

Environmental Health & Safety Policy Manual		
Issue Date: 10/30/09	Updated: 1/11/2024	Policy # EHS-200.02
Chemical Spill Response Policy and Procedures		

1.0 PURPOSE:

A wide variety of chemicals are used throughout the LSU Health Sciences Center. This document addresses the necessary preparation for and response to spills, leaks, or discharges of these chemicals.

2.0 SCOPE:

The policy and procedures identified in this document apply to all LSUHSC employees, students, and contractors. This procedure provides guidance on determining the hazard severity of a spill and the procedures that shall be implemented based on the determined hazard severity.

3.0 RESPONSIBILITIES:

3.1 Environmental Health & Safety (EH&S) shall:

- Provide a chemical spill kit to each laboratory and work area that uses hazardous chemicals.
- Provide assistance and additional clean-up materials to personnel to safely clean up minor spills in their work areas.
- Respond to, assess, and support the clean-up of major chemical spills.
- Hold reoccurring drills to ensure proficiency for minor and major spill responses.

3.2 Principal Investigators/Supervisors shall:

- Ensure employees understand the policy and procedure requirements of this document and any relevant chemical-specific spill response procedures.
- Maintain Safety Data Sheets (SDS), as directed by [EHS-400.12, Hazard Communication Program](#), for all chemicals.
- Review SDS and handling procedures for all chemicals with employees and maintain training records.
- Ensure that appropriate and adequate spill response and personal protective equipment (PPE) supplies are always maintained and available for use.

3.3 Employees shall:

- Understand the policy and procedure requirements of this document and any relevant chemical-specific spill response procedures.
- Promptly and appropriately respond to chemical spills.

- Do not use chemicals if not adequately trained.
- Wear PPE as directed by this or other relevant SDS and spill response procedures.

4.0 IMPLEMENTATION

In many cases, chemical spills involve small quantities of materials and, if precautions are taken, present minimal hazards. The responsible party is the most appropriate group to clean up their spills as they are more likely to be familiar with the spilled material's hazardous characteristics, can respond rapidly, is aware of other potential hazards or complicating factors in their work area, including familiarity with the proper cleanup techniques for a particular spill. However, some spills will require contacting the EH&S Department, and potentially the use of outside assistance, because of the spill's size or hazards.

To prepare for spills, each PI/Supervisor shall: (1) be familiar with the hazards of the chemicals that are under their control; (2) be familiar with these general chemical spill response procedures and, as necessary, develop specific procedures for any chemicals that require special measures; and (3) ensure the availability of equipment and completion of training necessary to follow those procedures.

Spills can occur during a chemical's storage, transportation, or transfer, as well as in actual use. Spill prevention should be a major component of a spill response plan. Adherence to the [LSUHSC Chemical Hygiene Plan](#) and its guidance on the safe and proper use, handling, and storage of hazardous chemicals will help to minimize the potential for chemical spills.

4.1 Spill Hazard Severity

At LSUHSC, two possible spill conditions have been identified: 1) minor spills, which can be managed and cleaned by the individual who has caused/identified the spill; 2) major spills, which require the support of EH&S or outside assistance.

Three factors primarily determine if a hazardous materials spill is minor or major.

1. Amount spilled - if the amount of the material spilled is more than 100 ml/10 grams of an [OSHA regulated chemical carcinogen](#), high hazard chemical, or 1 liter/100 grams of a volatile or flammable solvent, reactive or corrosive (acid or base) liquid/solid, it is considered a major spill.
Note – the high hazard chemical list is available in [EHS-200.09, High Hazard Chemical Policy](#).
2. Hazards of material spilled - if the spill is below the above identified thresholds, but, in any way, presents an immediate danger to health, safety or the environment, is unknown, or is an immediate fire hazard, it is considered a major spill. All mercury spills are considered major and require the implementation of the major spill response procedures.
3. Spill Location - if the spill is outside of the laboratory or outside of the area where the material is normally used, and/or there is not trained personnel available to clean up the spill, it is considered a major spill.

The hazards associated with specific and general chemical classes, along with guidance on spill response, PPE use, waste management, etc., can be identified through consulting published data such as SDSs and chemical dictionaries.

