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# Research/Teaching Laboratory Facilities Decommissioning Procedure

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## Overview

All laboratories, chemical storage areas, or areas where hazardous equipment or materials are being used or stored, must be decommissioned by the Principal Investigator (PI) and/or the associated department, then cleared by the Office of Academic and Research Safety (OARS) before the space may be assigned to new occupants or scheduled for renovation activities. The Principal Investigator (PI) and/or associated department are responsible for ensuring that the transfer and/or disposal of all chemical, biological, and radioactive materials is properly completed prior to vacating the space. Principal Investigators and Departments are responsible for waste disposal costs associated with laboratory decommissioning. In addition, the decontamination of equipment, chemical fume hoods, storage cabinets, biosafety cabinets and counters must be done and documented. Unwanted lab equipment, supplies, electronics, and furniture must be removed from the lab before the lab can be decommissioned/cleared by OARS.

## Applicability

The procedures described here must be followed when laboratories, chemical storage areas, or areas where hazardous equipment or materials at Northeastern University are to be vacated whether due to a Principal Investigator leaving the institution, research activities in a laboratory being relocated or terminated, or a renovation project being scheduled. OARS must be notified at least 60 days prior to the anticipated departure. Once notified, OARS can provide additional guidance or assist with a pre-closeout inspection to outline the safety issues that need to be addressed.

## Responsibilities

- **Principal Investigator(s)** are responsible for following these guidelines to ensure their laboratories are fully decommissioned prior to vacating the space.
- **Departments** are responsible for ensuring that all Principal Investigators follow these guidelines to ensure laboratories are fully decommissioned. Departments are ultimately responsible for the clearance of laboratory space and equipment of Principal Investigators that have left the university and abandoned the space.
- **Office of Academic & Research Safety** will guide Principal Investigators and Departments through the process of cleaning up a laboratory for decommissioning clearance purposes. OARS will issue a laboratory decommissioning form (page 10) for those vacated laboratories found to be compliant with these guidelines.
- **Facilities personnel and outside contractors** **must** not work in laboratories that have not been fully decommissioned or have not been given approval for selective decommission. Cleared laboratories will have an orange "lab has been decommissioned" form posted conspicuously on the door of the laboratory or the space that has been cleared. Further the NFPA door sign will be removed once the lab has been decommissioned. Facilities



personnel will work closely with OARS personnel, the PI and lab members, and department representatives to plan and execute selective decommissioning safely.

## Procedure

Laboratory space cannot be re-occupied nor renovated until the space has been inspected and decommissioned by OARS. The vacating Principal Investigator and Department must complete the following procedures before the laboratory space will be decommissioned.

Please consult the applicable documents on the OARS website <https://oars.northeastern.edu/> for additional information or guidance on proper disposal.

## General Laboratory Cleanup

All laboratory areas must be thoroughly cleaned to assure removal of all hazardous residues.

- All surfaces where hazardous chemicals have been used or stored must be washed with appropriate detergent (soap and water, simple green, etc.) based on the chemicals used or stored in the area (please refer to the SDS for incompatible chemicals). This includes all equipment, fume hoods, bench tops, cabinets, drawers, floors, etc.
- For furniture and other items that are to be removed from the laboratory, thoroughly decontaminate accessible surfaces to prevent harm to movers.
- Remove all bench coat and disposable liners/covers from work surfaces and dispose of appropriately.
- Empty and properly dispose of material from all drawers, cabinets, and fume hoods.
- Properly clean laboratory bench tops, cabinets, drawers, floors, and fume hood surfaces with appropriate detergent.
  - If chemical residues or spills that have contaminated your fume hood or equipment and it cannot be cleaned under normal mechanical wiping, a hazardous materials clean-up vendor must decontaminate and certify that the equipment is safe to use, contact OARS for further assistance. The decontamination process by outside vendor will be funded by the PI or their department.

## Laboratory Equipment Relocation or Disposal

The following procedures must be completed before laboratory equipment will be cleared:

- Remove all contents from laboratory equipment, e.g., chemicals, media, and glassware.
- Remove all bench covers and disposable liners/covers from equipment and dispose of appropriately.
- Decontaminate all surfaces of contamination prone equipment, e.g., refrigerators, freezers, incubators, water baths, biological safety cabinets and centrifuges, with the approved disinfectant for the agent or chemical. Contact OARS for assistance.
- Most freezers which have been used for the storage of biological materials must be



unplugged and defrosted. The lab must use sufficient spill pads and pigtails to absorb the contaminated water. Shelves must be removed and spill pads must be placed in the bottom of the unit. Finally, the doors must be left open and many spill pads and pigtails must be placed on the floor in front of and around the sides of the unit to absorb and contain the defrosted water.

