



UCCS SAFE OPERATING PROCEDURE

53. PRE-PLANNING AND RESPONDING TO CHEMICAL SPILLS

(For assistance, please contact [Environmental Health & Safety](#))

This SOP provides guidance in preparing for and responding to chemical spills to minimize severity. IT DOES NOT ADDRESS RELEASE OF INFECTIOUS AGENTS, RADIOACTIVE MATERIALS, OR MERCURY. Refer to the appropriate **SOP** if storing or using these materials.

Preplanning

1. **Review Safety Data Sheets** (SDS's) to become familiar with physical and health hazards of chemicals stored and used in the work area. Note and follow recommendations regarding special precautions, spill equipment, or controls.
2. **Identify and document procedures or equipment failures that could result in spills, releases or personnel exposures.**
3. **Identify area specific features that may increase or decrease the potential for spills or exposures, as well as actions required or taken to minimize hazards.** For example, sources of ignition in an area where flammable liquids are stored are important considerations for both pre-planning to avoid an emergency and in the actions to take in response to an adverse event.
4. **Identify potential paths of travel for fumes or liquids** and plan actions to minimize release via these paths.
5. **Identify maximum material release potential** during operations or under various conditions (during container handling, dispensing, fire conditions, etc.).
6. **Identify appropriate personal protective equipment, emergency communication devices, spill control supplies, fire extinguishers, eye wash stations, emergency showers, first aid kits, and other safety equipment readily available to respond to an accident or release.**
7. **Know the maximum quantity of released material** for which you are adequately prepared to respond, and when outside assistance will be needed.
8. **Become familiar with building evacuation routes, campus service units, fire department, and hazardous materials response team notification procedures.**
9. **It is critical that the user know the properties and hazards of the individual chemicals** that they work with because of varying routes of exposure and occupational exposure limits.

ALL SPILL RESPONSE DECISIONS MUST BE BASED ON THE ACTUAL CHEMICAL INVOLVED.

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Supplies

Assemble a spill kit consisting of the following:

1. Personal Protective Equipment

- a. Splash Goggles
- b. Face shield
- c. Assortment of chemically resistant gloves
- d. Protective outer garments (chemical resistant suit, apron, lab coat, shoe covers, etc.)

2. Materials to limit spread or release (absorbents, spill pillows, etc.)

- a. Diatomaceous earth, kitty litter and vermiculite are inexpensive and effective absorbing agents.
- b. Spill pillows and pads are easier to store and use. When selecting pads or pillows, select a “universal” type that is compatible with a broad range of chemicals.

3. Neutralizing Agents.

- a. CAUTION: NEUTRALIZATION CAN CAUSE SPLASHING, VIGOROUS RELEASE OF GAS OR HEAT, AND MAY BE MESSY.
- b. It is generally easier and neater to absorb acids and bases with compatible pillows or pads, or diatomaceous earth.
- c. Citric acid can be used to neutralize caustics.
- d. Soda ash can be used to neutralize acids.
- e. Neutralization may form salt deposits that are hard to remove from surfaces

4. Disposal containers for spill cleanup residues and contaminated materials.

- a. Plastic pails or buckets equipped with lids are excellent choices.
- b. Heavy plastic bags can also be used. If heavy plastic bags are selected, have some “duct tape” available to properly seal the bag after use.

5. Equipment such as brushes, brooms, scoops, shovels, dustpans, and similar items that may be necessary to facilitate recovery and handling of contaminated materials and absorbents.

6. Decontamination equipment and materials such as soap and scrub brushes for final area and equipment decontamination.

7. Fire Extinguisher properly classed for the chemical.

8. First aid kit.

9. Hazardous Waste Labels.

10. Additional special spill control materials

- a. As recommended by the SDS or
- b. Required to prevent release through flow paths (drains, etc.).



