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## **Laboratory Close Out Policy**

### **PURPOSE**

Due to the variety and amount of hazardous materials (biological, and chemical) routinely present in laboratories, laboratory relocations have the potential to negatively impact the safety of staff, research and the environment as well as the violation of federal, state and local regulations. The following guidelines are intended to assist laboratory personnel in planning and executing laboratory relocations.

### **SCOPE**

The following procedure must be used whenever a Drake University laboratory will be vacated for any reason (i.e., renovation, relocation, or termination of research activities).

### **RESPONSIBILITIES**

**Environmental Health and Safety (EHS)** will provide proper guidance for laboratory closeout. EHS will issue a final laboratory clearance for those vacated laboratories found to be compliant with these guidelines.

**Departments** are responsible for ensuring all Principal Investigators follow these guidelines to ensure laboratory clearance by ESH. Departments will be held responsible for the proper clearance of laboratory space, equipment and supplies of PIs failing to comply. Items left behind by vacating Investigators will become the responsibility of the Department Chair.

**Principal Investigators** are responsible for leaving laboratories in a state suitable for re-occupancy or renovation. PIs are responsible for ensuring the disinfection of equipment and counters, movement of equipment from the lab for surplus, repair, or relocation, and disposal of chemical, biological, and radioactive waste materials prior to vacating the space. The Principal Investigator is responsible for ensuring a safe work environment for laboratory personnel and complying with all applicable federal, state and local regulations and guidelines.

### **PROCEDURE**

Laboratory space cannot be re-occupied nor renovation work started until the space has been inspected and cleared by EHS. Many tasks must be completed prior to the final EHS close out inspection. The following checklists (appendices 1-5) are to be used as guides to facilitate clearance of the laboratory. This manual will explain how to handle-

- Chemicals and Chemical Waste

- Biological Materials, Sharps, and Biohazardous Waste
- General Lab Close Out

## APPENDIX 1

### As Soon As You Know You Will Vacate a Lab Checklist

| Date & Initial | AS SOON AS YOU KNOW YOU WILL VACATE A LAB  |
|----------------|--|
|                | 1. Assign a Lab Contact (someone trained and familiar with the health and safety hazards involved) to coordinate the Lab Close-Out Procedure. Someone must be available for contact by EHS and in charge of the move for your lab.   |
|                | 2. Notify EHS of your intended laboratory close out / move by completing the <a href="#"><u>Laboratory Close Out Notification Form</u></a> . Provide the date and time you would like to schedule your final walkthrough once the lab has been properly cleaned and all chemical, biohazards, and radioactive material have been removed. <i>If you have questions about this form or close out procedures please contact EHS.</i> |
|                | 3. Carefully inspect shared storage areas such as refrigerators, freezers, cold rooms, and flammable liquid cabinets, under sinks and under fume hoods. All items must be assigned to a responsible person. <b>If items are left behind and the responsible person cannot be determined, the Department will assume responsibility for any necessary clean-up/disposal.</b>  |
|                | 4. Fill out the appropriate close out checklist(s) for the hazards found in your laboratory.   |
|                | 5. If radioactive material is used in the laboratory a Radiation Safety Exit Survey must be scheduled and completed prior to lab move/close-out. To schedule the Exit Survey contact EHS.  |
|                | 6. An EHS representative will inspect your lab and sign the clearance sheet.   |

## APPENDIX 2

### General Lab Close-Out Checklist

| General Lab Close-Out Checklist (Page 1 of 2) |  |
|---|--|
|   | 1. Remove any absorbent covering and tape from all lab surfaces, including fume hood surfaces. If contaminated with hazardous materials dispose of the materials appropriately.  |
|   | 2. If you are moving, freezers do not have to be emptied as long as contents will not shift during the move. Freezers must be locked and / or taped shut. Exterior surfaces of freezers (doors and handles) must be wiped down with 10% bleach freshly made.   |
|   | 3. Refrigerators must be emptied before moving. All interior and exterior surfaces must be cleaned with soap and water and a 10% bleach solution. Exterior surfaces (doors and handles) must be wiped down with 10% bleach freshly made. The doors must be locked or taped shut for the move.  |
|   | <b>4. Equipment</b><br><br>A) Decontaminate surfaces of contamination prone equipment (e.g., refrigerators, incubators, water baths, centrifuges, etc. with 10% bleach freshly made. If equipment is to be released to non-lab personnel, (e.g. movers, repair services, surplus property), the equipment must have a Certification of Decontamination attached verifying that the equipment has been properly decontaminated. (appendix 3)<br><br>B) Incubators and water baths must be drained of all standing water, including water inside the jacket.<br><br>C) Old or damaged equipment that will not be moved to the new location needs to be completely wiped down, inside and out with 10% bleach before disposal. It is not acceptable to leave any surface contaminated for equipment to be discarded. Contact Facilities Services at 3955 if the equipment contains a compressor or refrigerant. <b>It is unacceptable to dispose of equipment in the trash.</b> |
|   | 5. Empty and properly dispose of all materials from all drawers, cabinets, and fume hoods. Wipe down the surfaces of the fume hoods and cabinets where chemicals were stored.  |
|   | 6. Ensure that all microtubes, pipette tips, glass Pasteur pipettes, etc., that may be lying on the floor under equipment or in corners are properly disposed before vacating the lab.   |
|   | 7. Make sure all broken glass and other glass waste is put in labeled, broken Glass containers for disposal by EHS   |
|   | 8. Place all disposable sharps (needles, syringes, blades, scalpels, etc.) in puncture resistant sharps boxes.   |



