

Chapter 8 - Emergencies and Reporting

8.1 Spills

8.1.1 General

In general, most spills can be effectively handled by researchers and a spill kit should be available in any

laboratory area where biohazardous materials are used or stored. The following are recommended procedures for evaluating and handling a spill:

- An appropriate disinfectant that works against the BSL-2 agents of concern must be used.
- Allow sufficient contact time for the disinfectant to work. Follow manufacturer's directions.
- Procedures vary with location depending upon if inside or outside of a containment device.
- Cleaning spills requires personal protective equipment (PPE) including a lab coat or gown, and gloves. A face shield, shoe covers or a respirator may be required.
- All spills must be reported to the Laboratory Supervisor and/or Principal Investigator. Contact the Biosafety Safety Officer (mdooley@astate.edu) for any questions about spill cleanup procedures.

8.1.2 Spills outside of a containment device

If the spill is not inside of a Biological Safety Cabinet (BSC), Centrifuge, Refrigerator, Incubator, Freezer,

Lab instrument etc. follow this procedure:

- Close off spill area to traffic, and notify coworkers.
- If the spill may involve an aerosol, (e.g. event involving dropping material onto floor, high mechanical force, a forceful expulsion of liquid) leave the room for 30 minutes to allow aerosols to settle.
- Remove contaminated lab coat or clothing and wash exposed skin and put on clean gloves and lab coat.
- Prepare enough volume of a 1:9 dilution of chlorine bleach or other approved disinfectant to saturate the contaminated area. If dilution is not possible, undiluted household bleach can be used. However, eye protection must be worn and care taken not to splash the bleach onto skin or clothing.
- Contain the spill with paper towels or other absorbent material e.g. "bench kote", blue "diaper pads"
- Flood the spill area with disinfectant. Leave on for 10 minutes.
- Push the absorbent material at the edge of the spill into the spill's center. Add more paper towels as needed. If glass is present, do not use bare hands! Use tongs (large pieces) forceps (small pieces) followed by a dustpan to remove pieces. Place the paper towels and gloves in a Zip-lock bag and discard bag in biohazard box (see Chapter 9). If contact with bleach occurs with skin, mucous membranes or eyes, flush area with copious amounts of water.
- Wash hands thoroughly. Autoclave an overtly contaminated lab coat to prior to placing into laboratory laundry bag.

□ Report incident to supervisor and Principal Investigator.

8.1.3 Spills inside of a Biological Safety Cabinet (BSC)

If the spill is inside a biological safety cabinet, follow the following procedure:

□ Leave BSC on.

□ Put on gloves and lab coat and gather paper towels for cleaning.

□ Prepare a fresh dilution of 1:9 bleach or approved disinfectant. Prepare enough solution to cover the entire contaminated area. Always follow manufacturer's directions. Do not use 70% ethanol as it evaporates too quickly to allow adequate surface contact time.

□ Flood the area with disinfectant solution and allow to remain in contact for required time:

□ 10% Bleach for 10 minutes; or, Cavicide (full strength) for 3 minutes; or, Beaucoup (diluted according to manufacturer's directions) for 10 minutes.

□ Spray and or wipe down the cabinet interior and any items inside the BSC with a towel dampened with disinfectant.

□ Place the paper towels and gloves in a Zip-lock bag and discard bag in biohazard box (see Chapter 9).

□ Spills large enough to result in liquids flowing through the front or rear grilles require more extensive decontamination; consult BSO immediately at (mdooley@astate.edu), for guidance. If a spill such as this has occurred, do not turn the BSC off.

□ Report incident to supervisor and Principal Investigator.

8.1.4 Spills in a centrifuge

Biohazardous spills in centrifuges can be quite difficult to disinfect. Some but not all centrifuges have

closed rotors, buckets or other carriers with leak proof lids, designed to contain spills and allow efficient,

safe emptying and decontamination. However, not all centrifuges are equipped with these containment

devices. A spill resulting from primary container breakage requires immediate suspension of use, PI notification and assistance from the Biological Safety Officer.

