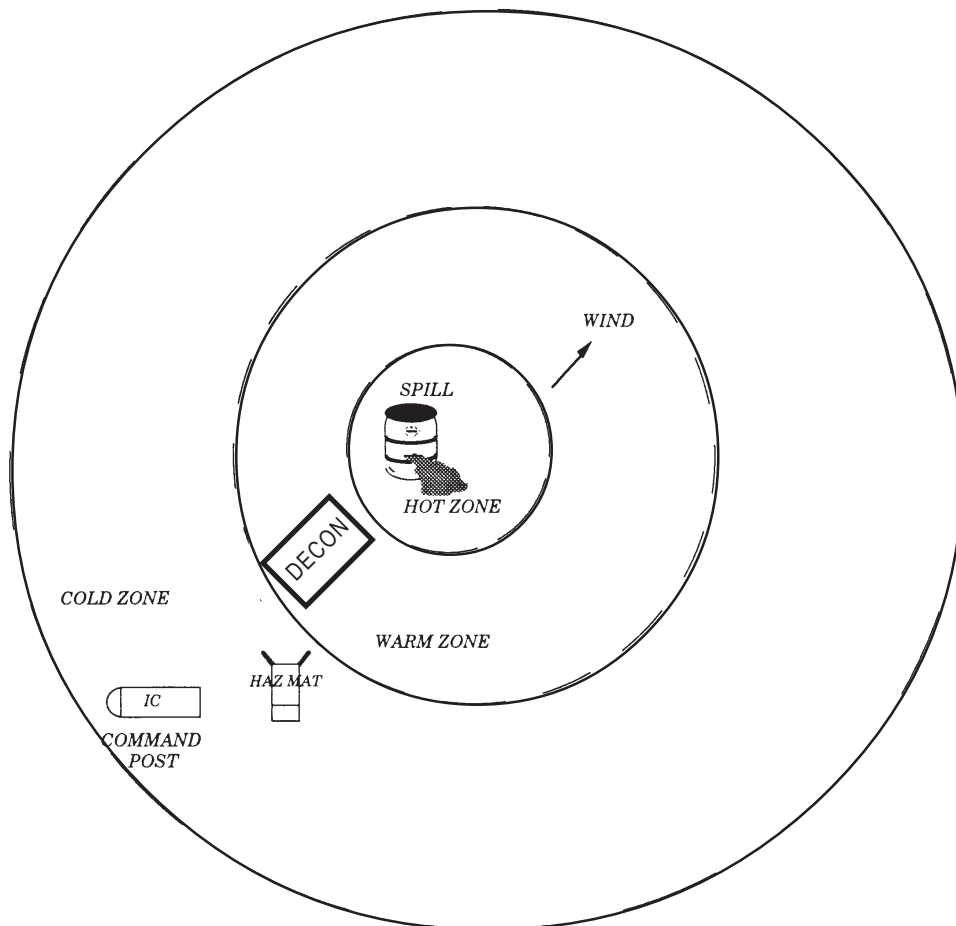
The area where the command post, extra supplies, and other support functions are set up.

- ② *The Cold Zone is where Operations-Level Responders carry out spill control procedures.*

Fact Sheet #2, continued

Work zones help keep people out of harm's way. Work zones also help to keep the released materials in a confined area. Since emergency responders can only leave the hot zone by passing through the decon line, they cannot track the hazardous materials outside of these zones.

Keep entrances into the hot zone separate from exits out of it. The exit is the decon line.



If you are assigned to do spill control procedures, don't start until the decon line is set up in the warm zone.

Fact Sheet #3

Spill Control for Operations Responders

*Your
Job*

The job of an Operations-Level Responder is to control the spill from a safe distance. This means that you stay in the Cold Zone.

Basic Control

The first steps to preventing further release may include closing a valve or shutting off a piece of machinery or system in a safe area. This may also include controlling the site. Site control means keeping people and traffic out, isolating the area, and eliminating sources of ignition.

Confinement

Confinement is taking steps to keep a spill or leak in as small an area as possible. Building a dike to keep materials in a confined area is one example. Blocking drains, diverting flow to keep a spill away from waterways, collecting run-off by digging a ditch or placing containers, and placing materials to absorb on-coming flow are types of confinement.

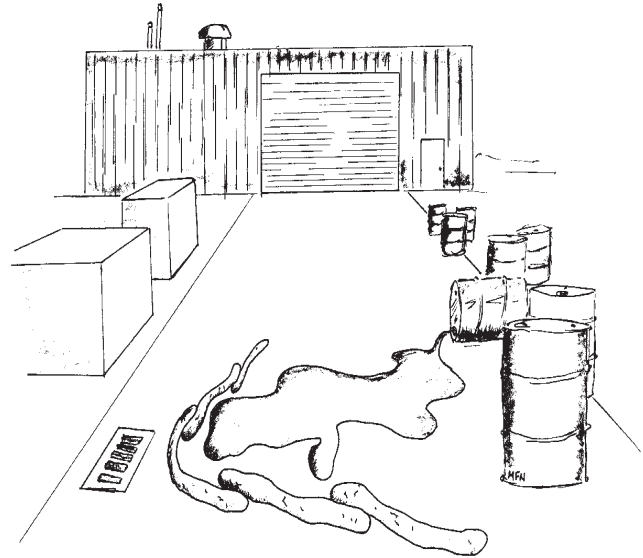
Remember, *carry out confinement activities well ahead of the spill.* Your job is to stay at a safe distance from the spill. Avoid any close contact!