**General Lab Close-Out Checklist (Page 2 of 2)**

9. **Fume Hood Maintenance or Removal:** Remove all chemicals from fume hoods before work or removal begins.

**Protocol for Removal/Work on Chemical Fume Hoods**

- (a) Each investigator is responsible for making sure all chemicals are removed from fume hoods if work is to be done.
- (b) The Principal Investigator must submit a memo stating that **NO Perchloric Acid** has been used in the fume hood.

- 1. If the fume hood is a Designated Perchloric Acid Fume Hood or it is suspected or it is known that Perchloric Acid was used in a **Non- Approved Fume Hood, a wipe sample for contaminants will be performed by EHS. If the sample is positive for contaminants a wash down procedure will take place to rid any crystallization of the peroxides which was built up in a non-approved Perchloric Acid hood. This procedure usually takes 3-4 days including the wash down and analyzation. The cost of this procedure will be billed to the department whose occupants knowingly contaminated a Non-approved Perchloric Acid Fume hood.**
- 2. Each investigator is responsible for making sure all chemicals are removed from the fume hood if work or removal is to be performed.
- 3. If a hood has Asbestos present, the personnel performing work must be an asbestos certified worker.

10. Clean bench tops, shelves, cabinets and other lab surfaces where chemicals were stored or used to remove any residual chemicals with soap and water.

11. When Laboratory is completely clear, housekeeping can perform a general cleaning

## APPENDIX 3



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### **Certification of Decontamination of Laboratory Equipment**

***Purpose:***

All laboratory equipment must be free of hazardous materials (i.e., biological, chemical, radiological) prior to transport to the Drake warehouse or other destinations. Appropriate removal of hazardous materials will protect both the movers and those receiving the items.

Laboratory equipment that needs an evaluation prior to transport includes, but is not limited to the following: refrigerators, freezers, centrifuges, incubators, chemical fume hoods, biological safety cabinets and other items potentially contaminated with hazardous materials.

***Procedure:***

It is the responsibility of the equipment owner to remove all known hazardous materials and to decontaminate the equipment with a 10% solution of bleach.

Once the equipment owner has deemed the item "safe" for transport, they must affix this signed document to the equipment. Not all items from the laboratory will need a hazard assessment, such as computers, chairs, bookshelves, etc. However, if the movers are concerned for any reason about an item which does not include this signed document, they may request one prior to transport.

\*\*\*\*\*

***Equipment Owner Declaration:***

I have removed all known hazardous materials from this equipment. This includes surface decontamination (if applicable). To the best of my knowledge, this item is safe to transport and does not pose a hazardous materials risk to the movers or surplus personnel.