If unusual sounds from a centrifuge suggest that breakage and a spill has occurred, or, if breakage and a

spill is discovered after the machine has stopped, wait at least 30 minutes after centrifuge has stopped

before opening. This will allow hazardous aerosols to settle in the centrifuge. Then, follow this procedure:

□ Don lab coat, gloves, and face shield prior to opening centrifuge and then open carefully to assess the situation. Use of a respirator is recommended and double gloving is advisable if glass tubes were used and broken.

□ Attempt to determine if the spill is contained in a closed cup, bucket or tray carrier, or within a closed rotor. If the spill is contained as described in (2), spray the exterior with disinfect and allow adequate

contact time. Take the carrier to the nearest BSC approved for use with this agent. NOTE: If a BSC is not available or if the rotor cannot be removed, the centrifuge should remain closed. Post a sign indicating "contaminated-do not use". Notify lab director and or PI and contact BSO at (mdooley@astate.edu), for assistance.

□ Obtain and place into the BSC containers suitable for holding tubes, broken glass or other containers while cleaning centrifuge components.

- Carefully retrieve unbroken tubes, wipe outside with disinfectant, and place them into the other empty container in the BSC, out of the way. The broken glass tube(s) must be removed with a forceps or other instrument and immersed in a beaker of disinfectant solution for a time appropriate to achieve disinfection. The pieces can then be disposed of in a sharps container.
- After proper decontamination, carriers, rotors etc. can be washed with a mild detergent according to the manufacturer's instructions.
- Thoroughly wipe the inside of the centrifuge chamber with disinfectant saturated towels. Allow for adequate contact time before wiping up excess liquid. Place the paper towels and gloves in a ziplock bag (if you do not have any on hand, contact EHS) and request pickup of the bag using the EHS waste pickup form (See chapter 9).

8.1.5 Biological/Radioactive emergencies/spills

EHS must be notified and will assist in the cleanup of a biological/radioactive spill. Determine if anyone has been contaminated, remove contaminated clothing and wash contaminated skin with soap and water. Proceed with clean up as instructed by the Radiation Safety Officer (EHS). The infectious agent will be neutralized first, taking care in choosing a disinfecting agent to avoid chemical incompatibility.

Chlorine compounds such as bleach must NOT be used to disinfect anything containing I-125 because the chlorine will cause the volatilization of radioactive iodine.

8.2 Exposure to Biohazardous Agents or Material

An exposure is defined as: BSL-2 agent contact with broken skin, eyes, nose, mouth, other mucous membranes, a percutaneous injury with a contaminated sharp, or contact with an infectious agent over

a large area of apparently intact skin. Individuals are encouraged to report any conditions that may increase risk or consequences of a laboratory acquired infection (e.g. pregnancy, a medical condition

which compromises immunity) to their PI. In the event of exposure:

- If the exposure creates a medical emergency, go to the closest emergency medical center or call 911.
- Wash the area with soap and water or flush eyes, nose or mouth with large amounts of water for 15 minutes.
- Students not employed by the university must report to the Student Health Center during business hours for personal exposures. During off hours, an outpatient facility may be used if necessary.
- All exposures must be reported to the immediate supervisor and Principal Investigator. The Principle Investigator is responsible for helping the employee in beginning the Workman's Compensation process and reporting the exposure. EHS personnel will instruct the supervisor and the employee on what to do.
- Principal Investigators are responsible for reporting exposure incidents to Biosafety Officer. The Biosafety Officer will perform a follow-up investigation of the incident and report findings to the Institutional Biosafety Committee (IBC).

8.3 Security incidents

Security incidents such as suspicious visitors, missing chemicals, or missing biological agents must be

promptly reported to the Principal Investigator. University Police should be notified. Principal Investigators are responsible for reporting incidents to EHS.

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