

Environmental Health & Safety Policy Manual		
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Biological and rDNA Spill Response Procedures		

1.0 PURPOSE

A wide variety of biohazardous materials are used throughout the LSU Health Sciences Center. These biological spill procedures are a general guidance for a rapid, appropriate, and safe response.

2.0 SCOPE

These procedures address the proper response to incidents involving spills, leaks, or discharges of biohazardous materials and/or recombinant DNA (rDNA).

3.0 RESPONSIBILITIES:

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

- Provide assistance, additional clean-up materials, and personal protective equipment (PPE) as needed to personnel to safely clean up minor spills (under 50mL) in their work areas.
- Respond to and assess major spills (over 50mL).
- Hold recurring drills to ensure proficiency on spill response.
- Maintain back-up spill response kits.

3.2 Principal Investigators/Supervisors shall:

- Develop and maintain spill response procedures based on the biosafety level (see Appendix A) of the area-specific biohazardous materials. These procedures will be made available to all employees.
- Ensure all employees are properly trained to respond safely to a hazardous biological spill or release in their area.
- Ensure that a biological spill response kit (with components as shown in Appendix B) and PPE are available and accessible.
- Report large biological spills (greater than 50mL) of Biosafety Level (BSL)-1 and BSL-2 materials immediately to University Police and EH&S.
- Report all spills involving BSL-3 or any rDNA materials immediately to EH&S. If EH&S is unavailable, or if the spill occurs after hours, contact University Police.

- In the event of a spill or release, follow incident/accident reporting procedures outlined in [EHS - 400.06, Incident/Accident Reporting and Investigation Policy](#).
- Immediately notify the Biological Safety Officer (BSO) of all rDNA exposures. Work with the BSO to report rDNA accidents to the Office of Biotechnology Activities as required by National Institutes of Health (NIH) guidelines.

3.3 Employees shall:

- Be trained on the proper use, handling, and spill response procedures regarding biohazardous materials.
- Wear PPE and use spill control equipment in the proper manner.
- Promptly report all biohazardous spills to their supervisor.

4.0 BIOLOGICAL SPILL CLEAN-UP PROCEDURES

The response to a biohazardous material spill varies based on several factors, including the actual agent and the associated risks, the agent's biosafety level, the amount of material spilled, type of spill and the location of the spill. These biological spill procedures are general guidance for a rapid, appropriate, and safe response to a biohazardous spill. Each lab working with biohazardous material must develop area-specific spill response procedures.

Minimizing personnel exposure shall take priority over clean-up. If any person is exposed to biohazardous materials, they should immediately remove contaminated clothing or PPE and wash the affected areas with soap and water. If medical assistance is needed, immediately contact University Police at 568-8999.

Note that if the spill involves large amounts (greater than 50mL) of BSL-1 or 2 materials, or any amount of BSL-3 or rDNA material, immediately call the BSO. Follow incident/accident reporting procedures outlined in EHS - 400.06, Incident/Accident Reporting and Investigation Policy.

4.1 Procedures for Spills Inside the Laboratory

- Notify other employees and clear area immediately, closing the lab door upon exiting. Wait at least 30 minutes for aerosol to settle before entering spill area.
- Remove all contaminated clothing and place in biohazard bag. Run the bag through an autoclave later.
- Put on necessary PPE including disposable gown, safety glasses and gloves.
- Place dry paper towels on the spill then layer a second set of disinfectant-soaked paper towels over the spill.
- Encircle the spill with additional disinfectant being careful to minimize

aerosolization while assuring adequate contact. Allow a minimum of 20 minutes contact time to ensure germicidal action of disinfectant.

- Wipe up spill, working from the edges to the center. After the initial clean-up, do a final clean-up of spill areas with fresh paper towels soaked in disinfectant.
- Decontaminate all non-disposable items within the spill area; disinfect all mops and cleaning tools.
- Discard contaminated disposable materials using appropriate biohazardous waste disposal procedures.
- Wash your hands thoroughly with soap and water immediately after the clean-up is complete.

4.2 Procedures for Biosafety Level 3 Spills

- For BSL-3 spill procedures, contact the current lab manager of the BSL-3 lab, or the BSO at 504-568-6585 and/or safety@lsuhsc.edu.
- For a general understanding of how-to craft procedures for a BSL-3 lab, contact EH&S at 504-568-6585 and/or safety@lsuhsc.edu.

4.3 Procedures for Spills Inside the Biological Safety Cabinet

- Wear a laboratory coat, eye protection, and gloves during clean-up.
- Allow cabinet to continue running during clean-up.
- Apply approved disinfectant (one part bleach to nine parts water is acceptable for most small spills; apply concentrated disinfectant for large spills) and allow a minimum of 15 minutes contact time.
- Wipe up spillage with disposable disinfectant-soaked cloth or tissue.
- Wipe the walls, work surface, and any equipment in the cabinet with a disinfectant-soaked cloth.
- Discard contaminated disposable materials in appropriate hazardous biological waste container(s) and autoclave before discarding as waste.
- Place contaminated reusable items in biohazard bags or in autoclavable pans with lids before autoclaving and cleanup.
- Expose non-autoclavable materials to disinfectant and allow 15 minutes contact time before removing from the biological safety cabinet.
- Remove protective clothing used during cleanup and place in a biohazard bag for autoclaving if necessary.
- Wash your hands thoroughly with soap and water immediately after the clean-up is complete.
- Run the cabinet at least 15 minutes after cleanup before resuming work or turning cabinet off.

