

3.1 Emergency Procedures

3.1.1. Biological Spills

Spill kit materials and written procedures shall be kept in each laboratory where work with microorganisms is conducted. Basic equipment includes concentrated disinfectant (such as chlorine bleach), absorbent material, latex or nitrile gloves, autoclave bags, sharps container, and forceps or other mechanical device to pick up broken glass. Do NOT handle broken glass with hands.

3.1.2. General Biological Spill Clean-Up Guidelines

- Wear gloves, protective eyewear and a lab coat.
- Use forceps or other mechanical means to pick up broken glass and discard into sharps container.
- Cover spilled material with paper towels.
- Add appropriate disinfectant in sufficient quantity to ensure effective microbial inactivation, let sit 15 minutes.
- Dispose of towels in waste container.
- Wipe spill area with diluted disinfectant. Discard of clean-up materials in waste container.
- Wash hands with soap and water when finished.
- Report all spills to IUEHS Biosafety for your respective campus.
- Post signage from Appendix D when the spill occurs outside the biosafety cabinet.

3.1.3. Specific Biological Spill Clean-Up Guidelines

3.1.3.1. Spill of BSL-1 material

- Wearing gloves and a lab coat, pick up broken glass with forceps and place in sharps container.
- Absorb the spill with paper towels or other absorbent material.
- Add appropriate disinfectant in sufficient quantity to ensure decontamination, let sit for 15 minutes.
- Discard these materials into waste container.
- Wipe the spill area with the appropriate dilution of a disinfectant effective against the organism. Discard of clean-up materials in waste container.
- Autoclave all gloves and other materials worn to clean up the spill.
- Wash hands with soap and water.
- Report all spills to IUEHS Biosafety for your respective campus.

3.1.3.2. Spill of Human Blood

- Wear gloves, face protection and lab coat to clean up spill.
- If broken glass is present, use forceps to pick up and place in sharps container.
- Absorb blood with paper towels and add appropriate disinfectant in sufficient quantity to ensure decontamination, let sit for 15 minutes.
- Clean the spill site of all visible blood.
- Discard all materials into trash container.
- Autoclave all gloves and other materials worn to clean up the spill.
- Wash hands with soap and water.
- Report all spills to IUEHS Biosafety for your respective campus.
- If an injury has occurred, complete an Occupational Injury/Illness Report and seek medical evaluation.

3.1.3.3. Spill of BSL-2 Material

- Keep other workers out of the area to prevent spreading of spill material.
- Post warning sign ([Appendix D](#)), if needed.
- Remove contaminated clothing and put in a biohazard bag for decontamination later.
- Wash hands and any exposed skin and inform the PI of the spill. Contact IUEHS Biosafety for your respective campus for assistance, if needed.
- Wear gloves, face protection and lab coat to clean up spill.
- If broken glass is present, use forceps to pick up and place in sharps container.
- Absorb the spill with paper towels and add appropriate disinfectant in sufficient quantity to ensure decontamination, let sit for 15 minutes.
- Discard all materials into waste container.
- Wipe the spill area with the appropriate dilution of a disinfectant effective against the organism. Discard of clean-up materials in waste container.
- Autoclave all gloves and other materials worn to clean up the spill.
- Wash hands with soap and water.
- Report all spills to IUEHS Biosafety for your respective campus.
- If an injury has occurred, complete an Occupational Injury/Illness Report and seek medical evaluation.

3.1.3.4. Spill of Recombinant or Synthetic DNA Material

- Keep other workers out of the area to prevent spreading of spill material.
- Post warning sign ([Appendix D](#)), if needed.
- Remove contaminated clothing and put in a biohazard bag for decontamination later.
- Wash hands and any exposed skin and inform the PI of the spill. Contact IUEHS Biosafety for your respective campus for assistance, if needed.
- Wear gloves, face protection and lab coat to clean up spill.
- If broken glass is present, use forceps to pick up and place in sharps container.

- Absorb the spill with paper towels and add diluted disinfectant in sufficient quantity to ensure decontamination, let sit for 15 minutes.
- Discard all materials into waste container.
- Wipe the spill area with the appropriate dilution of a disinfectant effective against the organism. Discard of clean-up materials in waste container.
- Autoclave all gloves and other materials worn to clean up the spill.
- Wash hands with soap and water.
- Report all recombinant or synthetic DNA spills to the IUEHS Biosafety for your respective campus immediately.
- If an injury has occurred, complete an Occupational Injury/Illness Report and seek medical evaluation.