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Signature


\_\_\_\_\_  
Department

\_\_\_\_\_  
Phone

\_\_\_\_\_  
Date

## APPENDIX 4

### Chemical Safety Lab Close-Out Checklist

|  | <b>Chemical Safety Lab Close-Out Checklist (Page 1 of 2)</b>  |
|---|---|
|   | <p><b><i>General Standards</i></b><br/>Minimize the number of chemicals that need to be moved. Dispose of chemicals that are no longer needed. Ensure all containers to be moved are clearly marked as to the contents and hazard. Containers must be in good condition and must close securely. Ensure the outside of the containers are clean and not contaminated with any hazardous materials. If so segregate these chemicals for disposal.</p>  |
|   | <p><b><i>Unknown Containers</i></b><br/>Label any unmarked or unclearly labeled containers. Make every effort to identify any unknown substances since disposal of true unknowns is associated with high cost. If the contents of a container cannot be identified segregate it for identification during waste collection.</p>   |
|   | <p><b><i>Chemical Reuse</i></b><br/>Identify unopened chemicals that have not expired and will not be transferred to the new location. Such chemicals can be offered to neighboring labs. Donated chemicals must be removed from your chemical inventory and added to the receiving laboratory's chemical inventory.</p>  |
|   | <p><b><i>Pick-Up Requests</i></b><br/><b>Submit online pickup requests for chemical waste three working days prior to the lab relocation.</b><br/><br/><a href="http://drake.qualtrics.com/SE/?SID=SV_e41T6PpY8KHPTKd">http://drake.qualtrics.com/SE/?SID=SV_e41T6PpY8KHPTKd</a><br/><br/><b>Hazardous waste cannot be moved from one location to another. The presence of waste chemicals in your lab will delay final clearance by EHS.</b></p>   |
|   | <p><b><i>Chemicals Awaiting Disposal</i></b><br/>All chemicals that are not slated for transfer or relocation must be sent for proper disposal. Containers must be sealed and labeled with a hazardous waste or non-hazardous waste label.<br/><br/>No chemicals should be put into the trash or evaporated in a chemical fume hood. Only approved chemicals within acceptable limits should be discharged into the sanitary sewer system. Designate a safe, conspicuous, well-marked area to collect waste chemicals, keeping them properly segregated as prescribed in the <b><i>Chemical Segregation</i></b> section to facilitate collection.</p> |
|   | <p><b><i>Shared Storage</i></b><br/>Carefully inspect shared storage areas such as refrigerators, freezers, cold rooms, and flammable liquid cabinets. Old reagents must also be identified and disposed or moved to the new location.</p>  |



## Chemical Safety Lab Close-Out Checklist (Page 2 of 2)

### ***Small Compressed Gas Cylinders***

One time use small compressed gas cylinders will be removed for disposal or transported to the new location by EHS. Designate a safe, conspicuous, well-marked area to store cylinders prior to transport or disposal. Be sure to mark the cylinders as waste or “to be moved.” Any empty or unwanted reusable small compressed gas cylinders should be picked up by your gas supplier.

### ***Large Compressed Gas Cylinders***

Designate a safe, conspicuous, well-marked area to store cylinders prior to transport or disposal. Be sure that your cylinders remain properly secured in the old location prior to transport or disposal. Empty or unwanted reusable large compressed gas cylinders must be picked up by your gas supplier. Make arrangement with the gas supplier to transport large compressed gas cylinders to the new laboratory location. Prior to relocating cylinders, ensure the new location has adequate facilities to properly secure the cylinders upon arrival.

### ***Chemical Segregation***

Separate chemicals according to hazard class to ensure incompatible chemicals are not transported in the same container. Fisher, Baker and other chemical manufacturers use a color coded system for segregating chemicals. This may help you to separate them according to hazard class.

Flammables and Combustibles (Red)

Flammable Solids (Red)

Corrosive Acids (White A)

Corrosive Bases (White B)

Poisons / Toxins (Blue T)

Cyanides (Blue C)

Oxidizers (Yellow OX)

Peroxide Formers (Yellow PF)

Water Reactives (Yellow WR)

Organic Peroxides (Yellow OP)

### ***Chemical Inventory***

Update your written chemical inventory as you pack. You will be required to provide EHS with an updated inventory after occupying the new laboratory location.

### ***Spill Clean-Up***


Have spill clean-up materials on hand before packing. Wear the proper personal protective equipment (gloves, lab coat, safety glasses or goggles). Ensure each chemical container is labeled and lids are on tightly and in good condition. **Contact EHS (271-3804) if spills occur.**

### ***Transport Carts***

Use sturdy carts with raised edges on all sides to contain boxes when moving chemicals. Be especially careful when entering or exiting elevators as the wheels of some carts may get stuck and cause carts to tip over.

