

Emergency Preparedness and Disaster Resistance in the Laboratory

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Laboratory Emergency Plans

You must take responsibility to protect your own laboratory and research.

A Laboratory Emergency Plan should be developed and implemented to protect personnel, equipment, and laboratory facilities whenever an emergency event threatens laboratory operations, or when directed through U-Alert. This plan should be shared with your department and provided to your Building Manager for inclusion in the Building Emergency Action Plan. The plan should include, at a minimum, the following information.

Emergency Contact and Hazard Information ([Lab Sign](#))

- Include the names and numbers for personnel in your lab. Ensure that key contact information is properly posted on lab doors and provided to your department. Establish a phone chain to relay information to all lab personnel.
- Include information on the type of hazardous materials and/or operations that take place in the lab, including specific information for emergency response personnel.

Safety equipment

- Ensure that all lab personnel are familiar with the location and use of safety equipment, including eye washes, safety showers, fire extinguishers, chemical spill kits, flashlights, etc.

Emergency notification

- Ensure that all lab personnel know how to report and respond to emergencies, including fire alarm and emergency evacuation.

Laboratory shutdown procedures

- Ensure that laboratory personnel are aware of procedures for securing materials and experiments during emergencies (see Lab Emergency Plan Template below).

Care for refrigerated or frozen materials

- Establish procedures for consolidating and maintaining materials that require refrigeration or freezing, in the event of a power outage.

Use the [Laboratory Emergency Plan Template](#) to document, post your plan, and for review with your lab staff.

Reporting Accidents and Injuries

Immediately report on-the-job accidents to your supervisor. Contact the Office of Counsel to complete the University Occupational Accident / Injury Report <http://www.uah.edu/legal> and to seek additional information.

The accident report is filed with the University Legal Counsel and remitted to the OEHS for review and accident investigation. Reporting all accidents/injuries helps the University initiate effective safety programs and accident prevention measures.

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All laboratories using chemicals must be equipped with a spill control kit, PPE, and have access to first aid kits. Emergency door signs with emergency numbers must be posted on each lab door.

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SPILL/LEAK RESPONSE

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Major vs. Minor Spill

To determine whether a spill is major (requires emergency response with clean up by outside staff) or minor (incidental release with clean up by lab staff), you need to know (1) the hazard(s) posed by the spilled chemical and (2) the spill's potential impact. Both these factors are, in large part, determined by the spill's size. The following information will help you determine whether you have a minor spill and can be cleaned up by the lab staff:

- the type of chemical(s) spilled – are there any other hazards besides the chemical (biological or radioactive)?
- the amount,
- the physical characteristic of the spilled chemical(s) – solid, powder, liquid or gas?
- the hazard characteristic of the spilled chemical(s) - is it flammable, corrosive, reactive or toxic?
- the location,
- the proper method for cleaning up the spill,
- the personal protective equipment available, and
- the training of the laboratory's personnel.

A chemical spill is not a health risk if it has a low toxicity (especially if it is not volatile or a dust), is not highly corrosive, and is not a strong oxidizer. Such spills may be considered "minor" only if physical damage or environmental factors are absent.

If the spilled chemical's toxicity is unknown, treat the spill like a potential human health hazard by avoiding exposure and seeking outside assistance.

Factors that may magnify a spill's impact and require emergency response (major spill) are:

- the possibility that hazardous vapors or dusts might enter the building's ventilation system and be distributed to other areas;
- the possibility that spilled liquids might flow into other areas, thus expanding the threat of harm, such as reaching ignition sources, exposing other people, damaging delicate equipment;
- the presence of incompatible chemicals;
- the proximity of classrooms or offices containing people who could be harmed by the spill's consequences; and
- spills in sinks that might be connected to other sinks through the plumbing system.

A minor spill is:

- Less than 1 gallon spill of a low toxicity or nonflammable chemical or a material that has any NFPA/HMIS rating of 1 or 2;
- A spill involving less than 20 cc/ml of a particularly hazardous chemical (carcinogen, reproductive hazard or acutely toxic), or chemical with any NFPA/HMIS rating of 3 or 4;

Blood and/or body fluids

A major spill is one in which the following occurs:

- The response comes from outside the immediate release area.
- The release requires evacuation of employees in the area.