3.1.3.5. Spill of BSL-3 Material

- Stop work immediately.
- Avoid inhaling airborne material while quickly leaving the room. Notify others to leave. Close door, and post with warning sign ([Appendix D](#)).
- Remove contaminated clothing, turn exposed area inward, and place in a biohazard bag. Wash hands with soap and water.
- Notify the PI and IUEHS Biosafety immediately. Do not reenter the lab until given permission from IUEHS Biosafety. After hours and weekends call 911.
- Following instruction from the Biological Safety Officer, allow 30 minutes for aerosols to disperse before re-entering the laboratory to begin clean-up.
- If given authority to clean the spill, put on personal protective equipment (HEPA filtered respirator, gown, gloves, and shoe covers) and assemble clean-up materials (disinfectant, autoclavable container or bag, forceps, sharps container, and paper towels).
- Contain the spill with absorbent paper towels or disposable pads. Carefully add appropriate disinfectant to the spill; avoid creating aerosols when pouring the disinfectant. Leave the room and allow 30 minutes for the disinfectant to inactivate the material.
- Pick up broken glass with forceps and discard in sharps container.
- Clean up liquid with paper towels and collect all contaminated materials into biohazard bag or container. Remove all spilled materials and decontaminate the area again with an appropriate disinfectant.
- Autoclave lab coat, gloves, and other protective equipment that was worn for clean-up.
- Wash hands thoroughly with soap and water.
- If a potential exposure has occurred, notify your immediate supervisor, complete an Occupational Injury/Illness Report and seek medical evaluation.

3.1.3.6. *Spill in a Biological Safety Cabinet*

- Leave the cabinet fan running.
- Wearing gloves and lab coat, spray or wipe cabinet walls, work surfaces, and equipment with disinfectant such as 70% ethanol. If necessary, flood work surface, as well as drain pans and catch basins below the work surface, with disinfectant. Allow at least 20 minutes contact time.
- Soak up the disinfectant and spill with paper towels, and drain catch basin into a container. Lift front exhaust grille and tray, and wipe all surfaces. Ensure that no paper towels or solid debris are blown into area below the grille.
- Surface disinfect all items that may have been spattered before removing them from the cabinet.
- Discard all clean-up materials into biohazard waste container. Wash hands and exposed skin areas with soap and water.
- IUEHS Biosafety for your respective campus should be notified if the spill overflows into the interior of the cabinet. It may be necessary to do a more extensive decontamination of the cabinet.

3.1.3.7. *Spill of Radioactive Biological Material*

A spill involving both radioactive and biological materials requires emergency procedures that are different from the procedures used for either material alone. As a general rule, disinfect the microorganism using a chemical disinfectant, then dispose of all clean-up materials in a separate bag/container labeled to indicate that the radioisotope is mixed with a chemically disinfected microorganism. **Do not use bleach solutions as a disinfectant on materials that contain iodinated compounds because radioactive iodine gas may be released.** Be sure to use procedures to protect yourself from the radionuclide while disinfecting the biological material. Before any clean-up, consider the type of radionuclide, the characteristics of the microorganism, and the volume of the spill. Contact your respective campus [Radiation Safety Office](#) for specific radioisotope clean-up procedures.

3.1.3.7.1. *Preparation for Clean-up*

- Avoid inhaling airborne material, while quickly leaving the room. Notify others to leave.
- Close door and post with warning sign ([Appendix D](#)).
- Remove contaminated clothing, turn exposed area inward, and place in a biohazard bag.
- Wash all exposed skin with soap or hand washing antiseptic, followed by a three minute water rinse.
- Inform the PI, EHS Biosafety, and Radiation Safety for your respective campus of the spill and monitor all exposed personnel for radiation.
- Allow aerosols to disperse for at least 30 minutes before reentering the laboratory. Assemble clean-up materials (diluted disinfectant, autoclavable containers, forceps, paper towels, sharps container).

- Confirm with the Radiation Safety Officer that it is safe to enter the lab.

3.1.3.7.2. *Clean-up of Radioactive Biological Spill*

- Put on protective clothing (lab coat, face protection, gloves, and shoe covers). Depending on the nature of the spill, it may be advisable to wear a HEPA filtered respirator instead of a surgical mask. In setting up your spill plan, contact IUEHS Biosafety for your respective campus for advice since the use of many types of respirators requires prior training, fit-testing, and medical approval.
- Pick up any sharp objects with forceps and put in sharps container labeled according to Radiation Safety guidelines.
- Cover the area with paper towels, and carefully pour appropriate disinfectant around and into the spill. Avoid enlarging the contaminated area. Use additional disinfectant as it becomes diluted by the spill. Allow at least 20 minutes contact time. Do not use bleach solutions on iodinated materials; radioactive iodine gas may be released. Instead, use an alternative disinfectant such as an iodophor.
- Wipe surrounding areas where the spill may have splashed with disinfectant.
- Absorb the disinfectant and spill materials with additional paper towels, and place into an approved radioactive waste container. Keep separate from other radioactive waste. Do not autoclave radioactive isotope-contaminated biological waste unless approved by the Radiation Safety Officer.
- Disinfect contaminated protective clothing prior to disposal as radioactive waste.
- Place contaminated item(s) on absorbent paper and scan for radioactivity. If none is detected, dispose of these items as biohazard waste.
- If radioactive, spray with disinfectant and allow a 20 minute contact time. Wrap the item(s) inside the absorbent paper and dispose of as radioactive waste.
- Wash hands and exposed skin areas with soap and water, and monitor personnel and spill area for residual radioactive contamination. If skin contamination is detected, repeat decontamination procedures under the direction of the Radiation Safety Officer. If spill area has residual activity, determine if it is fixed or removable and handle it accordingly.