

Appendix J Biohazard Spill Management Plan

OVERVIEW

Prevention is the most important part of any spill management plan.

- Be sure to read and understand standard operating procedures (SOP's) and protocols for safe manipulation of biohazards before you begin work.
- Identify the location of the nearest eye wash, and make sure access is clear and not obstructed.
- Verify that spill kits, spill containment and clean-up supplies, including the appropriate disinfectant, are readily available. Re-supply spill kits after each use so they will be ready for the next incident.

Spill kit and clean-up supplies located: _____

PI:	
Lab Supervisor:	
URI EHS: Connie Heird, Stacey Snow	(401) 874-7019, (401) 874-2592
URI Public Safety Dispatch (Emergency, Medical, Fire)	(401) 874-2121

- Report any loss of containment to the PI immediately. B + V Testing or Air Systems Technologies must be brought in to repair the BSC. Post an "Out of Service" sign.
- Report any potential exposure to the PI.
- Minimize the consequences of spills of biological material by performing all work on absorbent liner in the biosafety cabinet (BSC).
- Work only in a certified BSC and alert fellow lab occupants when active manipulation is in progress. Restrict foot traffic behind operator when a BSC is in use.
- Routinely practice spill clean-up procedures as a component of the lab's training program and Emergency Action Plan. The best time to do this is the beginning of each semester when new personnel join the lab so everyone knows their roles and responsibilities.
- Restrict access to the area by non-essential personnel during active manipulation of biohazards.

SPILL RESPONSE

Proper mitigation of a release or spill of biohazardous material requires knowledge of several factors including the agent or material spilled and its associated risks; the amount of material; as well as the type and location of the spill. The following guidelines provide a quick reference for employees who might have to respond to an incident.

Appendix J Biohazard Spill Management Plan

Each lab working with biohazards should have its own spill response procedures which will be specific to the way that laboratory is set-up. Consult with your supervisor to be sure you have received specialized training for your area.

SMALL BL2 SPILL CLEAN-UP (< 100 mL)

- Avoid inhaling aerosols and quickly leave the room. Notify others to leave. Close the lab doors, and post “Biohazard Spill – Do Not Enter” signage.
- Inform Supervisor, and, if assistance is needed, call URI Police Dispatch at (401) 874-2121.
- Allow aerosols to settle for at least 20 minutes before re-entering the laboratory.
- Assemble clean-up materials (disinfectant, paper towels, sharps container, biohazard bags, and forceps).
- Put on protective clothing (lab coat, surgical mask, safety glasses, utility gloves, and waterproof shoe covers if necessary).
- Cover the area with paper towels and carefully pour disinfectant over the spill, starting from the outside and working inward toward the center to keep from enlarging the contaminated area. Allow at least 10 minutes of contact time for proper decontamination.
- If the spill is large (but < 100 mL), a second round of disinfectant may need to be applied. Again, allow at least 10 minutes contact time for proper decontamination.
- Pick up sharp objects with forceps and discard in a sharps container. Carefully pick up soaked paper towels and dispose. Smaller pieces of glass may be collected with wet paper towels held with forceps. Discard in the sharps container. Dispose red or orange bags as biohazard waste.
- Wipe surrounding areas where the spill may have splashed with disinfectant.
- Remove contaminated clothing, turning exposed areas inward, and place in a biohazard bag to autoclave later. Cotton can usually be autoclaved but synthetic fabrics cannot be. Use a hospital grade product to decontaminate synthetic materials, made up per the manufacturer’s specs.
- Wash exposed skin with soap and warm water.
- Wash hands and exposed skin areas with disinfectant or antiseptic soap and water and dry with clean paper towels.

LARGE BL2 SPILL CLEAN UP (> 100 mL)

Evacuate the lab and post “Biohazard Spill” signage at all entrances. It may be necessary to physically block lab entrances with chairs since the doors between labs cannot be locked (College of Pharmacy and CBLS).