4.2 Minor Spill Response Procedures

In the event of a **minor spill** the following steps should be taken:

- Immediately isolate and control access to the spill area. Personnel not directly involved should be kept out of the spill area until clean-up has been completed.
- If the spill involves flammable materials, remove ignition sources, and unplug nearby electrical equipment.
- Establish exhaust ventilation, if possible, by turning on fume hoods.
- Locate the chemical spill kit. Briefly inventory the contents to ensure that all necessary items are available as listed in section 4.6. Contact EHS if a spill kit is not available.
- Choose appropriate PPE (goggles, face shield, impervious gloves, lab coat, apron, etc.). The minimum chemical protective clothing used should include chemical glasses, gloves, booties, and lab coat. Ensure that all skin surfaces are covered. It is recommended that two sets of gloves be worn: one as the primary barrier, the second as a thin inner liner in the event the primary barrier fails. Chemical splash goggles shall be used for clean-up of chemicals that are caustic or whose gases/vapors are hazardous to the eyes. PPE use, to include training responsibilities, shall be in accordance with [EHS-400.03 Personal Protective Equipment Policy](#).
- If the spill is a liquid, confine and contain the spill by placing the container upright and covering or surrounding the spill with appropriate absorbent material. Absorbents should be added first to the spill's outer edges working toward the center. Do not use items with poor absorbent properties, such as newspaper and sand.
- Collect spill pads and place in double layers of plastic disposal bags.
- If the spill involves a solid granular or powdered material, place the container upright and sweep spilled material into a plastic dustpan. Transfer the collected material into a plastic disposal bag. Take caution to not create dust during the clean-up process. As possible, dust may be controlled by misting with water or other appropriate liquid. Consult the SDS or other references to identify compatible materials.
 - Acids/bases and some highly hazardous chemicals will need to be appropriately neutralized prior to clean-up. The chemical specific clean-up procedure, [high hazard chemical page](#), and/or the quick reference guide (appendix A) should be used to identify the appropriate absorbent and neutralization materials.
 - Caution should be used as the neutralization process is often vigorous, causing splashes and yielding large amounts of heat.
- Once most of the chemical has been collected, wet wipe the spill area.
- Appropriately decontaminate the spill area and all non-disposable equipment. A spill of certain highly hazardous chemicals may require special decontamination procedures, which should be pre-planned as per the high hazard chemical SOPs. At minimum, decontamination should include a full cleaning with soap and water. Determination of the appropriate completion of cleaning of acids/bases should include

- a pH measurement, which can be performed EH&S.
- Put all single use contaminated items (gloves, clothing, cleaning supplies, etc.) into a plastic disposal bag.
- Double layer and seal all disposal bags (twist the open top and wrap with duct tape) and, as possible, contain in the original spill kit container (5-gallon white bucket).
Label the container with the name of the spilled material, date, and the words “hazardous waste.”
- When the cleanup is completed, wash hands and other potentially affected skin surfaces with soap and water.
- Request an EH&S Hazardous Waste Pickup. See [EHS-200.04 Chemical Waste Management Procedures](#) for details regarding hazardous waste management.
- Principle Investigators shall investigate and report all chemical spill events in accordance with the requirements of [EHS-400.06, Incident/Accident Investigation and Reporting Policy](#).

4.3 Major Spill Response Procedures

LSUHSC is required to report certain releases/discharges of hazardous substances to the Louisiana Departments of Public Safety and Environmental Quality (DEQ). To help ensure compliance with regulatory obligations, the EH&S Department shall evaluate all large chemical spills, and based on the results of evaluation, will implement appropriate response actions.

In the event of a **major spill** the following steps should be taken:

- Immediately isolate and control access to the spill area.
- Notify University Police at (504) 568-8999, who will contact EH&S to respond to the spill.
 - **In case of a fire**, first pull the nearest fire alarm pull station and then call the University Police when you are in a safe location away from the area.
 - Provide the following information:
 - Name and telephone number of caller
 - Building and room number where the incident occurred
 - Name and type of material
 - Known hazard of the materials
 - Amount of material spilled
 - Explanation of what happened
 - Condition of any injured personnel
 - Status of area
- Communicate the condition and assist with evacuating, as necessary, all potentially impacted personnel. Potentially impacted personnel are those that could be exposed to hazardous concentrations of the spilled chemical and may include persons in the specific room containing the spill, immediately adjacent rooms, building floor, or the whole building/area. The extent of impact will be based primarily on the toxicity

