

**University of Arkansas for Medical Sciences
Biosafety Level-3 Facility Safety Manual
Standard Operating Procedure**

**December 2012
Reviewed October 2013**

Table of Contents

- A. Purpose
- B. Personnel Requirements
- C. Personnel Entry into BSL3
- D. Entry of Animals, Caging, Equipment and Trash
- E. Exit of Animal Caging, Equipment and Trash
- F. Exit of Personnel
- G. BSL-3 Facility Maintenance and Repair
- H. Emergency Procedures
- I. Special Concerns
- J. BSL-3 Committee membership
- K. BSL3 Laboratory Diagram
- L. Certification and Approvals

University of Arkansas for Medical Sciences
Biosafety Level-3 Facility Standard Operating Procedure

- A. The purpose of this facility is to provide a laboratory for experimentation utilizing pathogens which require biosafety level-3 (BSL-3) containment.
1. The facility consists of a suite of four rooms; an ante room, a dressing room separated into outer (clean) and inner (dirty) areas, an animal room containing four cubicles, and a procedure laboratory.
 2. The BSL-3 Committee, appointed by the Chancellor will review investigator proposals for use of the facility, standard operating procedures, monitor safety procedures, adjudicate disputes, and, in the case of flagrant disregard of safety procedures, exclude individuals from the facility.
 3. Investigators wishing to use the facility must request access from the BSL-3 Committee. The investigator must provide documentation that protocols have been approved by the appropriate Committees (Biosafety, Animal Care and Use, and/or Radiation Safety). A list of all personnel to be granted access to the facility must be provided to the Committee and up-dated as necessary.
 4. As this is a shared facility, it is the responsibility of each principal investigator using the facility to ensure that all personnel with access are properly trained and that safety protocols are scrupulously followed. When more than one investigator are utilizing the facility for different projects/agents, each person having access to the facility must be trained with regard to safety protocols and emergency measures specific to each of the agents being used, regardless of whether they are working with that agent or not.
 5. If a "select agent" is to be used in the facility, additional security, including background checks, and record-keeping requirements in keeping with CDC regulations, must be strictly followed by all users.
- B. Personnel
1. Entry into the BSL-3 facility will be strictly limited to individuals with specific authorization from the BSL-3 Committee to enter.
 2. No person will be admitted into the BSL-3 facility unless he/she has had specific training/instruction in operation, entry, and exit of the facility. It is the responsibility of the principal investigator to insure that each individual working in the unit receives proper training. Written records must be maintained of their training.
 3. Appropriate medical screening and immunizations will be provided for personnel. Investigators must provide pertinent information to the BSL-3 Facility Committee, so that other users may be notified. Serum samples must be collected for storage from all individuals prior to access to the facility.
 4. Carelessness, negligence or disregard of rules by personnel (technicians and/or investigators) are the leading cause of breaks in bio-containment. In that this facility at any given time may contain human pathogens, strict adherence to this standard operating procedure must be followed. The BSL-3 Committee will monitor procedures

and review complaints. Deviation from proper procedure will be grounds for denial of access to this facility.

5. No individual under the age of 16 is allowed in the BSL3 laboratory suite.

C. Personnel Entry

1. Personnel may enter into the BSL-3 facility area only through the dressing area.
2. Entry into the BSL-3 facility suite is as follows:
 - a. Prior to entering the dressing area, personnel must log-in (use board located at entrance to lab suite).
 - b. Personnel enter the outer (clean) dressing area and must put on disposable gowns and other appropriate safety apparel (masks, gloves, shoe covers, etc.).
 - 1) Respirators will be used dependent on CDC Biosafety guidelines for specific pathogens. Users must complete a physical exam and a respirator fit test by UAMS Office of Occupational Health and Safety before they will be approved to wear a respirator.
 - 2) Personal items such as jewelry, watches, etc. should not be worn into the BSL-3 facility. Lockers are available to store personal items.
 - 3) Individuals who wear contact lens must wear eye protection while in the laboratory.
 - c. Personnel will then walk through the inner (dirty) dressing area and on into the BL3 containment area.

D. Entry of Animals, Caging, Equipment, Feed, Bedding, Etc.

Animals, large equipment, and supplies are placed in the ante room. An authorized BSL-3 user, who has entered the BSL-3 facility through the dressing area and put on protective clothing, will open the door between the animal room and the ante room and bring the animals, equipment, or supplies into the containment area. The corridor door must not be opened while either of the doors to the containment area is open.

E. Exit of Animal Caging, Equipment, trash, etc.

1. Personnel are responsible for timely removal of their own trash. Trash should be removed before the user leaves the facility.
2. All equipment, supplies, etc. must go through appropriate decontamination before exiting from the BL3 facility. Careful thought should be given to decontamination before items are brought into the BSL-3 facility.
3. Trash, infectious waste, sharps containers, animal caging, and equipment is autoclaved prior to removal from the barrier. The autoclave is loaded from the containment area, closed, operated, and emptied from the ante room.

Hypodermic needles and syringes should be used only for parenteral injection or aspiration of fluids from laboratory animals and diaphragm bottles. Only needle locking syringes or disposable syringe units will be used. Needles should not be bent, sheared, replaced in sheath, or guard removed from the syringe following use. The needle and syringe will be promptly placed in a puncture resistant sharps container and decontaminated through the autoclave before discard.

