Lab Closure Summary (DRAFT)

**Principal Investigator (PI) Responsibility**

* Notify EHS at least 30 days in advance prior to closing, relocating, renovating, or vacating a lab or space.
* Ensure that all surfaces are been cleaned. Appropriately decontaminate any potentially contaminated surfaces or equipment.
* Label all chemicals.
* Ensure chemicals are handled appropriately and in accordance with regulations and UK Policies.
* Ensure all lab personnel understands the lab hazards, follow proper procedures, and use adequate personal protective equipment.
* Modify, update or clear with for the lab location, any approval, permits, licenses, or registrations (e.g. Biosafety/IBC registered biohazard, BioRAFT registration, radiation or laser use approvals, USDA or CDC permits, DEA licenses, IACUC or IRB protocols, etc).
* Appropriately remove all chemical, biological, and radiological materials and/or hazards and equipment.

Colleges and Departments Responsibility

* Responsible for all deficiencies identified by EHS in absent of a PI.
* Submit a Lab Closure notification to EHS prior to closing, relocating, or renovating vacating a lab.
* Modify, update or clear with for the lab location, any approval, permits, licenses, or registrations (e.g., Biosafety/IBC registered biohazard, BioRAFT registration, radiation or laser use approvals, USDA or CDC permits, DEA licenses, IACUC or IRB protocols, etc).

**EHS**

* Precautions to be taken during transfer of biological, chemical, and radioactive materials.
* Provide guidance as needed.
* Conduct radioactive stock material transfers if transfers involve movement of such materials between unconnected buildings.
* When contacted by a lab for hazardous waste removal, schedule a waste pick up for the laboratory. EHS will provide containers for waste collection.
* When contacted for a laboratory closeout survey, verify all close-out activities have been completed appropriately. If contamination or hazards are identified, EHS will notify the PI.
* The PI and Department Chair will be notified by EHS once the close out process is complete and verified.

# HAZARDOUS MATERIALS AND CHEMICAL WASTE

Chemicals in Laboratories and Containment Areas

Before the individual(s) leaves the laboratory, the following procedures must be completed:

STEP 1: Assure that all containers of chemicals are:

* + - * labeled including the name of the chemical
      * containers are tightly closed
      * containers are in good condition
      * evaporating dishes, etc. have been emptied
      * chemical wastes must not be disposed of down the drain.

**STE P 2**: Submit e-Trax tickets for the disposal of hazardous waste and hazardous materials. Hazardous waste labels are available through EQM free of charge.

STEP 3: All laboratory equipment, including glassware, refrigerators, freezers, fume hoods, vacuum pumps, storage cabinets and bench tops and sinks must be thoroughly cleaned of chemicals and decontaminated before leaving the laboratory. After decontaminating equipment, remove any safety stickers and attach an Equipment Clearance Form so the equipment can be transported or disposed of appropriately.

* As an alternative to disposal, if the chemical is still usable, the material can be transferred to another researcher. However, some materials require approval prior to use. Please contact EHS prior to transferring hazardous materials.
* For unwanted chemicals, determine which chemicals are usable and if another party is willing to accept the materials or if you would like to donate the materials to the Upcycle Chemical Program. Contact EQM for a quick assessment of chemicals to be donated.

All lab containers (beakers, flasks, etc.) must be emptied and cleaned.

Wash all fume hood surfaces and counter tops with soap and water.

* **Gas cylinders**. Remove regulators, replace caps, and return to supplier. If cylinders are non-returnable, submit for disposal through e-Trax system. Gas cylinders used in the containment must be decontaminated prior to return.
* Chemicals moved to new space within the same building, or an attached building may be able to be performed by the laboratory staff, nevertheless, across campus or off campus moves require several weeks of advance notice for EQM staff to assist and schedule with the move.

**Chemical Transportation on Campus**

Chemicals are to be moved to a different facility by following these procedures:

* All containers of chemicals must be labeled with the name of the chemical
* Containers must be securely closed
* Stock solutions must be transferred to containers intended for use in transportation such as screw cap bottles and carriers.
* Transportation requirements for chemicals are the same for hazardous waste.

Chemicals offered for shipment must be grouped together on lab benches or on shelves to facilitate removal.

**Gas cylinders**: remove regulators, replace caps, and attach tag with the name of the person responsible for the material including a phone number. A licensed transporter must be contacted to package and deliver the materials to the new location.

No persons can transport hazardous materials themselves.

**Controlled Substances**

Controlled substances must be disposed of prior by licensee/registrant leaving campus. The registrant/licensee or an authorized agent must contact EQM to arrange for disposal via a DEA approved method. Allow plenty of time prior to leaving campus to arrange for disposal. The EQM **CANNOT** dispose of these materials for you. All controlled substances must be kept secure until an appropriate disposal method can be arranged. It is the responsibility of the licensee/registrant to ensure that controlled substances are always secure. **CONTROLLED SUBSTANCES CANNOT BE LEFT IN THE LABORATORY AFTER CLOSEOUT.**

Information regarding transferring your DEA registration to a new location or having the registration retired can be found on the DEA website.