## Appendix 5

### Biosafety Lab Close-Out Checklist

|  | Biosafety Lab Close-Out Checklist (Page 1 of 2)  |
|---|--|
|   | 1. Assess your biological materials (rDNA, microorganisms, biological toxins, cell lines, tissues, organs, body fluids and biologically derived or contaminated media) and determine which materials will be moved to your new location, transferred to another investigator or disposed.  |
|   | 2. Investigators working with recombinant DNA, microorganisms or biological toxins must have Drake University's Hazardous Waste Advisory Committee (HWAC) registrations. The registration must be amended if relocating to new facilities within Drake University. Agents may be transferred to Investigators who have received prior HWAC approval.   |
|   | 3. Transfer of CDC / USDA Select Agents (including toxins above regulatory limits) requires the notification and approval of EHS <i>prior</i> to the move. See Listing of Select Agents- <a href="https://www.selectagents.gov/SelectAgentsandToxinsList.html">https://www.selectagents.gov/SelectAgentsandToxinsList.html</a>   |
|   | 4. Transport or shipment of biological materials off campus, requires current shipping certification to ensure Department of Transportation (DOT) / IATA shipping regulations are followed. Individuals must have current training in order to package these items for shipment.   |
|   | 5. Institutional Animal Care and Use Committee (IACUC) protocols must be terminated or transferred to another Principle Investigators prior to leaving Drake. Investigators terminating IACUC registrations must no longer have live animals when submitting the termination form. IACUC termination forms and change in Principle Investigator forms are available at the <a href="http://www.drake.edu/iacuc">IACUC forms page</a> . ( <a href="http://www.drake.edu/iacuc">http://www.drake.edu/iacuc</a> ) |
|   | 6. Check cold rooms, freezers, and refrigerators for biological agents that could easily be forgotten. Old samples from past staff and students or inherited samples <u>must</u> be either disposed or marked for moving to the new location. <b>Items left behind by vacating Investigators will become the responsibility of the Department Chair.</b>   |
|   | 7. Properly dispose of all biological waste. Dispose of all solid media, supplies and waste in biologically contaminated or biohazard / infectious waste bags as appropriate. Live cells, cultures, frozen stocks, etc. must be autoclaved prior to disposal.  |
|   | 8. Decontaminate all liquid biohazard waste by adding bleach to a final concentration of 10% by volume and allowing it 30 minutes of contact time before disposal down the drain with copious amounts of water.  |
|   | 9. Decontaminate all work surfaces with 70% ethanol, freshly prepared 10% bleach or another EPA listed disinfectant suitable for the agents utilized.  |
|   | 10. Place all disposable sharps (needles, syringes, blades, scalpels, etc.) in puncture resistant sharps boxes. Snap shut and deposit with biohazardous waste.   |





## Biosafety Lab Close-Out Checklist (Page 2 of 2)

|  |   |
|--|---|
|  | <p><b>11. Equipment used with biological materials</b></p> <p>a) Decontaminate surfaces of contamination prone equipment, e.g. refrigerators, incubators, water baths, centrifuges, with 70% ethanol, freshly prepared 10% bleach or another EPA listed disinfectant suitable for the agents utilized. NOTE: Bleach is corrosive. Allow 20 minutes of contact time to disinfect metal surfaces prior to rinsing with water or 70% ethanol to prevent rusting.</p>   |
|  | <p>b) Incubators and water baths must be drained of all standing water including water in water-jacketed incubators.</p>  |
|  | <p>c) Equipment to be discarded must have all surfaces disinfected. Equipment being submitted to the Drake University Warehouse must be accompanied by the <b>Certification of Decontamination of Laboratory Equipment</b> (appendix 3 of this policy)</p>  |
|  | <p><b>12. Biological Safety Cabinets</b></p> <p>a) Disinfect and remove the contents of the biological safety cabinet</p> <p>b) Disconnect the tissue culture vacuum flask and decontaminate by adding bleach to a final concentration of 10% and allowing it to sit 30 minutes before disposal down the drain.</p> <p>c) Disinfect all accessible surfaces within the biological safety cabinet with 70% ethanol, freshly prepared 10% bleach or another suitable EPA listed disinfectant.</p> <p>d) Re-certify any relocated biological safety cabinets before use. Facility Services or EHS can arrange for the relocation, maintenance, repair and recertification of biosafety cabinets. Contact EHS for assistance.</p> |
|  | <p><b>13. Ultra-low temperature (-80 °C) freezers</b> used for storage during lab relocations do not have to be emptied prior to moving if the contents will not shift during the move. Freezers must be locked. Microorganisms stored within the freezer must be secured within primary and secondary containment. Secondary containment must be leak-proof and labeled with a biohazard sticker. If transporting organisms classified as Risk Group 2 or greater, a Biosafety Placard must be posted on the freezer with the agent's name and PI's contact information.</p>   |
|  | <p><b>14.</b> All biological materials must be transported within Drake University utilizing primary and secondary containment. The primary and the secondary containers must be leak proof. The secondary container must contain enough absorbent material to absorb the entire contents of all the primary containers within. The outside of the secondary container must have the biohazard symbol and a label containing the name of the PI and the new laboratory room number. These packages must be moved by lab personnel only.</p>   |