- The release poses, or has the potential to pose, conditions that are immediately dangerous to life and health (IDLH).
- The release poses a serious threat of fire or explosion (exceeds or has the potential to exceed the lower explosive limit or lower flammable limit).
- The release requires immediate attention because of imminent danger.
- The release may cause high levels of exposure to toxic substances.
- There is uncertainty that the employee in the work area can handle the severity of the hazard with the PPE and equipment that has been provided and the exposure limit could easily be exceeded.
- The situation is unclear, or data are lacking on important factors. The properties of hazardous substances, such as toxicity, volatility, flammability, explosiveness, corrosiveness, etc. as well as the particular circumstances of the release itself, such as quantity, confined space considerations, ventilation, etc. must be known and understood prior to response.

In addition to potential fire and explosion hazards, strong corrosives and oxidizers typically fall under the property damage category. A large-quantity release that threatens the environment is not a minor spill, but requires the attention of trained responders. If any hazards are present that would damage property or the environment, treat the spill as “large” or “major” and contact Campus Police Department at 6911 from campus phones or 824-6911.

Major chemical spills or releases are handled by an outside contractor. Your call to UAH Police (i.e., 6911) will summon them. They have self-contained breathing apparatus and other protective equipment that allows safe entry into the hazardous area.

- Even a small amount of spilled flammable liquid or reactive substance can present a fire hazard. Labs contain many spark/ignition sources. Do not hesitate to evacuate, notify UAH Police and pull the fire alarm if you are unsure of the spill's fire potential.
- Any uncontained chemical that can disperse fumes, gases, or dusts may be hazardous to your health and the health of those around you. If you suspect that the spill released an acute respiratory hazard, evacuate the area. If others in the area could be exposed to the chemical, evacuate the area or building and follow the major emergency procedures.
- If anyone is injured or contaminated, notify UAH Police and, if safe to do so, begin first aid.

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First Aid Kits

Every laboratory must have a First Aid Kit containing at least the following:

- variety of bandages
- adhesive tape
- alcohol swabs
- gauze
- cold and hot packs
- burn spray, abrasion ointment
- tweezers
- scissors

Upon each use immediately replenish the first aid kit items.

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Responding to Injuries

The first line of defense for any person working or performing research in a laboratory is knowledge. Always be aware of what you and others in the surrounding area are working with and the associated hazards. This information is available on the product safety data sheet (SDS). Review SDS prior to utilizing any new chemical product or procedure involving a chemical product. The publication *First Aid Manual for Chemical Accidents* is available at various locations in laboratory buildings.

Emergency responders also must have chemical information readily available. A safe laboratory will have an inventory accessible to emergency responders near the main entrance. To insure emergency response preparedness the laboratory supervisor must submit the chemical inventory to the OEHS annually.

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Emergency Notification

Call the UAH Police Department for immediate assistance when chemical exposure and or injury has occurred. The UAHPD will immediately contact the appropriate parties. The UAHPD can be reached by dialing **6911** on any campus phone. Emergency laboratory situations in which UAHPD should be notified include but are not limited to; hazardous chemical, radioisotope, and biological agent spills. Injuries and exposures should be attended to immediately and the UAHPD contacted as soon as possible to request an ambulance or other assistance. In all cases the UAHPD will immediately call the appropriate individuals for response. A laboratory sign indicating emergency phone numbers must be posted in all laboratories and is available on the OEHS web site.

All injury and chemical exposure cases must be reported to the Office of Counsel within 48 hours of the occurrence. This is accomplished by submitting an accident/injury report on the Office of Counsel web site or after hours at the UAH Police Station in the Intermodal Center.

The 6911 System

On campus dialing 6911 in an emergency speeds up emergency service because the call is received by the UAH Police Department. The police dispatcher records any

relevant information about the nature of the emergency and dispatches the appropriate personnel.

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Chemical Burns

When necessary, use the eyewash or safety shower as instructed in the procedures below. Insure your own safety by wearing the appropriate personal protective equipment.

Chemical Burns to the Skin

- 1) Remove the victim's clothes, including his/her shoes.
- 2) Rinse the area for a minimum of 15 minutes.
- 3) Do not apply burn ointments to injured areas.
- 4) Call the Campus Police Department at 6911 if emergency transport is required.

