I. Purpose

Biohazardous material usage on the Scott & White campus is regulated by the Scott & White Institutional Biosafety Committee (IBC). Those investigators choosing to perform research with biohazardous materials must abide by the guidelines set forth in the IBC Policies and Procedures as well as the specific protocol approval(s) obtained by the investigator from the IBC. The purpose of this document is to outline the procedures necessary to handle a biohazardous material spill within the laboratory or by transport on the campus outside the laboratory.

II. Scope

This procedure covers all individuals doing research-related activities with biohazardous material on the Scott & White campus, including transportation of biohazardous materials on campus.

III. Definitions

Biohazardous materials – materials of biological origin (infectious or not) that present a risk or potential risk to the health of humans, animals or the environment. The risk can be direct or indirect. These materials include: recombinant DNA molecules; synthetic DNA that may code for toxins or other hazardous agents; microorganisms containing recombinant/synthetic DNA molecules; microorganisms classified as Risk Group 2 (RG-2), RG-3, or RG-4; biological products derived from RG-2, RG-3, or RG-4 microorganisms; biological toxins; human cells (primary or cell lines), blood, body fluids, tissues, or other potentially infectious material (OPIM); animal cells, blood, body fluids, tissues or OPIM if the animals have received either RG-2, RG-3, or RG-4 microorganisms or have received material derived from humans; and nanomaterials.

Major Spill – Usually defined as greater than 10 mls of material that has the potential to spread rapidly, presents an inhalation hazard, endangers people or the environment, and/or involves personal injury or rescue and should be handled as an emergency.

Minor Spill – Usually defined as less than 10 mls of material that has a low potential for spread or aerosolize, presents no danger to the environment or people.
Risk Group 2 (RG-2) agent – microorganism that is associated with human disease which is rarely serious and for which preventive or therapeutic interventions are often available.

Risk Group 3 (RG-3) agent – microorganism associated with serious or lethal human disease for which preventive or therapeutic interventions may be available.

Risk Group 4 (RG-4) agent – microorganism that is likely to cause serious or lethal human disease for which preventive or therapeutic interventions are not usually available.

III. Basic Biological Spill Kit

A. basic biological spill kit should be present in all laboratories. The spill kit should consist of:

   A. Disinfectant (eg, bleach 1:10 dilution, freshly prepared)
   B. Absorbent material (eg, paper towels)
   C. Waste container (eg, biohazard bags, sharps containers)
   D. Personal protective equipment (eg, lab coat/gown, gloves, eye and face protection)
   E. Mechanical tools (eg, forceps, tongs, autoclavable dustpan and broom)

IV. Procedures

In general, the procedures described here are for minor spills. If a major spill occurs, or if you are uncomfortable managing a minor spill, immediately clear the area and notify the Safety Office for clean-up during normal work hours. After hours, please notify security.

A. Spill Inside the Laboratory Involving a Known RG-2 Agent

1. Clear the spill area of all personnel.
2. Remove any contaminated PPE and discard or decontaminate (if reusable).
3. Wash any exposed areas for 15 minutes with soap and water.
4. Place a sign on the door to the laboratory notifying people not to enter because of a biohazardous spill.
5. Inform your supervisor of the spill.
6. If necessary, seek medical attention through the Occupational Health Office (or Emergency Room if after hours).
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Policy #IBC.002

7. Wait 30 minutes for any aerosols to settle before re-entering the spill area.
8. Obtain and don proper PPE for clean-up (lab coat or gown, gloves, safety goggles at minimum).
9. Cover spill with paper towels or other absorbent material and flood the area with disinfectant (i.e. freshly-prepared 10% dilution of household bleach).
10. Allow the disinfectant to contact the spill for at least 30 minutes.
11. If there is any broken glassware, use forceps or tongs to remove into a sharps container.
12. Using the tongs, pick up paper towels or other absorbent material and dispose into a biohazard bag.
13. Wipe off any residual material using fresh paper towels and discard into a biohazard bag.
14. Re-apply disinfectant to the area and let stand for another 30 minutes.
15. Wipe up disinfectant with fresh paper towels or absorbent material and discard into a biohazard bag.
16. If equipment has been exposed to the spill, wipe the equipment with a paper towel soaked in compatible disinfectant and allow 30 minutes contact time before rinsing with water.
17. Remove PPE and wash with soap and water.
18. Re-open area to general use.
19. Inform supervisor about the spill and file an incident report with the Biosafety Office.

B. Spill Inside the Biosafety Cabinet of a Known RG-2 Agent

1. Ensure that you are wearing proper PPE, including lab coat/gown, gloves and safety goggles during clean-up.
2. Allow the Biosafety Cabinet fan to remain on during clean-up.
3. Place paper towels or other absorbent material on the spill, then apply appropriate disinfectant to the spill. Allow disinfectant to remain in contact with the spill for 30 minutes.
4. If there is any broken glassware, use forceps or tongs to remove into a sharps container.
5. Remove absorbent materials and dispose of in a biohazard bag.
6. Wipe up any remaining material with fresh paper towels and dispose of in a biohazard bag.
7. Wipe down inside the hood with 70% Ethanol and paper towels, then discard in a biohazard bag.

8. Discard gloves and run the Biosafety Cabinet fan for at least 15 minutes prior to starting work again.

9. Inform all users of the Biosafety Cabinet of the spill and subsequent clean-up. Report the incident to your supervisor and to the Biosafety Officer.

C. Spill Inside a Centrifuge of a Known RG-2 Agent

1a. If the spill is identified as you open the centrifuge, immediately close the centrifuge, inform personnel in the area of the spill and clear the laboratory.

1b. If the spill is identified as an out-of-balance centrifuge, stop the centrifuge but do not open, then clear the laboratory informing personnel of the potential spill.

2. Remove PPE and wash hands with soap and water.

3. Wait at least 30 minutes for aerosols to settle in the centrifuge.

4. Don proper PPE (lab coat/gown, face shield/safety goggles, and gloves) upon returning to the lab.

5. Carefully open the centrifuge, remove rotor and buckets to the nearest Biosafety Cabinet.

6. Thoroughly decontaminate the inside of the centrifuge using an appropriate disinfectant. Allow at least a 20 minute contact time before cleaning with absorbent material.

   Discard all material into a biohazard bag.

7. Using paper towels wet with disinfectant, wipe down the interior of the centrifuge. Dispose of in a biohazard bag.

8. Decontaminate rotor and buckets using appropriate disinfectant. If rotor and buckets are small enough, this can be done in a rigid plastic tray, deep enough to contain the rotor and buckets, submerged in disinfectant. Allow a contact time of at least 30 min.

9. After decontamination, the disinfectant can be discarded in the sanitary sewer.

10. Wipe down the rotor and buckets with paper towels (absorbent material) wet with disinfectant. Allow to dry in the Biosafety Cabinet.

11. Report the incident to your supervisor and to the Biosafety Officer.

D. Spill Outside the Laboratory of Known or Unknown (Clinical Sample) Biohazardous Agent
Always transport biohazardous material in an unbreakable, well-sealed primary container, placed inside a leak-proof, closed and unbreakable secondary container, labeled with the biohazard symbol.

1. Should a spill outside the laboratory occur, immediately clear the area of personnel.
2. Contact the Biosafety Office for assistance in clean-up.
3. If the spill occurs after hours, please notify security.
4. Report the incident to your supervisor and the Biosafety Officer.