A. PURPOSE: Many animal use protocols entail the administration or exposure of the research animals to potentially hazardous chemical agents or pathogens. The Center for Disease Control (http://www.cdc.gov/od/ohs/biosfty/bmbl4/bmbl4toc.htm) categorizes the hazardous pathogen exposure into 4 separate levels with level 4 being the most hazardous, to level 1 being of minimal potential hazard to laboratory personnel. Level 1 animals can be housed in standard specific pathogen free (SPF) ULAM housing with no additional precautions or signage. The University of Michigan animal facility currently houses Animal Biosafety Level–1 (ABSL-1) and Animal Biosafety Level–2 (ABSL-2) and will soon house Animal Biosafety Level–3 (ABSL–3). Animal Biosafety Level – 4 (ABSL–4) pathogens are not permitted at the University. Please refer to the ULAM document on containment procedures (http://www.ulam.umich.edu/sops/ULAM%20Containment%20SOP%20010606%20with%20appendix.pdf) if you have any questions on pathogen levels.

B. PROCEDURES: Since many of the animals used in the imaging core are immunodeficient nude or SCID mice, it is very important that all users with ABSL-2 pathogenic animals adhere to the strict hygienic guidelines provided in this Standard Operating Procedure (SOP) to prevent cross contamination of animals. The following guidelines have been devised to ensure the likelihood of a zoonotic pathogen being transferred between animals has been minimized. This SOP also details the required procedures for users imaging animals harboring chemically hazardous agents that require containment housing. This housing requirement should be detailed in the beginning pages of your approved animal protocol. Please contact Amanda Fair at awelton@umich.edu for further information.
1. ABSL–2 animals or chemically hazardous animals requiring containment housing that will be imaged at the Center for Molecular Imaging (CMI) must be housed at a specific containment room within CMI’s facility in BSRB (Room D272). After imaging animals cannot return to any other housing location.

2. Specific PPE must be worn when entering or working within this containment room. This includes disposable gown, gloves, surgical mask, shoe covers, hair cover, and gloves. It is also recommended that safety glasses (prescription eyeglasses cannot be used to replace safety glasses) be used when hazardous substances are being injected into the animals.

3. All procedures involving injection of the hazardous materials should be performed in the containment room under the biological safety cabinet provided in the anteroom (room D270).

4. Before bringing animals into the imaging room, transfer the animals into a clean cage under the biological safety cabinet within the anteroom (room D270) using micro-isolation techniques. Please contact ULAM or visit www.ulam.umich.edu if you need a refresher course or are unsure of the proper micro-isolation techniques. **NOTE: DO NOT FOLLOW BSRB TRANSFER ROOM PROCEDURES WHEN USING THE CMI FACILITIES.**

5. A cart is kept in the hallway to assist in the transfer of cages from the animals rooms to the imaging rooms. Please note that the transfer cart cannot enter either type of room.
6. When leaving the containment room, please dispose of all PPE prior to entering the hallway. New PPE must be donned once entering the imaging room. Users with hazardous animals are required to put on a new disposable gown, bonnet, booties, mask and gloves. Upon entering the imaging room users imaging the hazardous animals must post the hazard warning sign on the door as notification. Any personnel in the imaging room with hazardous animals but not working directly with them must wear shoe covers and dispose of them before leaving the imaging room.

7. Prior to imaging, users are responsible for cleaning all imaging equipment and counters that will be used. Dry the surfaces with a clean paper towel and dispose of the dirty towel in a garbage container.

8. A black, disposable paper is to be used to line the imaging chamber of the bioluminescent machine. A disposable blue pad should be used to line the bed of the PET/SPECT/CT chamber and the MR imaging coil.

9. Gloves are to be removed when working with computer keyboards as this equipment is very hard to sanitize.

10. Please maintain MI technique as much as possible. Spray gloves and clean equipment with provided Virex solution in between animal cages to reduce the possibility of cross contamination.
11. When imaging is concluded, liberally spray induction chamber, work benches and other surfaces with Virex solution where it may have come into contact with animals. Leave on for ~10 minutes and wipe clean with a paper towel. Dispose of the dirty towel(s) in the appropriate hazard container.

12. There are two hazard containers within the imaging room. One is for biological hazards and one is for chemical hazards. Please use the correct container for your hazard and when disposing of chemically-contaminated PPE or paper products be sure to record the hazard on the provided waste log. NEVER put carcasses or liquids in these containers.

13. Remove black paper from bioluminescent chamber and dispose of it in the hazard container. Remove the blue pad from the PET/SPECT/CT chamber and the MR imaging coil and dispose of it in the hazard container. Do not spray directly into the imaging chambers but rather spray a paper towel and wipe down the imaging platform or MR coil after removal of the black paper or blue pad.

14. Before leaving the imaging room discard all PPE.

15. Take animals back into the hazard containment room (room D272). Dispose of all PPE before exiting the isolation anteroom (room D270). Repeat these steps if additional cages of animals are to be taken into the imaging area.
16. When euthanizing hazardous animals users must use the CO$_2$ gas line within the anteroom (room D270) of the containment area. All procedures should be done within the biological safety cabinet including opening the cages, euthanizing the animals and double-bagging the carcasses. The outer carcass bag should then be fully labeled (with hazard sticker and hazardous agent) and placed in a hazard drum within the carcass cooler (room D050).

16. All sharp objects such as scalpel blades, hypodermic needles, Pasteur pipettes and, contaminated broken glass etc. must always be disposed of in the approved "sharps bins". **USED NEEDLES MUST NOT BE RECAPPED AFTER USE.** The needle syringe assembly should be placed promptly in a sharps bin for disposal. Do not leave uncapped needles or sharps on surfaces. Please refer to the OSEH website and the "Guidance on the Use of Sharps" [http://www.oseh.umich.edu/sharps_guide.html](http://www.oseh.umich.edu/sharps_guide.html) for further information.
I have reviewed these procedures and will comply with them.

Print name: ____________________________________________

Signature: _____________________________________________

Date: _________________

Fax this completed page to Amanda Fair at 734-615-1599.