Chemical Burns to the Eyes

- 1) Forcibly open the eyelids to insure all of the chemical is removed
- 2) Wash from the nose to the ear to insure the chemical does not wash back into the eye.
- 3) The wash must continue for a minimum of 15 minutes.
- 4) Cover the injured person's eyes with clean or sterile gauze.
- 5) Call the Campus Police Department at 6911.

Thermal Burns

First-degree burns are characterized by pain, redness and swelling.

- 1) Run cool water over the burn or soak it for a minimum of 10 to 15 minutes.
- 2) Cover the burn with a sterile bandage or clean cloth.
- 3) Do not apply any ointments, salves, or sprays.

Red mottled skin and blisters characterize second and third degree burns. White or charred skin is indicative of a third degree burn.

- 1) Call the Campus Police Department at 6911.
- 2) Do not remove any burnt clothing.
- 3) Cover the burns with dry, sterile, and / or clean bandages.
- 4) Do not apply ointments, salves, or sprays.

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Responding to Chemical Injury and / or Exposure

When an injury has occurred general response guidelines are as follows:

- 1) Protect yourself from exposure and stabilize the injured person. When possible wash your hands prior to and after giving first aid. Use gloves whenever possible. Call 6911 when emergency medical attention is required or when not sure how to respond.

- 2) Utilize the safety shower available in the laboratory when appropriate. Clothing must be removed to prevent prolonged chemical contact with the skin. Rinse the exposed area for at least 15 minutes.
- 3) Use the emergency eyewash stations to rinse harmful chemicals from the eyes when appropriate. Eyes must be rinsed for a minimum of 15 minutes.
- 4) Offer the injured person medical attention. Contact 6911 immediately if he or she desires medical attention by an emergency room physician. Contact a family member to transport the injured person during non-emergency situations.
- 5) Contact Public Safety at 6911 to report all injuries and complete an accident report. An accident report must be completed within 24 hours of the incident.

Response to a Compressed Gas Leak

- 1) Close the main cylinder valve if the leak is slow or stopped and the hazardous gases are contained in the enclosure and safe to approach.
- 2) If not, leaking cylinders should be immediately moved to an isolated area out of doors and away from buildings, personnel and potential ignition sources. (If the cylinder is small and you have access to an operable chemical fume hood, you may place the cylinder in the fume hood.) The valve should then be opened slowly allowing the gas to escape. The cylinder should then be tagged "DEFECTIVE" and returned to the supplier. If the leaking cylinder is in an exhausted enclosure, then it should not be removed.
- 3) In the event of a fire involving compressed gases, immediately activate the building fire alarm and evacuate the building via the nearest emergency exit. If you can do so safely, as you evacuate close doors behind you to contain the fire, smoke or gas vapors. From a safe location, dial 824-6911 and request emergency assistance. When the fire department arrives, identify yourself and be prepared to provide any information they may require.
- 4) In the event of a personal injury caused by compressed gases, immediately request medical assistance at 824-6911.
- 5) Do not extinguish a flame involving a highly combustible gas until the source of gas is shut off, otherwise it can cause an explosion

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Response to Corrosive Spills (Acids and Bases)

Not for use with Hydrofluoric acid!

Bases can be equally as harmful as acids. Never add a strong acid to a strong base. Use the appropriate neutralizer supplied in the spill kit and follows these steps:

- 1) Apply neutralizer to the perimeter of the spill.
- 2) Mix thoroughly until evolution of gas has stopped.
- 3) Check the mixtures pH with pH paper.
- 4) Transfer the waste to a bag, fill out the appropriate waste label and call the OEHS for a pick-up.
- 5) Clean the spill area with soapy water.
- 6) Replenish the spill clean-up material.

Fires

Be prepared for fires. Participate in building evacuation drills. Know where your emergency exits and nearest fire alarms are. Call OEHS at #2352 to sign up for fire extinguisher training. Your ability to respond quickly and competently with the appropriate fire extinguisher can keep a minor flame from turning into a major conflagration.

In the event of a fire, pull the fire alarm *first*. Then, if you have been trained and the fire is very small (e.g., no bigger than a wastepaper basket), attempt to extinguish the fire with an appropriate fire extinguisher. If you manage to completely extinguish the fire, inform UAH Police.