4. Animal carcasses will be double bagged in red biohazard bags, decontaminated on the outside, and passed through the door to the ante room for incineration.
5. Biological materials may be placed in sealed, leak-proof containers, the outside of which is decontaminated. Such containers can then be carried through the dressing rooms during normal egress procedures.
6. All nondurable items which cannot be autoclaved must be decontaminated to exit the BSL-3 facility and sterilized appropriately before being opened.
 - a. Small items such as small instruments or other equipment will be wiped with a disinfectant solution and sealed in a biohazard bag.
 - b. The bag will be immersed or sprayed with a sterilant and carried through the shower as personnel exit.
 - c. After exiting the barrier, the bag and contents may be sterilized by an appropriate method.

F. Exit of Personnel

1. To exit the facility, personnel will enter the inner (dirty) dressing area and remove disposable gowns, gloves, caps, masks, etc. and place them in a red biohazard trash bag.
2. Personnel will then carefully wash their hands using germicidal soap and exit through the outer (clean) dressing area.
3. Personnel must log-out upon exiting the facility.

G. BSL-3 Facility Maintenance and Repair

1. Once weekly, the dressing areas, ante room, laboratory and animal room will be mopped using 10% bleach.
2. Facility maintenance staff or outside vendors will be requested to work on mechanical, electrical, plumbing or other utility systems that are not contaminated or have been decontaminated.
3. No maintenance staff member or outside vendor will be left unattended; an authorized escort will be available at all times.

H. Emergency Procedures

1. Fire in Laboratory
 - a. Discontinue research and secure all research materials.
 - b. Evacuate immediate area and close the door
 - c. Call 686-5333 to report fire
2. Fire Emergency in Building
 - a. Discontinue research and secure all research materials.
 - b. Evacuate the building using appropriate exit.
 - c. Re-enter the building only when an all clear is sounded.
3. Failure of Air Supply and/or Exhaust System
 - a. Discontinue research and secure all research materials
 - b. Evacuate immediate area taking care to properly decontaminate before leaving.

c. Signage must be placed on the door instructing personnel to leave the door closed and not enter until cleared by PI or Responsible Official.

4. Failure of Biological Safety Cabinet

a. In the event the BSC alarm sounds, immediately discontinue procedures in BSC

b. Secure biological agents, decontaminate working surfaces and cease work in the BSC until the alarm is resolved.

c. Signage must be placed on the door instructing personnel to leave the door closed and not enter until cleared by PI or Responsible Official.

5. Spill/Release of Biological or Chemical Materials

a. In case of a spill of infectious materials, personnel should quickly cover the spill with absorbent material,

b. Immediately decontaminate their gloves, exit the facility, and notify the lab supervisor.

c. The lab supervisor will then enter the lab after 2 hours has elapsed and clean the spill according to the PI's SOP.

d. The Director of the BSL-3 Facility, Responsible Official and/or the UAMS Biosafety Officer must be notified of an accident immediately, so that other users may be notified.

e. Signage must be placed on the door instructing personnel to leave the door closed and not enter until cleared by PI or Responsible Official.

6. Shower

a. The shower is located in the dressing area. The shower is to be used when there is a gross biological or chemical contamination.

b. Contaminated clothing should be left on the "dirty side".

c. Exit shower to the clean side where clean PPE can be found.

d. All exposures must be reported to the PI, Biosafety Officer and Responsible Official.

7. Exposure to Biological Material

a. Report all incidents, however minor, to the Biosafety Officer and PI.

b. Complete an Incident Injury form, either online or by paper copy.

c. Contact Student Employee Health for immediate follow-up (686-6565) or if after hours contact the Emergency Department at 526-2000.

8. Building Power Failure

a. In the event of a power loss, personnel should immediately evacuate the facility taking care to decontaminate before leaving.

b. Do not enter facility until power has been restored.

c. Signage must be placed on the door instructing personnel to leave the door closed and not enter until cleared by PI or Responsible Official.

9. Flood

a. In the event of a flood, discontinue all research, secure research materials, and decontaminate work area.

b. Remove all materials or equipment from the floor, move any equipment likely to get wet and exit the facility.

c. Management of a flood in this facility presumes that water is not contaminated since all research materials are secured.

d. If this is not the case, contact the Biosafety Officer, PI and Responsible Official immediately.

10. Medical Emergency

- a. In the event of an emergency the PI or Responsible Official should be contacted immediately.
- b. Located in the lab is an emergency call box that will connect directly to the Campus Operations Call Center or you may reach them by calling 526-0000.
- c. Because of the isolated status of the BSL3 laboratory, all work should be scheduled with the PI or other BSL3 lab worker to ensure someone is available in the event of an emergency.
- d. When work requires an extended amount of time (> 1 hour), the PI or other lab worker should be contacted hourly to confirm status (buddy system).

I. Special Concerns

1. No doors may be propped open.
2. Biological safety hoods will be checked for operation each time they are used and certified annually. Any malfunction will be immediately reported to the director of the BSL-3 facility and the hood will not be used until its operation is satisfactory.
3. Any malfunction of autoclave will be immediately reported to the director of the BSL-3 facility.
4. This SOP is designed as a general reference. Particular requirements will be put into effect dependent on the pathogens utilized.
5. The inner lab, 132G contains a "hands free" sink, #16. An additional "hands free" sink is located in the area across from 132E. (Diagram enclosed)
6. No individual under the age of 16 is allowed in the BSL3 laboratory suite.

J. BSL-3 Committee (current)

Dr. Lee Soderberg, Chairman
Ms. Carol Price (Safety Officer)
Dr. Jon Blevins
Dr. Richard Morrison
Dr. Roger Rank
Dr. Victor Robbins

K. BSL3 Laboratory Diagram