**Request clean-up assistance from EHS by calling
Public Safety Dispatch (401) 874-2121**

Appendix J Biohazard Spill Management Plan

Tell Dispatch you have had a **large biohazard spill** and need help with clean-up. Technical support will be dispatched to the spill site.

BLOOD SPILLS

For blood or other material with a high organic content and low concentration of infectious microorganisms:

- Wear gloves, eye protection, and a lab coat. If there has been a lot of splatter, shoe covers may also be necessary.
- Pre-clean by absorbing blood with paper towels; place soiled towels in a biohazard bag. Collect any sharp objects with forceps and place in a sharps container.
- Use a detergent solution to pre-clean the spill site of visible blood. Dispose paper towels in biohazard bag.
- Carefully pour freshly made 10% household bleach over the contaminated area.
- After 10 minutes of contact time, wipe up then rinse with water.
- Discard clean-up materials and contaminated personal protective equipment (except safety glasses) in a biohazard bag and place the bag in a biohazard waste disposal box.
- Wash your hands with soap and warm water.
- Document the spill and your spill response procedures in the lab's biosafety manual.

OCCUPATIONAL EXPOSURE

- If exposure to personnel has occurred, wash the area thoroughly with soap and warm water and call URI Public Safety Dispatch (401) 874-2121 immediately.
- If the exposure occurred through mucous membrane contact of the eye, nose, or mouth, use the eye wash to rinse the area for 15 minutes.
- If the exposure occurred due to accidental injection or piercing, wash the area thoroughly with soap and warm water and apply pressure behind the wound to "bleed it out".
- These situations are considered occupational exposures and require medical follow-up at South County Hospital's Emergency room.

Faculty, staff and graduate students must file a USP-14a with Human Resources within 24 hours of the incident.

Undergraduates report to Potter Health Services and may be transported to South County Hospital for follow-up.

NOTE: If BSL-2 material simply comes in contact with intact skin, this is an incidental exposure and does not require medical follow-up. Wash the area thoroughly with soap and warm water. Medical follow-up is not required.

SPILL DOCUMENTATION

Large biohazard spills (> 100 mL), injuries and exposures MUST be reported to your supervisor and URI Police Dispatch immediately.

Document all near misses, major and minor spills in the lab's biosafety manual. It is important to discuss with your PI, Lab Supervisor and fellow lab members the details of what happened, how and why it happened, and what was learned from the incident. Since major incidents are almost always preceded by numerous near misses, procedures should be revised and clarified to prevent similar incidents in the future

BSL-2 SPILL INSIDE THE BIOSAFETY CABINET

A spill or release inside a biosafety cabinet (BSC) does not pose a risk to others in the lab or to the environment. In this case, the BSC functions to contain the spill and protect personnel in the lab from exposure. Decontaminate all material inside the BSC, including the operator's hands and arms, any equipment located in the BSC, and surfaces of the BSC itself.

- Leave the BSC turned on.
- To keep from contaminating the area outside the BSC, have someone else in the lab bring over a biohazard waste box and fresh PPE. Remove contaminated gloves, lab coat and sleeve covers if wearing, and dispose in the biohazard waste box.
- Put on fresh PPE, including lab coat, gloves and wrist covers, before placing arms and hands back inside the cabinet.
- Wipe down reusable materials with a chemical disinfectant before removing from the BSC.
- Remove disposable materials from the cabinet and place in the biohazard waste box, using care not to cause a breach in the red containment bag. If this should occur, place the compromised bag inside two (2) additional red bags.
- Dispose sharps in a sharps container.
- Wipe cabinet walls, work surfaces and equipment located in the BSC with an approved commercial disinfectant such as Wescodyne. Bleach is not recommended for use inside the BSC because it is highly corrosive and requires multiple rinses to remove completely.
- If you have had a large spill into the drain pan, make sure the BSC's drain valve is closed before pouring disinfectant through the grilles into the pan. Be careful while pouring not to create splashes. Allow the disinfectant to stand for 20-30 minutes (or longer if indicated based on the material and disinfectant).
- To further ensure complete decontamination, carefully empty the drain pan into a large container with additional disinfectant by attaching a hose barb and flexible tube to the drain valve; the tube should be long enough to submerge the open end in the container to minimize generation of infectious aerosols. Flush the drain pan with water and remove the drain tube. Dry the pan with paper towels and dispose to biohazard waste box.