Fact Sheet #3, continued

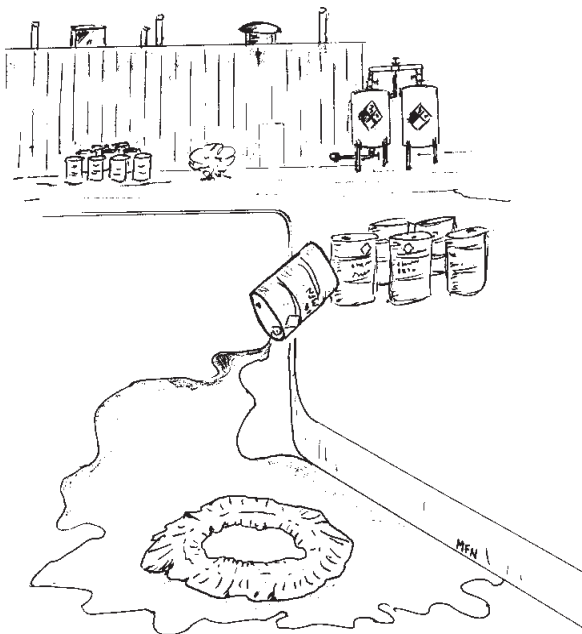
1. Diking

Diking is building a barrier between the spill and somewhere you don't want the spill to enter. Dikes may be built of sand, earth, straw, sorbent socks, loose sorbent, or similar materials. They are built at the edge and ahead of the spill. Use a diking material that is compatible with the spilled chemical. Sometimes an extra layer of plastic sheeting adds an extra barrier.

- ♠ ~~Don't~~ Don't lay sorbent socks end to end. The spill will go right between them. **Overlap the ends, just like the shingles on a roof.** The edge of the sock that is closer to the spill should be placed inside the edge of the next sock.



Note: The dike is now HOT!



Note: What used to be the Cold Zone is now HOT!

2. Blocking

Drains, manholes, and storm sewers must be covered and blocked to prevent the spill from entering them. Sorbent pads, plastic sheets, or specially designed drain blocks can be used. You should also put up a small berm or dike around the drain as an extra protection.

You may have to block a waterway like a drainage ditch or creek to keep run-off from entering or spreading further downstream. Sorbent booms are often used for this purpose.

Fact Sheet #3, continued

3. Absorption

Run-off can sometimes be absorbed with dirt, sand, soda, sawdust, peat moss, vermiculite, or other materials. The purpose of this activity is to catch a liquid with a solid so that it can be collected and cleaned up more easily.

Be very careful about the materials you use to soak up the spill. For instance, you wouldn't use sawdust if you were trying to absorb a flammable material or an oxidizer. You could easily end up with a fire as well as a spill on your hands.

Remember, your job would be to place these materials well ahead of the spill, not on the spill.

4. Collection

Run-off from spills can also be collected in containers such as drums or buckets. Your job would be to place these containers **ahead of the spill, not to get into the spill.**

Fact Sheet #4

Containment - Not Your Job

Containment means taking steps to keep a material in its container. Plugging and patching leaking containers, valves, or pipes are examples. Another activity is called “overpacking.” This means placing a leaking container in a larger container. 55-gallon drums often get overpacked into 82-gallon salvage drums. The Haz Mat team might also spray water or fog to keep vapors down.

These activities put emergency responders in close contact with hazardous materials. These are jobs for Haz Mat Technicians and Specialists, not you!

As an operations level responder, your job is to stay away from leaks, plugs, and plumes.

Many basic tools can be used in simple leaks, such as wrenches and screw drivers. But, if a container or a pipe needs a patch or plug, a technician should do the job. Plugging and patching takes training and experience. It also takes the wearing of the right personal protective equipment, and certainly an SCBA.

Operations level responders should not “actually try to stop a release.”*

If a release, from either a drum or a million-gallon tank, is large enough for you to call for help, it is an emergency. And when you do, call in the HazMat team.

Working in or very near to the plume (the vapors) from a hazardous materials spill requires special protective equipment and a respirator. If the concentration level is not known, the Haz Mat team must wear SCBAs.

** Source: OSHA’s HAZWOPER Standard, 1910.120(q)(6)(ii).*

Fact Sheet #5

What Goes on A Crash Cart? Typical Emergency Equipment

Can You Get to Your Equipment in an Emergency?

