HAZARDOUS CHEMICAL SPILL CLEANUP GUIDELINES

Who Cleans Up the Spill?

You Clean Up the Spill

For chemical spills, fuel spills which do not involve injury do not represent a fire or life hazard, are less than one gallon and for which you have the proper training and proper personal protective equipment to do the cleanup, you clean up the spill. If there are any questions concerning a particular spill situation contact Environmental Health and Safety (EH&S).

EH&S Cleans Up the Spill

For all other chemical spill situations, including those for which you have any questions or doubts about your ability to clean up the spill, call EH&S at 359-6496. The situation will be evaluated and a proper response will follow. After hours, call 290-3510; if there is no answer dial 9-1-1. Report all injuries, fires, explosions, and potential life-threatening situations first to 9-1-1, then to EH&S. If the chemical spill is too large for EH&S to clean up, the Spokane Fire Department HazMat Team and/or private contractors will be called in to handle the cleanup procedures.

Proper storage and containment

Prevention is the best method of reducing the chance that a spill will occur. Proper storage to include shelf lips, segregation and the use of spill pans or secondary containment greatly reduces the possibility of a release. When transporting containers, insure that carts have sides and all lids are securely closed. All liquid containers 55 gallons or larger require containment pallets, although under best management practices all hazardous materials should be stored within a containment vessel or on drip pans.

Planning for Chemical Spill Emergencies

1. Prepare an Emergency Telephone Sheet.
   The sheet should contain the following information and should be posted by each telephone.
   • Name and phone number of any on-site emergency personnel.
   • Emergency telephone number: 9-1-1
   • Environmental Health and Safety telephone number: 359-6496
   • Location of the fire extinguishers.
   • Location of the spill control equipment.
   • Location of the fire alarm.

2. Train all employees in chemical spill procedures when they are first hired and periodically thereafter.
   Document training and have the employee and supervisor sign the documentation form to certify that the training was given. Keep the certification forms on file.

3. You can assist EH&S by drawing a map of your lab or service area and clearly labeling where oils, compressed gases, chemicals and waste chemicals are stored. Fire extinguishers, eyewashes, spill kits, exit routes and any additional hazards should be clearly marked. Keep a copy of the map in the main office of your department and send a copy to EH&S. If an emergency does occur, your main office or EH&S could provide advance warning to emergency response personnel of hazards in the area. Update these maps whenever chemical management practices change in the room.
HAZARDOUS CHEMICAL SPILL CLEANUP GUIDELINES

Chemical spill or hazardous materials emergency situations should be handled as a fire emergency. Initial response in a fire situation can be summarized as RESCUE, CONFINE, and REPORT, SECURE, and CLEANUP (FIGHT FIRE). These principles can also be applied to a hazardous materials spill situation.

Rescue
Just as you are not to reenter a burning building, do not go back in to an area where a chemical spill has occurred. In many documented cases, rescuers not wearing proper protective equipment have been overcome by toxic or asphyxiating fumes trying to rescue other victims and died as a result. Do not make this mistake.

As you leave an area involved in a chemical spill, assist people exiting the area by doing the following:
- Evacuate personnel from the spill area.
- Direct personnel to the nearest fire exit. Do not use the elevators.
- Attend to victims.

First Aid
- Remove victim from spill area to fresh air (but do not endanger your own life by entering areas with toxic gases).
- Immediately remove contaminated clothing.
- Wash skin with water.
- Flush skin and/or eyes with water for at least 15 minutes. (You may not feel any immediate effect from a chemical, but it is important to wash quickly and thoroughly because many chemicals can cause severe tissue damage which is not apparent until hours later.)
- Get medical attention for victims.

Chemical spills over large body areas
- Remove contaminated clothing while under a shower.
- Flood affected body area with water for 15 minutes.
- Resume water wash if pain returns.
- Wash off chemicals with water; do not use neutralizing chemicals, creams, lotion as an alternative. (For Hydrofluoric acid (HF) exposure, follow specific decontamination procedures for HF).
- Make sure medical personnel understand exactly what chemical is involved.

Confine
- Close all doors.
- Isolate area. (50 feet for small spills, 200 feet for large spills)
- Establish exhaust ventilation if possible.
- Open windows if possible without exposing yourself to the fumes.

Report
Call the EH&S Office at 359-6496 and/or Cell numbers: 290-3510 and 220-7049
- for chemical spill situations that do not require 9-1-1 assistance.
- for spills of one gallon or more of any chemical, or any quantity of a highly reactive or toxic material.
- for spills of an unknown chemical.
- for spills that you do not have proper training or proper personal protective equipment to do the cleanup.
- for spills for which you have any questions or doubts about your ability to clean up the spill.
When calling EH&S the following information will be requested:

- Your name, telephone number, and location.
- Location of the incident.
- Time and type of incident.
- Name and quantity of the material involved.
- The extent of injuries, if any.
- The possible hazards to human health or the environment outside the facility.
- Other hazards that may be encountered in the area, such as large quantities of stored chemicals (particularly oxidizers, flammables, and air-born toxic or irritant materials), radioactive materials, biohazards, etc.