**Radioactive Material Use Areas Closeout**

Prior to close out of radioactive materials use areas, release of radioactive use equipment and/or radioactive materials approvals, it is the responsibility of the approved principal investigator to assure that the following steps have been completed:

* Contact the Radiation Safety Officer (RSO) at RAD to inform them of the intended transfer or close out. The materials to be moved will be reviewed and a laboratory visit will be scheduled with them to provide guidance on labeling and packaging the materials to be relocated.
* A copy of the most recent inventory of radioactive materials possessed by the principal investigator will need to be submitted to the RSO to facilitate the close out, transfer, or disposal process.

EHS must authorize any transfers to other principal investigators or to off campus licensees prior to the transfer. The receiving principal investigator must be approved for the nuclide and quantity of activity and must not exceed the authorized amount after receipt of the transferred material. Any material being shipped off campus will be shipped by EHS.

Package the radioactive materials as directed by the Radiation Safety, in strong tight containers. Each container must be contained and segregated properly according to the nuclide and amount of activity in material, whether it is waste, stock vials, sealed sources, contaminated equipment, samples, etc.

Contact EHS to schedule a pick-up of the radioactive materials. **ALL RADIOACTIVE MATERIALS MUST BE TRANSPORTED BY RADIATION SAFETY DEPARTEMENT; TRANSFER BY THE LABORATORY STAFF IS PROHIBITED IF MOVED BY VEHICLE.**

After the removal of all radioactive materials, perform a survey of the entire laboratory, including all use, storage, and disposal areas. Refrigerators and freezers, community use areas, incubators, fume hoods, and any other areas and equipment which may potentially be contaminate must be included. Document the survey. If contamination is found, it must be decontaminated prior to release of the facility**. NO FURTHER USE OF RADIOACTIVE MATERIALS IN THE ROOMS IS ALLOWED UNTIL THE CLOSE OUT IS FINALIZED AND THE AREAS ARE RELEASED BY EHS.**

Contact the Radiation Safety Officer (RSO) to arrange for a close out survey. This must be completed, with records maintained, before new occupants may move into the area. Warning labels and postings will be removed by EHS Radiation Safety Staff.

Prior to moving radioactive materials into a new use area, principal investigators must obtain prior approval from the RSO. New rooms to be occupied must be approved for radioactive materials use, and facilities must be appropriate for the types and quantities of radioactive materials to be used. Radiation Safety Staff will provide appropriate postings and labels.

Equipment used for or with radioactive materials must be surveyed and released by EHS prior to transfer to other locations or users.

**Lasers**

Contact Radiation Safety Department Laser Safety personnel for information on transfer or decommissioning.

**Mixed Hazards**

Contact EQM for combined chemical, radioactive or biological materials.

# BIOLOGICAL MATERIALS and Infectious Substances

**Overview**

This document provides guidance on exiting and closing laboratories that have contained or where work has been performed with potentially hazardous biological materials. Potentially Hazardous Biological Materials may include:

* Infectious agents (viral, bacterial, fungal)
* Recombinant nucleic acids (ex: plasmids with inserts)
* Infected animal blood and/or tissues
* Human blood, blood products, fluids, tissues, cell lines
* Cell lines exposed to recombinant material, infectious agents or containing endogenous viruses
* Viral Vectors
* Live vaccines
* Biological toxins (ex: ricin, tetrodotoxin, botulinum neurotoxin)

When you have completed the following procedure, please contact the Department of Biological Safety (257-1049) to complete the exit audit which is required before any

researcher performing work with biohazardous materials leaves the university.

505 Oldham Court

Lexington, KY 40502-0473

**Phone**: (859) 257-1049

**Fax**: (859) 323-3838

**Email**: [ehsbiosafety@uky.edu](mailto:ehsbiosafety@uky.edu)

**Web**: <http://ehs.uky.edu/biosafety/>

**Procedure**

**Step 1** Determine which potentially biohazardous materials will be moved to your new location, transferred to another investigator, or disposed.

A. If biohazardous materials will be shipped, all appropriate DOT/IATA regulations must be followed. See the Transportation of Biological and Chemical Materials Section for additional information.

B. Biological materials may be moved between U K laboratories using appropriate primary and **secondary containers.**

1. Primary containers.

a. Seal the agent in a leak-proof primary container. Typically this is the vial or container in which the agent is stored.

b. Small or delicate items should also be placed in a sealed, plastic zip-top style bag.

2. Secondary containers.

a. Place primary container in the secondary container.

b. Secondary container should be of a leak-proof and shatter proof design capable of containing contents if dropped in transit.

c. Examples of appropriate secondary containers can be found at

[http://ehs.uky.edu/docs/pdf/bio\_le\_recommended\_secondary\_c on tainment\_devices\_0001.pdf](http://ehs.uky.edu/docs/pdf/bio_le_recommended_secondary_c%09on%20tainment_devices_0001.pdf)

d. Thin or non-reinforced Styrofoam containers are **NOT** appropriate for use as secondary containers. These types of containers are not shatter-proof.

e. Disinfect outside of secondary container with a 10% bleach solution followed by water or 70% ethanol to remove bleach residue.1

f. Label secondary container with a biohazard sticker (example at end of document).