If you decide to fight the fire, do so from a position where you can escape. A fire contained in a small vessel can usually be suffocated by covering the vessel with a lid. While attempting to control the fire, continually assess the situation. If you doubt your ability to quickly extinguish the fire with an extinguisher, get out of the building. If possible, prior to evacuation shut down any equipment that may add fuel to the fire. Do not turn off any hoods in the immediate area as they will work to keep the area free from smoke and flames, but close the door behind you to help prevent the fire's spread. When you evacuate, move well away from the building to allow firefighters room to work. Move upwind of the building. Do not reenter the building until permission is given by the Fire Department.

Explosions

Many experiments release tremendous amounts of energy. There are many fuel sources in a lab that can aggravate the situation. An explosion (not just a pop) is a High Hazard Emergency. Beware of secondary explosions, fires, and spills or releases of toxic chemicals due to glass container damage triggered by the first blast. Stay clear of windows that may shatter.

Prepare Students

All students must be informed at the beginning of each semester of building evacuation routes. It is the laboratory supervisor's responsibility to provide this information. In the event of a fire, immediate evacuation is essential. On the way out of the building remember these safety precautions:

- Never enter a room containing a fire.
- Never enter a room that is smoke filled.
- Never enter a room in which the top half of the door is hot to the touch.

Small Fires

- 1) Pull the fire alarm and call the Police Department at 6911.
- 2) Alert people in the area to evacuate. Assist those individuals with disabilities.
- 3) Turn off gas main.
- 4) If you have been trained to use a fire extinguisher, do so while maintaining a clear exit path behind you.
- 5) Operate the extinguisher using the P-A-S-S method:
 - **P – Pull the pin** located on the extinguishers handle.
 - **A – Aim** the nozzle at the base of the fire.
 - **S – Squeeze** or press the handles together.
 - **S – Sweep** from side to side at the base of the fire until it is out.

Large Fires

- 1) Pull the fire alarm, when in a safe area, call the Campus Police Department at 6911.
- 2) Alert people in the area to evacuate. Assist those individuals with disabilities.
- 3) Turn off gas mains, only if time permits.
- 4) Close the doors to confine the fire.
- 5) Move to a designated assembly area away from and upwind from the building.

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Hydrofluoric Acid Spill

UAH requires laboratories that use or store hydrofluoric acid (HF) to maintain a commercially prepared gel of calcium gluconate in the laboratory area. The gel is used for immediate treatment of skin exposures to HF. HF causes serious damage to tissues and bones. The faster the treatment the smaller the chance of serious injury

If greater than 200ml of HF is spilled outside of a chemical hood:

- Evacuate the area;
- Close the doors;
- Post the area with a sign to prevent others from entering; and
- Notify the University Police at **6911**

Laboratory staff can clean up spills less than one liter of HF inside a chemical fume hood by containing the spillage and carefully neutralizing the spill with:

- Spill-X-C caustic neutralizer
- Caustic soda;
- Powdered calcium carbonate
- Calcium hydroxide; or
- Using a commercial HF spill kit

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Large Chemical Spill – Emergency Response

- 1) These spills must be cleaned up a Hazardous Materials Emergency Response Team. **DO NOT ATTEMPT TO CLEAN A MAJOR SPILL!**
- 2) Evacuate the area and close all doors. Notify others not to enter the area. Post signs. If possible, put absorbent material around the spill to prevent it from spreading, particularly into drains or under cabinets.
- 3) Call University Police at 6911 and give details of spill including specific location, chemical, quantity, and if anyone is injured.
- 4) During the evacuation, If possible, shutdown equipment:
 - a. Close doors and shut HVAC vents if possible.
 - b. Close all chemical containers.
 - c. Close fume hood sash (leave fume hood ON).
 - d. Turn off heating devices.
 - e. Stop any reactions in progress.
 - f. If flammable material spills, turn off sources of heat and ignition in entire lab.
- 5) For spills of highly hazardous material or present a fire hazard, activate the fire alarm by pulling the nearest fire alarm box.
- 6) Inform the Hazardous Materials Response Team the location, the name of the material that spilled and the approximate quantity of spilled material. Staff knowledgeable about the spill should provide responders with all pertinent information and SDS.
- 7) Do not reenter the area until advised by the OEHS that it is safe to do so.
- 8) Investigate cause of spill. Document spill, response and follow-up with staff and contact OEHS. The incident report must include the following:
 - Type of emergency
 - Name of material spilled, including pH, strength, concentration, etc.
 - Area of spill and estimate of volume
 - Remediation performed
 - Any follow-up that may be necessary
 - Contact person
 - Names of people who may have been exposed to substance

Mercury Spills

Laboratories utilizing mercury must be prepared with an appropriate cleanup kit. Kits are available through laboratory and safety supply companies.