- Minus 80-degree freezers can be left intact with materials packed inside, and do not need to be defrosted for the move. In this case, the outside of the freezer must be decontaminated with an approved disinfectant to ensure it is safe for movers to handle it.
- Incubators and water baths must be drained of all standing water, including water inside the jacket.
- If laboratory equipment is to be discarded, be aware that capacitors, circuit boards, transformers, mercury switches, mercury thermometers, radioactive sources and chemicals must be removed before disposal. Contact OARS for assistance.

## Chemicals and Hazardous Waste

- **Relocation of Chemicals**

Lab personnel **must** contact OARS when relocating chemicals either internally (within the same building) or, externally (between buildings on campus or, to external locations off campus).

- **Internal Relocation of Chemicals**

Qualified lab personnel are permitted to transport limited quantities and types of chemicals from their current laboratory to the new laboratory if it is within the same building and using an appropriate cart. Lab personnel **must** contact OARS to discuss transportation procedures including cart usage, secondary containment, and proper incompatible chemical segregation. Upon relocation, the chemical inventory for the laboratory must be updated in ChemTracker on BioRAFT.

- **External Relocation of Chemicals**

Chemical moves to laboratories in external locations (between buildings on the main campus or, off the main Boston Campus) **must** be transported by a U.S. Department of Transportation approved hazardous material hauler. Contact OARS for assistance on this. OARS has agreements with vendors to provide this service however OARS does not fund the relocation of chemicals. The vendor will prepare all paperwork necessary for the chemical move. In order to utilize these services, the following requirements must be met:

- The lab must segregate all chemicals from shelves, cabinets, etc., which require moving and place them in a designated location within the laboratory. Label the area “Chemicals to be moved.”
  - All chemicals must be staged compatibility in secondary containment



bins.

- Communicate chemical relocation to laboratory colleagues, including all external groups in a shared lab space (if applicable).
- Relocated chemicals will be unpacked by the vendor and placed in an area where lab personnel can place them into appropriate storage.
- Hazardous waste will not be transported to a new laboratory and must be properly labeled and sent for disposal directly from the lab.

## **Hazardous Chemical Waste Disposal**

All hazardous chemical waste must be managed in accordance with the NU hazardous waste disposal procedures. See the following OARS program website for additional information:  
<https://oars.northeastern.edu/home/hazwastelabs/>

### **The following procedures must be followed:**

- Keep an appropriate and complete hazardous waste label on all waste containers in use.
  - Hazardous waste labels are available free-of-charge by placing an online hazardous waste request through BioRAFT, contacting OARS or by downloading a copy from the [hazardous waste section of the OARS website](#).
- Hazardous chemical wastes must always be placed in appropriate containers and closed.
- Designate a Satellite Accumulation Area (SAA) where hazardous chemical wastes are generated in your laboratory. SAA poster(s) must be hung in close proximity to all SAAs.
  - SAA posters are available by placing an online hazardous waste request through BioRAFT or contacting OARS.
- Submit a pickup request on BioRAFT to have hazardous waste picked up from a laboratory.
- All waste must be clearly labeled and sealed within an appropriate container. Properly label containers as soon as they accumulate waste. Abbreviations or chemical symbols are not acceptable labeling.
- OARS has developed a Chemical Recycling Program for unused chemicals. Chemicals that are collected through the program or donated by laboratories unused are made available to all Northeastern researchers and faculty free of charge. Please reach out to OARS for further information.

## **Lab Pack Service**

If there is an excessive amount of chemicals in a lab to be disposed of, PIs and associated departments can utilize a lab pack service through our waste vendor. PIs and associated departments are responsible for waste disposal costs associated with the lab pack service. Contact OARs for scheduling and further assistance.



## High Hazard Chemical Disposal

- High hazard chemicals (highly reactive, explosive, peroxide formed chemicals, poisonous gases, etc.) will be disposed of through a certified waste disposal contractor.
- If a high hazardous material is identified in the disposal process, the PI or department **must** work with OARS and the certified outside contractor to ensure the material is safely and compliantly managed including storage, treatment, reporting and final disposal.
- All costs associated with this service will be charged to the PI or the Department.