- and amount spilled of the chemical, location of the spill, and other building related considerations, such as characteristics of the HVAC system. If it is believed that spill could affect the safety and health of the occupants of the entire floor or building, **pull the nearest fire alarm pull station**. Otherwise, University Police and EH&S will assess the conditions and determine the necessary extent of evacuation.
- Remain at the evacuation point/area of refuge until University Police or EH&S are available and identify yourself as the person who reported the chemical emergency. Be prepared to answer questions that may assist with the response and clean-up process. Do not leave the scene until released by authorized personnel.
 - EH&S shall:
 - Respond to the emergency and assess the situation.
 - For most major spills, EH&S is anticipated to be capable of adequately managing the spill response with on-site resources. If this is confirmed through assessment of the spill condition, EH&S will commence clean-up operations.
 - The potential exists for some spill scenarios to require outside support to complete an adequate clean-up. As necessary, EH&S will contact the New Orleans Fire Department Hazardous Materials Unit or an outside spill response company for spill remediation as needed.
 - EH&S will make the determination as to when response is complete and will notify University Police when the area is determined to be safe for occupancy.

4.4 Spills Involving Personnel Injury or Chemical Exposure

Even a small spill can result in harmful exposure to you or others or can result in hazards that are not obvious. If at any time during the execution of these procedures, an increase in the associated hazards is suspected, signs and/or symptoms of exposure to chemicals are exhibited, or the persons performing the clean-up begins to feel uncomfortable or loses confidence in their ability to adequately clean the spill, immediately stop the clean-up process, secure and exit the spill area, and contact the EH&S Department at 568-6585 for assistance.

If the accident involves personal injury or chemical contamination, follow the above procedures for a minor/major spill response, and at the same time:

- Move the victim from the immediate area of fire, explosion, or spill (if this can be done without further injury to the victim or you).
- Locate the nearest emergency eyewash or safety shower.
- Remove any contaminated clothing from the victim and flush all areas of the body contacted by chemicals with copious amounts of water for 15 minutes (unless chemical is water reactive or if directed otherwise by SDS). See [EHS-400.08 Emergency Shower and Eyewash Policy](#) for details regarding the appropriate use of emergency showers and eyewashes.
- Seek medical attention.
- Report incident/accident in accordance with the [EHS-400.06, Incident and Accident Reporting and Investigation Policy](#).

4.5 Chemical-Specific Spill Response Procedures

Certain chemicals or chemical classes may require special consideration and/or materials to perform a clean-up of their spill; a chemical-specific spill response procedure should be developed in these instances. The procedure should detail the initial steps to take when a spill occurs and include such elements as staff responsibilities, evacuation zones, communication methods, instructions on using spill response equipment, spill cleanup and residue disposal, and first aid procedures that might be required. It is recommended that any chemical-specific spill response procedures be included as a part of overall chemical-specific use procedure. For several high hazard chemicals used at LSUHSC, chemical-specific [standard operating procedures \(SOP\)](#) have been developed; they include spill response guidance.

4.6 Spill Kit Equipment

Spill Kits are the primary tool used to manage spills and are required in all areas where chemicals are used or stored. The EH&S department will distribute the spill kits as requested.

Spill Kits include:

- 2 spill pillows
- Spill pads
- two plastic disposal bags
- glasses
- gloves (light weight latex and heavy Sol-vex)
- two booties
- two sleeve covers

Spill kits shall be strategically located for ease of accessibility in an emergency. Basic spill kits are provided by the EH&S Department and can be requested through a [Maintenance Connection System Work Order](#). A quick reference guide identifying recommended clean-up materials is included as Appendix A.

5.0 TRAINING

5.1 Environmental Health and Safety Personnel

All EH&S personnel are required to:

- Attend 40-hour Emergency Responder Technician Training Class.
- Attend an eight-hour Emergency Responder Technician Refresher Class annually.
- Participate in periodic routine spill response drills.