Small mercury spill

Small mercury spills are spills of less than 5 milliliters.

- 1) Have appropriate PPE
- 2) First, pick up glass or other large debris, then pick up the spilled metallic mercury. You can use a side arm flask connected to a vacuum pump or sink aspirator to vacuum up small beads.
- 3) Use mercury spill powder, mercury absorbent paper or mercury sponges to decontaminate the area and clean up spill residues.

Put the mercury into an airtight container labeled, "**Waste Mercury**". Debris that cannot be cleaned should be sent to. Glassware and other debris that are clean (no visible mercury) may be discarded with other waste.

Large Mercury Spills

- 1) When **more than five milliliters** of mercury has been spilled:
- 2) Alert others in the area.
- 3) Mark off the area.
- 4) Contact the OEHS immediately.

Broken Mercury Thermometers

Put the mercury in an airtight container labeled "**Waste Mercury**" or carefully wrap the sharp ends of the broken thermometer and place in a plastic bag, wide-mouth jar or other puncture resistant container and contact OEHS

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BIOLOGICAL MATERIAL SPILLS

Spills involving microorganisms requiring BL-1 or BL-2 (low to moderate risk agents) containment. As with wild type microorganisms, those containing recombinant DNA are assigned a biological safety level. Clean-ups must proceed according to the guidance for the relevant biological safety level.

- 1) Alert people in immediate area.
- 2) Put on protective equipment.
- 3) Cover an area twice the size of the spill with disinfectant soaked-paper towels. Or, surround spill with dry disinfectant as per label directions.
- 4) Allow a 20 minute contact period.
- 5) Wipe down any contaminated stationary equipment or furniture with disinfectant.

- 6) Use forceps, tongs, or broom to remove broken glass and other items; place in sharps container or red bag.
- 7) Remove towels and re-clean area with disinfectant solution.
- 8) Decontaminate (autoclave, chemical treatment) reusable clean-up items and other reusable equipment.
- 9) Inform laboratory personnel when the clean-up is complete.

Spills inside a Biological Safety Cabinet

- 1) **Keep the cabinet running.**
Clean-up as per directions above, making sure to wipe down back and side walls of cabinet.
- 2) If material has spilled into the catch basin beneath the work surface, add a volume of disinfectant equal to the quantity in the basin, wait 20 minutes, and absorb with paper towels.
- 3) After completion, allow cabinet to run for ten minutes before resuming work.

Spills inside a centrifuge

- 1) Shut centrifuge off and do not open the lid for 20 minutes to allow aerosols to settle.
- 2) Put on PPE.
- 3) Use a squeeze bottle to apply disinfectant to all contaminated surfaces within the chamber, taking care to minimize splashing.
- 4) Allow 20 minute contact period and then complete clean-up of the chamber.
- 5) Remove buckets and rotors to nearest Biological Safety Cabinet; disinfect and clean as per manufacturer's instructions.

Spills Outside the Laboratory

- 1) Viable organisms should only leave the laboratory in a well sealed primary (inner) **and** secondary (outer) container with a closable top. A test-tube rack inside a tray is not acceptable.
- 2) The exterior of the secondary container should be wiped down with disinfectant prior to leaving the laboratory so that it can be transported without wearing gloves.
- 3) Carry paper towels and if a spill occurs use the towels to cover the spill but do not attempt a clean-up without appropriate disinfectant and personal protective equipment.
- 4) Notify people in the immediate area and collect clean-up material and proceed with clean-up

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Needlesticks and Puncture Wounds

- 1) Wash well with disinfectant or antiseptic soap (preferably a type with iodine) and water for 15 minutes.
- 2) Squeeze around affected area to encourage bleeding.
- 3) Notify the laboratory supervisor.
- 4) Seek medical assistance immediately.

WOUNDS

Small Cuts and Scratches

- 1) Clean the area with soap and water.
- 2) Apply a clean dressing over the wounded area.