Collecting your emergency response equipment in one place makes it quick and easy to get when you need it. The most convenient place to keep it is on a “spill” cart or “crash” cart that can be driven or moved around to the emergency scene (to the cold zone, of course).

Other workplaces keep their spill equipment in one central storage cabinet or closet where emergency responders must gather. They can use this as a meeting place to find out what is going on and what they are supposed to do. Still other workplaces have emergency equipment stored in several places around the plant.

There is one important question to consider in deciding where to put your spill equipment. **Will you be able to get the equipment without being exposed to the dangers of an emergency?** If you store it right next to the area where spills are most likely, you probably won't be able to get it without exposing yourself to hazardous chemicals.

What Equipment?

Having the right emergency equipment on hand in the right amounts depends on good pre-planning. You will need different sorbents, tools, and clothing for different types of chemicals. Making sure that the equipment is in working order also depends on training and maintenance. Here is some typical emergency equipment. This list includes equipment that would be used by all different levels of responders, haz mat technicians as well as first responders.

Fact Sheet #5, continued

Personal Protective Equipment

Disposable chemically resistant suits
Gloves —variety of inner and outer such as neoprene, butyl rubber, and PVA for different chemicals in the plant
Boots (rubber or PVC) and outer booties
Splash face shields and chemical goggles
Hard hats
Duct Tape

Respiratory Protection

SCBA's (positive pressure)
Extra SCBA cylinders
Air purifying respirators
Extra cartridges for respirators

Communication Gear

2-way radios (hand-held or installed in masks)

Spill Containment and Removal Equipment

Absorbent socks
50-pound bags of absorbent
50-pound bags of diking material (could be same as absorbent)
Rubber mats (drain plugs)
Plastic sheets
Plastic bags
Overpack drums (82-gallon)
Plug and patch kits
Sparkproof shovels, brooms, and hand tools (if there are flammable materials on site)
Grounding and bonding wires
Transfer pumps
Neutralizing agents

Fact Sheet #5, continued

Decon Equipment

Garbage cans
Plastic drop sheet
Portable wash station
Buckets
Small pools to catch decon run-off
Long-handled brushes
Decon solution (if other than water will be used)
Portable water pumps (spray bottles)
Portable lighting or flashlights
Hose
Traffic cones

Monitoring Equipment

Combustible gas indicator (LEL meter)
Oxygen meter
Toxic gas meter(s)
Detector tubes and pump
pH meter or litmus paper
Binoculars

Other

Barrier Tape
First Aid kit
Gatorade or other electrolyte replacement drink
Haz Mat reference books
Binder of MSDS for products on site

Task 2

- **Each team will practice diking.**
- **Answer the following questions related to diking.**

Your trainer will divide the class in halves. Each half of the class will practice building a dike or blocking a drain. Read through the procedures below first, before you try to do them.

Diking Station

- To dike a spill: Lay absorbent socks down in a U-shape with the ends overlapping. Lay down enough to contain the amount spilled.
- Reinforce the socks from behind with a bulk absorbent material (sand, dirt, or whatever is available.)
- When you are done, the instructor will run water into your dike. Watch to see how it holds and where it needs reinforcement.
- To block a drain: Lay a drain block or a piece of plastic over the drain. If you use plastic, place a heavy object (a wooden block) on top to hold it down.
- Lay absorbent socks in a ring around the drain.
- Reinforce the socks with bulk absorbent materials. Place these absorbents inside the ring of socks.
- Now your trainer will run water towards the drain. Watch to see how well your block holds and where it needs reinforcement.

Summary

Spill Control Procedures

- ★ OSHA says that First responders, Operations level can only perform defensive operations at an emergency response, from a safe distance. Defensive operations **do not bring the responder into contact** with the released materials. Defensive actions are done early in the response in order to protect people and the environment from the spread of the spill.
- ★ Your job as an Operations level responder will usually be to confine spills. Liquids are confined by building a dike or a ditch, or blocking drains and sewers. These activities are done ahead of the flow, keeping you out of the chemical.
- ★ Haz Mat Technicians and Specialists are the ones who stop the source of the spill. This can be extremely dangerous and takes a lot of specialized training.
- ★ Always work with a buddy. Two people can keep an eye on each other. If one person is hurt, the other buddy can get help quickly.
- ★ If there is any chance for you to become exposed while doing spill control activities, then the decon line must be set up first.
- ★ The Emergency Response Plan should say what equipment and supplies are needed for each type of emergency. For instance, the plan should list sorbent materials to use that are compatible with the specific chemicals in your plant.

Summary continued

Spill Control Procedures

- * Emergency equipment should be stored in a clean area. The Emergency Response team must have access to the equipment at all times, no matter where the spill is. The equipment should be inspected, at least, monthly to make sure supplies are available and ready to use.
- * You need training in the equipment and work tasks used in your workplace. This includes practice drills.