4.4 Procedures for Spills Inside the Centrifuge

- Ensure the centrifuge is closed. Notify other employees and clear area immediately, closing the lab door upon exiting. Wait at least 30 minutes for aerosol to settle before entering spill area.

- Put on necessary PPE including a laboratory coat, eye protection, and gloves during cleanup.
- Unplug the centrifuge from the power source. Remove and relocate the rotors and buckets to the nearest biological safety cabinet for clean-up.
- Thoroughly disinfect inside of centrifuge, rotors, and buckets by applying an approved disinfectant (one part bleach to nine parts water is acceptable for small spills; apply concentrated disinfectant for large spills) and allow a minimum of 15 minutes contact time.
- After thorough disinfection of rotor or rotor cups, remove contaminated debris and place in appropriate hazardous biological waste container(s) and autoclave before disposing as infectious waste.

4.5 Procedures for Spills Outside the Laboratory, In Transit

- Prior to transporting biohazardous materials, secure materials in an unbreakable, well-sealed primary container placed inside of a second unbreakable, lidded container (cooler, plastic pan, or pail). Label the outer container with the biohazard symbol if material is BSL or Risk Group 2 or higher.
- Should a spill occur in a public area, do not attempt to clean it up without appropriate PPE. Contact University Police immediately and notify EH&S to assist in the clean-up.
- Secure the area, keeping all personnel clear of the spill.
- As an interim measure, wear gloves and place paper towels, preferably soaked in disinfectant, directly on spilled materials to prevent spread of contamination. To assure adequate contact, surround the spill with disinfectant, if available, taking care to minimize aerosols.
- Wash your hands thoroughly with soap and water immediately after the clean-up is complete.
- Stand by during spill response and cleanup activity to provide information and assistance.

4.6 Procedures for Biological Spills Involving rDNA

- Follow directions outlined in 4.2 through 4.5, depending on location of the spill.
- If microorganisms are present, select appropriate decontaminant and contact time.
- Report the spill to your supervisor and EH&S BSO immediately.

4.7 Procedures for Biological Spills Involving Radioactive Materials

When a biohazardous spill also involves radioactive materials, cleanup procedures may have to be modified. The extent of the modification will depend on the level of radiation and the nature of the isotope involved. The Radiation Safety Officer should be called immediately at 504-568-6586 and/or safety@lsuhsc.edu.

5.0 TRAINING

EH&S personnel shall participate in periodic routine spill response drills. Principal Investigators/Laboratory Supervisors are responsible for providing laboratory-specific training on biohazardous spill clean-up procedures to their lab personnel.

6.0 RECORDKEEPING

Principle Investigators/Supervisors shall keep their employee's training records for the current fiscal year plus the past three fiscal years. EH&S shall maintain records of all drills and significant spills.

7.0 INSPECTIONS AND PROGRAM REVIEW

Program effectiveness will be assessed annually by the EH&S Department. Furthermore, program compliance will be evaluated at the Institutional Biosafety Committee meetings and during routine laboratory inspections.

8.0 REFERENCES

- Centers for Disease Control and Prevention – Office of Health and Safety
- National Institutes for Health – Office of Biotechnology Activities
- World Health Organization – Laboratory Biosafety Manual 3rd Edition

9.0 APPENDICES

Appendix A - Biosafety Risk Groups
Appendix B - Biological Spill Kit Components

Biosafety Risk Groups

It is critical to determine the biosafety level of the biohazardous material prior to cleaning and/or containing biological spills. Biosafety Risk Groups are as follows:

Biosafety Level 1 (BSL 1) - Organisms are well-characterized agents not known to cause disease in healthy adult humans and are of minimal potential hazard to laboratory personnel or to the environment. Examples include *B. subtilis*, *E. coli*, and *L. acidophilus*.

Biosafety Level 2 (BSL 2) - Organisms are agents of moderate potential hazard to laboratory personnel and the environment. Examples include *Salmonellae*, Hepatitis B virus, bloodborne pathogens, and human body fluids (particularly when visibly contaminated with blood).

Biosafety Level 3 (BSL 3) - Organisms are indigenous or exotic agents which may cause serious or potentially lethal disease and present the potential for aerosol transmission. Examples include H5N1 Influenza virus, *Bacillus anthracis*, *Yersinia pestis*, *Burkholderia*, *Francisella tularensis*, *Brucella*, *Clostridium botulinum*, *Mycobacterium tuberculosis*, *Coxiella burnetii*, Hantavirus, and West Nile virus.

Biological Spill Response Kit Components

All laboratories working with biohazardous materials shall have at minimum, the following spill response supplies:

- Disinfectant solution*
- Forceps, tongs, broom, dustpan
- PPE: safety glasses, goggles, or face shield, utility gloves, wrap-around lab coat, shoe covers (optional)
- Red biohazard bag and sharps container
- Paper towels or other absorbent
- Broken glass receptacle(s) should also be available.

*Generally, a one-part dilution of household bleach to nine parts water prepared fresh daily is effective in most situations. Contact EH&S for more information about selection of disinfectants, particularly for any organisms suspected of being atypical in their sensitivity to disinfectants.