Significant Bleeding

- 1) Immediately call the Police Department at 6911.
- 2) Reassure the injured person.
- 3) Lay the injured person down.
- 4) **Do not** remove any objects that may have impaled the person.
- 5) Place direct pressure on the wound with a clean cloth or sterile bandage. Do not apply a tourniquet.
- 6) If the pressure does not slow the bleeding, elevate the wound above the heart.
- 7) If the bleeding is severe, elevate the person's legs approximately 12 inches.

EMPLOYEE CONTAMINATION

- 1) Call 6911 from a campus phone or 824-6911 to report the spill and request assistance from campus police department.
- 2) Assist victim with appropriate first aid and move to fresh air.
 - a. DO NOT become contaminated by the chemical as you give first aid.
 - b. DO NOT try to neutralize any chemical.
 - c. DO NOT disturb a blister or remove dead skin from a chemical burn.
 - d. DO NOT apply any household remedy such as an ointment or salve to a chemical burn.
- 3) If the skin becomes contaminated with hazardous materials, wash the affected area thoroughly with copious amounts of water. If available, use the Emergency Shower for at least 15 minutes.
- 4) If hazardous material is splashed into the eyes, immediately use the eyewash station, and flush for at least 15 minutes.
- 5) Remove grossly contaminated clothing, including shoes, immediately. Place the contaminated clothing in a plastic bag.
- 6) Report the spill to the Supervisor, and seek medical attention.
- 7) File an incident report with the Office of Counsel / Risk Management.

Small Chemical Spill Clean Up – Incidental Spill

- 1) These spills can be cleaned up by trained laboratory personnel.
- 2) Notify fellow workers in vicinity of spill.
- 3) Secure area by restricting access and posting signs.
- 4) Wear the appropriate personal protective equipment (PPE) to clean up the spill. At a minimum, this includes gloves and protective eyewear (chemical splash goggles). Depending on the size and type of spill, protective clothing (lab coat and apron), and protective foot coverings may be needed. If high splash potential exists, also wear a face shield over the chemical splash goggles.
- 5) Shutdown equipment:
 - a. Close doors and shut HVAC vents if possible.
 - b. Close all chemical containers.
 - c. Close fume hood sash (leave fume hood ON).
 - d. Turn off heating devices.

- e. Stop any reactions in progress.
 - f. If flammable material spills, turn off sources of heat and ignition in entire lab.
- 6) Gather and review safety information on spilled chemical. Review chemical's Safety Data Sheet (SDS) for a hazard assessment and other pertinent information. Important information to know before beginning clean up includes:
- a. Flammability: Flash Point and Vapor Pressure
 - b. Toxicity: PEL, TLV
 - c. Corrosiveness: pH
- 7) Locate an appropriate spill kit.
- 8) Pick up any broken glass with tongs, dust pan and broom, or some other mechanical device. Do not use your hands to pick up the broken glass. Dispose of glass in an appropriate container (e.g. heavy cardboard box which is taped shut and marked "BROKEN GLASS" prior to disposal).
- 9) Confine and contain spill. Place absorbent material over the spill, making sure not to spread the liquid. Protect drains – do not allow any spilled material to enter drains.
- a. Liquid Spills:
 - 1. Cover spill material with absorbent. Work from outside to center of spill to avoid spreading liquid.
 - b. Flammable Solvents:
 - 1. Immediately turn off any open flames, heating devices, instrument or machine near the spill that could spark and cause the solvent vapors to ignite and flash back.
 - 2. Use plastic scoops and dust pan to clean up absorbent material.
 - c. Acids (except HF)
 - 1. It is not necessary to neutralize an incidental spill. Use absorbent material.
 - 2. Decontaminate area after removal of absorbent. Check pH if possible.
 - d. Powder Spills:
 - 1. Do not dry sweep material. This will cause powder to become airborne and spread. Thoroughly wet material with water (or appropriate material) first.
 - e. Alkali Metals
 - 1. Smother with dry sand. Avoid contact with water.
 - 2. Do not dry sweep material.
 - f. Mercury
 - 1. Cover with mercury decontaminating powder.
 - 2. Do not dry sweep material. Use aspirator bulb or wet paper towels to collect mercury beads.
 - 3. Use a flashlight to detect mercury beads that may have spread.
 - g. Gas Leak
 - 1. Turn off gas cylinder if possible.
 - 2. If gas is toxic, corrosive or flammable, evacuate area and call University Police at 911.
- 10) Clean up spill using a scoop or other suitable item and place material in appropriate disposal container.