3. Transport secondary container to new location.

a. Do not wear gloves while transporting the secondary container. Disinfection of the outer surface of the container removes the need for gloves.

b. Choose appropriate transport path.

i. Avoid high traffic areas and areas where patients are present.

ii. Use freight elevators.

iii. Minimize transport outside of buildings.

4. Remove primary container and place in new storage location.

5. Disinfect inside and outside of secondary container with a 10% bleach solution followed by water or 70% ethanol to remove bleach residue.1

**STEP 2:** No biohazardous materials or waste may be left in the laboratory. Please ensure that all biohazardous materials and waste remaining in the laboratory are properly decontaminated (autoclave or chemical disinfectant that is approved for the agent(s) of use in the laboratory) and disposed.

A. Check in cold rooms, freezers, and refrigerators for biological agents that could easily be forgotten. Old samples, chemicals, materials from past staff and students or inherited samples must be either disposed or moved.

B. Disposal of preserved specimens may require special handling since the preservative is usually a hazardous chemical. If the tissues/organs are small (mouse size organs) and not easily recognizable, the entire vial may be treated as chemical waste. However, larger human organs must be separated from the liquid preservative and disposed into red bag waste and the liquid collected as chemical waste. Please contact the office of Environmental Management (323- 6280) for disposal of either red bag or chemical waste.

C. All sharps’ materials shall be collected into an approved secure lidded sharps container and disposed through Environmental Management (323-6280).

**STEP 3**: Decontaminate all work surfaces including bench tops, doors, and cabinet handles with freshly prepared 10% bleach solution followed by water or 70% ethanol to remove bleach residue.

**STEP 4: EQUIPMENT DECONTAMINATION**

Decontaminate all equipment that has been used in conjunction or contaminated with biohazardous materials. Any equipment that has been labeled with the universal biohazard symbol must be inspected by the Biosafety Office after decontamination and be labeled with an equipment clearance signage (see Attachment X).

A. Clean inside and outside of equipment with soap and water.

B. Wipe down inside and outside of equipment with a disinfectant solution such as 10% bleach solution followed by water or 70% ethanol to remove bleach residue.

C. Have UK Biosafety inspect and post clearance signage.

D Below you will find specific decontamination information for common laboratory equipment.

1. Refrigerators/Freezers

a. Clean out refrigerator and defrost freezer if present.

b. Triage contents to reduce what is to be moved or disposed.

c. Refrigerators and freezers must be emptied of all contents.

2. Incubators and water baths

a. These must be drained of all standing water including water in ater-jacketed incubators.

3. Liquid nitrogen dewars

a. Remove contents of dewar.

b. Allow any remaining liquid nitrogen to evaporate from dewar in a well-ventilated area.

**Biological Safety Cabinets (BSC)**

1. Remove all contents from the BSC.
2. Wipe down inside and outside exposed surfaces with a disinfectant solution such as 10% bleach solution followed by water or 70% ethanol to remove bleach residue.1 At no time should the user attempt to access the inner mechanical system of the BSC.
3. The Biosafety Office will conduct risk assessment to determine if any further decontamination will be required. In certain cases, BSCs may need to be decontaminated by a certified contractor prior relocation or use by the next laboratory occupant. If you are exiting a laboratory that contains a BSC, please contact the Biosafety Office (257-1049) one month prior to your exit date to allow for sufficient time to schedule any additional required decontamination.
4. d. Have UK Biosafety inspect and post BSC specific clearance signage (example at end of document).

**STEP 5**: **SURPLUS OF BIOHAZARD LABEL EQUIPMENT**

Guidance for surplusing of biohazard labeled laboratory equipment may be found at

<http://ehs.uky.edu/biosafety/>.

**STEP 6**: **LABORATORY CLEARANCE**

When you have completed the appropriate decontamination procedures as described above, please contact the Department of Biological Safety (257-1049) to complete the **Exit Audit** which is required to receive a clearance for the laboratory room(s) and/or any equipment for which removal is necessary. An example of the lab clearance form can be found **Attachment X.**

**STEP 7**

A. Disposal of radioactive waste or equipment that contains a radioactive source (for example, liquid scintillation counters, gas chromatographs) must be coordinated through Radiation Safety (323-6777).

B. Oils must be removed from pumps, capacitors, power supplies, or other oil-filled equipment.

For assistance with analysis of the oil and assistance with oil disposal contact

Environmental Management (257-3285).

**Additional Notes**

A 10% bleach solution made within 24 hours followed by water or 70% ethanol to remove bleach residue is the most recommended disinfectant at UK. Appropriate contact time for 10% bleach is 15-20 minutes. However, laboratory personnel must choose a disinfectant that is approved for the agent(s) of use in their laboratory. Information on the approved method of disinfection for your agent(s) can be found in the Primary Investigator’s approved UK Institutional Biosafety Committee Registration Form.