Small Spills

1. Defined as a release that meets the following:
 - a. **Adequate supplies and PPE are readily available**
 - b. **Respiratory protection is not necessary** to avoid over-exposure during the clean-up
 - c. **Is not in an unventilated or enclosed space** that must be bodily entered
 - d. Spilled material
 - i. **Is not highly toxic,**
 - ii. **Does not significantly endanger people or property** except by direct contact
 - iii. **Has good warning properties** (does not deaden the senses; is detected by the senses at concentrations well below the exposure limits; and, exposure produces immediate and reversible effects rather than delayed or permanent effects)
 - e. **Spill is not likely to spread** beyond the area immediately involved
 - f. **Minimal threat of secondary events (explosions, fires, etc.)**
 - i. Water reactive and air-reactive chemicals, highly flammable solvents in the presence of potential ignition sources, and strong oxidizing agents typically present increased risk for secondary events.
2. Appropriate response procedure
 - a. Take action to **stop the release** (i.e., upright containers, close valves, etc.).
 - b. **Alert others** in the immediate vicinity and notify your supervisor, if possible.
 - i. Ensure that extraneous personnel remain at a safe distance until the spill is completely cleaned-up.
 - ii. One of these people can serve as a “monitor” and alert emergency response personnel if the spill unexpectedly results in an emergency.
 - c. **Evaluate risks** to health, property, or environment and confirm the “small” nature of the spill.
 - d. **Contain the spill.** This may involve
 - i. Increasing ventilation via fume hoods or windows if a volatile material is involved,
 - ii. Sealing floor drains,
 - iii. Closing doors,
 - iv. Inactivating potential sources of ignition
 - e. **Don appropriate personal protective equipment.**
 - f. **Control the spread of liquids.** If the material is a liquid and it can spread, form a dike around the perimeter of the spill with absorbent.
 - g. Notify Public Safety at (719)255-3111 as soon as practical
 - i. Public Safety will provide emergency response and assistance as required.
 - ii. Public Safety will contact EH&S so appropriate notifications can be initiated as necessary.
 - h. Absorb liquids inside the dike with spill pillows, pads or absorbent. Place all absorbents into a heavy plastic bucket or bag and seal the container. Scoops, shovels, tongs, and other handling devices may be used to transfer the materials.
 - i. If the spill involves solid granular or powdered material, take care not to create dusts while scooping the material into a sealable container. So long as the material is not water-reactive, it can be misted with water to prevent dust formation.
 - j. **Decontaminate** the spill area and non-disposable equipment by thoroughly cleaning with soap and water.
 - k. **Thoroughly wash hands**, arms, face, and other potentially contaminated body parts.
 - l. **Label** the bag or container with the spilled chemical name followed by “spill cleanup residue”, complete and attach a Hazardous Waste Label and contact EH&S for proper

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disposal.

Large Spills

If there is imminent danger to health, property, or the environment:

1. **Isolate the area** of the spill by shutting doors, blocking sewer inlets, *etc.*
2. INDOOR RELEASES/SPILLS: **Leave the area and pull the fire alarm** to initiate building evacuation, contact [Public Safety](#) (719) 255-3111 to notify them that the alarm is related to a chemical spill.
3. OUTDOOR RELEASES/SPILLS:
 - a. **Initiate emergency response** by calling Public Safety (719) 255-3111
 - b. Take action to **stop the release** (shutting valves, *etc.*) and prevent or minimize releases to storm sewers **ONLY IF POSSIBLE TO DO SO SAFELY (WITHOUT RISK OF CONTAMINATION OR OVER-EXPOSURE)**.
 - i. Do not initiate evacuation from adjacent buildings unless advised by emergency responders.
3. Dispatch will
 - a. Provide emergency response and assistance as required.
 - b. Contact [EH&S](#) so appropriate notifications can be initiated as necessary. Absorb liquids inside the dike with spill pillows, pads or absorbent.
4. **Render appropriate first aid ONLY IF POSSIBLE TO DO SO SAFELY (WITHOUT RISK OF CONTAMINATION OR OVER-EXPOSURE)**.
5. **Remain at a safe location near the scene and be available to emergency response personnel** to provide additional information: released chemical name, amount, location, potential hazards, possible flow paths, contaminated or injured personnel, *etc.*