Appendix J Biohazard Spill Management Plan

- Dispose liquid based on chemical constituents and pH. Sink disposal with copious amounts of water is permitted only if the pH of the solution is between pH 5-9. If it is higher or lower, apply a URI hazardous waste label to the container, include the name of the disinfectant and pH, and place the container in the lab's Satellite Accumulation Area disposal as hazardous chemical waste.
- Remove PPE and dispose in the biohazard waste box.
- If clothing was contaminated, remove and change into fresh clothing prior to returning to work. Autoclave if cotton or decon using an appropriate disinfectant if made of synthetic material.
- Wash hands thoroughly with soap and warm water.
- If the spill flowed into the interior of the BSC, extensive decontamination requiring the services of an outside vendor may be necessary. The BSC should not be used until decontamination has been completed by Air Systems Technologies or B + V Testing. Contact EHS directly for guidance.

SPILL, RELEASE OR AEROSOLIZATION INSIDE A CENTRIFUGE

First:

- Do not inhale
- Close centrifuge lid
- Notify others to leave the lab

Then:

- Immediately leave the lab
- Post biohazard spill signs at lab entrances

Notify URI Public Safety Dispatch (401) 874-2121.

Tell them there has been a biohazard spill in the centrifuge. Tech support will be dispatched to the site.

Notify PI or Supervisor.

- **DO NOT RE-ENTER THE LAB** until PI and EHS have given clearance (at least 30 min)
- Follow spill clean-up instructions above

Decontaminate

- Remove PPE, turning exposed areas inward
- Place disposable PPE in biohazard waste disposal box (autoclave reusable PPE and contaminated clothing)
- Wash any exposed areas with antiseptic soap and warm water
- Wash hands thoroughly

CENTRIFUGE EXPLOSION

- **Evacuate the room immediately**

Appendix J Biohazard Spill Management Plan

- **Notify PI and URI Police Dispatch (401) 874-2121**
- **Tell them there has been a centrifuge explosion. Tech support will be dispatched to the site.**

SPILL OF A SOLID BIOHAZARD (contaminated plates, pipets, tubes, PPE, waste, etc.)

- Notify lab occupants.
- Put on appropriate PPE: lab coat, gloves, eye/face protection, etc.
- Contain spilled materials.
- Collect the spilled materials with a scoop, dustpan and broom, tongs/forceps.
- Disinfect all contaminated surfaces with freshly prepared 10% bleach; allow appropriate contact time.
- Dispose clean-up materials in a biohazard waste disposal box. Non-disposable clean-up materials must be decontaminated and cleaned prior to reuse.

CONTAMINATED EQUIPMENT

- Place absorbent material (paper towels, gauze, etc.) in and around area of contamination and saturate with appropriate disinfectant for minimum 30 minutes.
- After decontamination, rinse equipment with water and dry.
- All equipment must be decontaminated and cleaned prior to maintenance/service or use by another.
- Complete Notice of Laboratory Equipment Decontamination form.

NOTICE OF DECONTAMINATION

Decontamination must be completed before equipment can be moved

This equipment released for:

Service/Repair

Relocation

Disposal

Exterior and interior surfaces have been decontaminated Yes No

Decontamination performed by: _____

Chemical or disinfectant used: _____

Date of decontamination: _____

Location of equipment: _____

Responsible party: _____

Lab telephone number: _____

Biohazard labels required under the Bloodborne Pathogens Standard have been removed.

Signature _____

PRINCIPAL INVESTIGATOR