Call 9-1-1:

- For spills that involve injury requiring medical treatment.
- For spills that involve fire or explosion hazards.
- For spills which are potentially life threatening.
- For all chemical spills after work hours (4:30 PM -7:30 AM).

Secure:

Until emergency responders arrive on the scene, you, your staff and your Building Emergency Coordinators will have to block off entrances to the spill site and prevent people from entering the contaminated area.

- Lock doors leading to the chemical spill and post signs on the doors warning of the spill (if necessary).
- Post staff at commonly used entrances to the spill site, so they can warn people to use other routes.
- For any large outdoor chemical spill, keep people upwind and uphill from the site.

Cleanup:

Based on the chemical spill situations described in “Who Cleans the Spill” section, decide who will do the cleanup. If you are going to do the cleanup, follow the procedures listed in the "What to do When You Clean up a Spill" section.

What To Do When You Clean Up A Spill:

If you have proper training, proper personal protective equipment and the proper materials to absorb and clean up your chemical spill, and no one has been injured, the spill is contained and the spill is not life threatening or a fire or explosion hazard, then follow the following procedures:

1. With the exception that you do not need to report the incident to 9-1-1 or EH&S, perform all the procedures in the RESCUE, CONFINE, REPORT, and SECURE sections above.

2. When cleaning up the spill yourself, locate the spill kit.

3. Choose appropriate personal protective equipment (PPE).
   - Always wear protective gloves and goggles.
   - If there is a chance of body contact, wear an apron or coveralls.
   - If the spill is on the floor, wear protective boots or shoe covers.
   - If there are inhalation hazards, wear a respirator. If a respirator is used, the person wearing the respirator must meet all of the requirements set forth in 29 CFR 1910.134. (These include but are
not limited to fit testing medical evaluation).

4. Remove ignition sources.
   • Turn off hot plates, stirring motors and flame sources.
   • Shut down all other equipment.
   • If unable to shut off sources of ignition, notify the emergency responders.
   • Confine or contain the spill.
   • Cover with an absorbent mixture.
   • Clean up minor spill with paper towels or a sponge if they will not react.
   • Sweep solid materials into a dustpan, and place in a sealed container.
   • If it is an acid/base spill, first add a neutralizing agent.
   • Small amounts of inorganic acid/base
     o Use a neutralizing agent and then absorbent material.
   • Small amounts of other materials:
     o Absorb with non-reactive material (e.g. vermiculite, sand, towels, Floor-Dri).
   • Large amounts of inorganic acid/base:
     o Neutralize and call for help.
   • Large amounts of other materials:
   • Make a judgment call, dependent upon the amount, toxicity and reactivity; you may handle it yourself or call for help.

5. Spills that require special handling:

   **Acid chlorides:**
   • Use Oil-Dri, Zorb-all, dry sand, etc.
   • Avoid water and sodium bicarbonate.

   **Mercury:**
   The following precautions should be taken if a small mercury spill occurs:
   • People not involved in the cleanup should leave the area.
   • Minimize tracking by removing shoes and clothing. If clothes are contaminated place them in a sealed plastic bag and contact EH&S for proper disposal. Plastic can be placed on the floors to minimize tracking.
   • Do NOT use a vacuum cleaner to clean up the spill. A vacuum cleaner will spread the mercury vapors and tiny droplets will settle throughout the area, increasing the spread of contamination and the chance of exposure.
   • Windows and doors in the area of the spill should be opened to ventilate the area.
   • Small amounts of mercury can be collected with adhesive tape or an eye dropper and stored in a sealed plastic container until disposal.
   • After all visible mercury has been collected, use a mercury cleanup kit to clean the spill area and work it into the cracks with a broom or brush. Do not add water. Materials in the mercury spill kit will rapidly bind to the remaining mercury and can be swept up with a broom and dustpan. Wash the area with trisodium phosphate detergent solution and rinse with water.
   • Contaminated carpeting should be removed and discarded, starting with the spill room.
   • Contaminated materials and mercury collected from small spills may be discarded as hazardous waste. Place items in a sealable container and label appropriately.
   • For large spills contact EH&S at 359-6496
HAZARDOUS CHEMICAL SPILL CLEANUP GUIDELINES

Alkali metals:
- Smother in dry sand.
- Put in a fume hood.

White (Yellow) Phosphorus:
- Blanket with wet sand or wet absorbent.

Biohazards
Biohazardous agents are bacteria, viruses, or parasites which cause disease. The agents most likely to be encountered will be bodily fluids such as blood, vomit, or semen.