5.2 Employees

Principal Investigators/Laboratory Supervisors are responsible to provide laboratory-specific training to their responsible personnel on chemical spill clean-up procedures and the proper use of personal protective equipment for chemicals used in their laboratory/laboratories. EH&S will assist on request.



6.0 RECORD KEEPING

6.1 Environmental Health and Safety

Each EH&S staff member shall maintain their own training records for the current fiscal year plus the previous three fiscal years.

6.2 Employees

Principle Investigators/Laboratory Supervisors shall keep their employee's training records for the current fiscal year plus the past three fiscal years.

7.0 INSPECTIONS AND PROGRAM REVIEW

Program effectiveness will be assessed annually by the Environmental Health and Safety Department. Furthermore, program compliance will be evaluated at the Chemical Safety Committee meetings and during routine laboratory inspections.

8.0 REFERENCES

- Louisiana Administrative Code Title 33 Environmental Quality, Part I, Subpart II, Chapter 39; Reportable Quantities for Notification of unauthorized discharge
- Office of Risk Management General Safety Program Guidance

9.0 APPENDICES

Appendix A – Spill Response Quick Reference

SPILL CLEANUP QUICK REFERENCE

This table provides a synopsis of clean-up materials recommended for use in cleaning up spills of various chemical types. This list should be expanded to add any chemicals that are not listed or that require special procedures. The Safety Data Sheet (SDS) for chemicals spilled is a preferable reference and will take precedence over this reference, if different.

Chemical Spilled	Clean-up Procedures
Acids, Organics	Apply sodium bicarbonate. Adsorb with spill pillow or vermiculite.
Acids, Inorganics	Apply sodium bicarbonate/ calcium oxide or sodium carbonate/ calcium oxide. Adsorb with spill pillow or vermiculite. Note: Hydrofluoric acid is an exception to the general practice, see below.
Acid Chlorides	Do not use water. Adsorb with sand or sodium bicarbonate.
Aldehydes	Adsorb with spill pillow or vermiculite.
Aliphatic Amines	Apply sodium bisulfite. Adsorb with spill pillow or vermiculite.
Aromatic Amines	Adsorb with spill pillow or vermiculite. Avoid skin contact or inhalation.
Aromatic Halogenated Amines	Adsorb with spill pillow or vermiculite. Avoid skin contact or inhalation.
Azides	Adsorb with spill pillow or vermiculite. Neutralize with 10% ceric ammonium nitrate solution.
Bases (caustic alkalis)	Neutralize with acid, citric acid, or commercial chemical neutralizers. Adsorb with spill pillow or vermiculite.
Carbon Disulfide	Adsorb with spill pillow or vermiculite.
Chlorohydrins	Adsorb with spill pillow or vermiculite. Avoid skin contact or inhalation.
Cyanides	Cover solid with damp paper towel and push onto dustpan or use HEPA filter vacuum to collect the solids. Adsorb with spill pillow or vermiculite.
Halides, organic or inorganic	Adsorb with sodium bicarbonate
Halogenated Hydrocarbons	Adsorb with spill pillow or vermiculite.
Hydrazine	Avoid organic matter. Apply "slaked lime". Adsorb with spill pillow or vermiculite.
Hydrofluoric Acid	Adsorb calcium carbonate (limestone) or lime (calcium oxide) rather than sodium bicarbonate. Using sodium bicarbonate leads to the formation of sodium fluoride, which is considerably more toxic than calcium fluoride. Take care using spill pillows to absorb the acid. Some pillows contain silicates which are incompatible with hydrofluoric acid.
Inorganic Salt Solutions	Apply soda ash.
Mercaptans/ Organic Sulfides	Neutralize with calcium hypochlorite solution. Adsorb with spill pillow or vermiculite.
Nitriles	Sweep up solids. Adsorb with spill pillow or vermiculite.
Nanoparticles	Pick up particles with HEPA or ULPA filtered vacuum.

Nitro Compounds/ Organic Nitriles	Adsorb with spill pillow or vermiculite. Avoid skin contact or inhalation.
Oxidizing Agents	Apply sodium bisulfite.
Peroxides	Adsorb with spill pillow or vermiculite.
Phosphates, organic and related	Adsorb with spill pillow or vermiculite.
Reducing Substances	Apply soda ash or sodium bicarbonate.