- 11) Decontaminate spill surface with mild detergent and water, as appropriate. Carefully remove PPE, place non-reusable items in disposal container and thoroughly wash hands.
- 12) Dispose of all contaminated material in a plastic bag. Label the bag with the name of the hazardous material. Complete a hazardous waste label and affix label to container.
- 13) Contact the Department of Environmental Health and Safety for disposal.
- 14) Investigate cause of spill and review with EH&S. Document spill, response and follow-up with staff. The incident report must include the following:
 - Type of emergency
 - Name of material spilled, including pH, strength, concentration, etc.
 - Area of spill and estimate of volume
 - Remediation performed
 - Any follow-up that may be necessary
 - Contact person
 - Names of people who may have been exposed to substance
- 15) Replenish spill kit.

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Solvent Spills

1. Apply activated charcoal to the perimeter of the spill.
2. Mix until the spill has been completely absorbed.
3. Transfer the absorbed solvent to a chemical waste container and attach an appropriate label.
4. Clean the area with soapy water. Place this waste in the chemical waste container.
5. Contact the OEHS for pick-up.

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Spill Control Material

All laboratories must have spill control material and equipment. Commercial spill kits can be purchased or the necessary components assembled in the lab. All laboratory staff must know where the spill control materials are kept and be instructed on how to use them. Cleanup materials must be sufficient to contain the hazard type and volume of materials being used in the laboratory. The spill control equipment must be regularly checked by the laboratory staff and restocked after use.

Basic Equipment

- a. Spill Warning Sign
- a. Absorbent pads, vermiculite, and/or kitty litter
- b. Plastic dust pan, scoop and broom
- c. Plastic bags; Hazardous Waste labels

Material Specific Spill Control Equipment - The items listed below require material specific spill media:

- a. Flammable Solvents
- b. Mercury
- c. Hydrofluoric Acid
- d. Acid/Base
- e. Formaldehyde
- f. Osmium Tetroxide
- g. Blood/Body Fluid
- h. Radioactive Material Decontamination

Personal Protective Equipment

- a. Gloves: gloves must be appropriate for the hazardous material that is being cleaned up.
- b. Goggles: eye protection must be appropriate for the hazardous material that is being cleaned up. Chemical splash goggles must be worn for chemical spills. A face shield may be needed and must be worn over chemical splash goggles.
- c. Lab Jacket or other appropriate covering.
- d. Respirator(not mandatory): only staff who have been medically cleared to wear a respirator, fit tested and trained on the use and limitations of the respiratory protection equipment (annual requirements) can wear a respirator. The respirator must be selected for the hazard and potential exposure of the spilled hazardous material. All respiratory protection use must be coordinated with OEHS. Contact OEHS for assistance and guidance.

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Building Evacuation

When to evacuate

The following will result in the evacuation of a university building:

- Audio alarm
- Power failure – Laboratories must be evacuated
- Natural disaster
- Man-made disaster
- Mechanical problems that are deemed a danger to the occupants
- Uncontrolled hazardous chemical spill or gas leak
- Order of University Police or other Public Safety Official

General Evacuation procedures and guidelines:

General Procedures

- Stay Calm.
- Faculty and staff should attempt assisting in the evacuation of their areas.

In the event you are not familiar with the evacuation route of your area, please follow the nearest

"Exit" sign.

- Do not use the elevators.
- Reenter the building only when directed by a fire department official or university police.

- Staff should only perform those evacuation duties that they are comfortable with.
- Occupants should be strongly encouraged to evacuate the building; however, if an occupant refuses to leave, the building emergency supervisor/staff should inform the occupant of the danger of staying in the building. The building emergency supervisor/staff should then continue notifying the remainder of occupants in his/her area.

General Guidelines when evacuating the building

- Evacuate the building in a top down fashion. Do not go upstairs to evacuate activity spaces; the Floor Captain will notify occupants in those areas.
- Follow the "Exit" signs posted throughout the building.
- Evacuate away from the affected area.
- Clear the activity area that you are closest to during the alarm.
- Make your way to the next activity area if there is no sign of smoke or fire.

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