- Do not attempt to cleanup
- Contact your supervisor and notify EH&S at 359-6496. After hours notify University Police at 535-9233.
- Secure the area without touching any contaminants. Barricade, post signs etc.,
- If direct skin contact with blood/body fluids does occur, immediately wash the affected skin with hot water and soap, and report it to your supervisor.
- If affected area has cuts, abrasions, etc., a post exposure evaluation should be performed immediately. Notify EH&S at 359-6496
- Complete an Incident Report form for any accident or injury, no matter how slight.

6. Remove absorbent material with a broom and dustpan.
- Place in a plastic bag or other appropriate container.
- If the spilled chemical is a volatile solvent, transfer the plastic bag to a fume hood for storage until the material can be picked up.
- If a material is a non-volatile hazardous chemical, dispose of the material as a hazardous chemical waste.
- If the spilled material is a non-volatile non-hazardous chemical, contact EH&S to determine the appropriate disposal method.


COMMEN Sts
Questions may arise as to what constitutes a large spill requiring EH&S or other parties to cleanup or oversee the cleanup procedures and what are the limitations of commercially available spill cleanup kits.

- Small spills (< 55 gallons) Call 9-1-1 if medical aid is needed. Identify the material, and Isolate an area at least 50 feet in all directions. Provide MSDS to emergency responders.

- “Large” chemical spills can be as small as a few milliliters if the material is a highly volatile, toxic or reactive compound spilled in a confined space. Typically, a large spill is considered over 55 gallons. For spills over 55 gallons, isolate an area at least 200 feet in all directions from the spill. Many times you will have to make a professional judgment as to the severity of the spill. When in doubt, err on the side of caution and evacuate the area. Call EH&S at 359-6496 for advice.
HAZARDOUS CHEMICAL SPILL CLEANUP GUIDELINES

Chemical spill cleanup kits are a must in the laboratory and other service areas that use chemicals. The kits are very useful if you and your fellow workers know how to use them properly. Chemical absorbents or neutralizers can be used quickly and effectively to contain a spill. Use these items if your personal safety is not in jeopardy. If in your judgment a respirator is necessary to clean up the spill, secure the room and call EH&S to aid in the spill clean-up.

The Lower Explosion Limit (LEL) of a chemical may be reached at the surface of the spill and you want to avoid any sparks or sources of ignition when doing the cleanup. Verify the chemical MSDS before starting cleanup. The protective equipment in a spill kit will not protect you from a flash fire. Many times the best way to handle the spill of a highly volatile compound, such as diethyl ether or chloroform, is to open the windows and fume hoods, leave the room, close the doors and let the room air out. In these cases, call EH&S at 359-6496, so they can send someone to monitor the situation. If there is a strong risk of fire or explosion, call 9-1-1 and EH&S; for fire department backup pull the building alarm and evacuate the building.

**Hazardous Materials Fires**

No attempt will be made to fight fires involving hazardous materials. Call 9-1-1 and report conditions.

For fires involving the Science Building, Art Building, Tawanka Print Shop, Surbeck, the Chemical Storage Building, and any propane tank, establish an initial isolation zone of at least 200 feet in all directions. Consider downwind protection zone of ½ mile and evacuation possibility.

**Spill kits**

If you store and work with chemicals, you must have appropriate spill kits accessible, and you must know how to use them. For example, a standard spill kit and replacement parts are available through various vendors. The spill kit contains materials that neutralize an acid spill and absorb small chemical spills and also contains handy items such as goggles, gloves and hazardous waste labels. Some recommended items for a spill kit:

<table>
<thead>
<tr>
<th>Absorbents</th>
<th>Neutralizers</th>
<th>Containers and Supplies</th>
<th>Protective Gear</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spill pads, universal for acid, base, solvents and oil</td>
<td>Baking soda for neutralizing acids</td>
<td>Heavy duty (6mm) plastic bags</td>
<td>1 pair heavy nitrile gloves</td>
</tr>
<tr>
<td>Sodium Citrate for neutralizing bases</td>
<td>1 five gallon reuseable screw top plastic drum. Use to store all kit supplies and later to hold spill waste for pickup by EH&amp;S.</td>
<td>Snap together dust pan and brush</td>
<td>1 pair goggles</td>
</tr>
<tr>
<td>Commercially available acid and base neutralizers</td>
<td></td>
<td>Waste collection form and labels</td>
<td>Nitrile gloves (powder free)</td>
</tr>
</tbody>
</table>

Some spill kits will not be sufficient for large spills or spills of some chemicals. Examples of chemicals that need special kits are:

**Chemical spilled** | **Spill kit materials**
---|---
Hydrofluoric acid | Do not use vermiculite or silica based absorbent. Use Calcium Carbonate, Calcium hydroxide or a commercial HF spill kit to neutralize. Calcium gluconate gel & eyewash solution should be available as a first aid precaution (call EH&S at 359-6496 for information).
Mercury | Mercury spill kit. Contains mercury absorbent sponges, mercury absorbent powder, syringe aspirator, gloves, waste collecting materials, and hazardous waste labels