## Unknown Chemical Disposal

- Unknown chemicals are defined as chemicals found in an unlabeled container and the chemical identity is unknown.
- Disposal of unknown substances is prohibited. All unknown chemicals must be properly identified to hazard class before disposal. Hazard classes include corrosive, ignitable, oxidizer, radioactive, reactive, and toxic.
- The process used to identify an unknown chemical is expensive and time consuming. If an unlabeled and unknown chemical is found, the following may help the lab determine the identity of the chemical:
  - Ask the PI or laboratory manager about the type of research that was being conducted.
  - Inquire with other laboratory personnel to determine if they are responsible for the container or if they can help identify the contents of the container.
  - Review the type of research in the lab is helpful in ruling out chemicals.
  - Contact individuals or groups that may have used the lab space previously to see if they can identify the chemical.
  - Review the reagent list for the lab since the chemical was likely derived from those chemicals.
  - Test the solution for pH and flammability to further narrow the identification. First consult with OARS before proceeding with testing. It is important to proceed with caution—do not handle or open an unknown container if there is concern that it could react adversely or detonate. Appropriate precautions must be taken when handling an unknown substance.
- If unknown chemicals are discovered in your laboratory, contact OARS for further assistance. An outside waste vendor will be used to dispose of the unknown chemicals and all costs incurred will be charged to the PI or Department.

## Return Compressed Gas Cylinders

Remove regulators and replace the valve stem cap. Return gas cylinders to the supplying vendor. Contact OARS for non-returnable cylinders.



## **Relocating Compressed Gas Cylinders (including Liquid Nitrogen Cylinders)**

When laboratory relocations require crossing a public road compressed gas cylinders (including liquid nitrogen cylinders) **must** be transferred by the supplying vendor. Please call the appropriate vendor to arrange for the cylinders to be moved.

## **Liquid Nitrogen-lined Freezers**

The vendors supplying liquid nitrogen recommend that liquid nitrogen-lined freezers be drained to a minimum level (to sustain freezing of cells) prior to relocating. Liquid nitrogen freezers are to be moved by a moving company and should be scheduled for refill as soon as possible at the new location by the vendor.

## **Electronics Recycling**

All electronics (central processing units, monitors, keyboards, printers, televisions, and scanners) must be separated from general trash and placed into a designated area for collection by Facilities (617-373-2754). Follow the published “asset disposition procedures” located at: <https://facilities.northeastern.edu/materials-recycling/specialty-items/>. For computers to be re-allocated within the University, all data must first be "wiped" from the disk drive(s), prior to reallocation. Conventional formatting or "FDISK" is not sufficient to assure data destruction. Disk "wiping" service is currently offered FREE OF CHARGE by the Information Security department. For service, contact [help@northeastern.edu](mailto:help@northeastern.edu). Computers awaiting pickup for reallocation or recycling must be stored inside a secured office or other non-public physical space, and must remain there until picked up. Storage in publicly accessible areas such as hallways or loading docks is not permitted.

# **Biological Laboratories:**

## **Biosafety Registration**

- Submit a location change amendment to [biosafety@northeastern.edu](mailto:biosafety@northeastern.edu) and in BioRAFT for all biological registrations (before the move).
- Contact Biosafety Program Manager to set up a new laboratory inspection.

## **Biological Materials**

- Place all sharps (needles, Pasteur pipettes, razor blades, etc.) in a sharps container and follow the established disposal procedures. <https://oars.northeastern.edu/home/biological-safety/>





- Dispose of all solid biohazardous waste in the laboratory. If special arrangements to handle the waste need to be made, please contact the biosafety program manager.
- Dispose of chemical preservatives as hazardous chemical waste.
- Decontaminate all liquid biological waste that is compatible with bleach by treating it with fresh bleach (1:10) for 30 minutes, before sink disposal.
- Animal tissue and remains must be placed in a sealed double plastic bag, labeled, and brought back to the Department of Laboratory Animal Medicine facility assigned freezer.
- If any biological material will be transferred to a collaborating PI, please notify the biosafety program manager before the transfer is made.
- If any biological material will be shipped, please contact the biosafety program manager weeks prior to the shipment date to coordinate with the institution receiving the material and to ensure shipment is done compliantly.

## **Equipment and Work Surfaces**

- Decontaminate all work surfaces and equipment (biosafety cabinets, incubators, centrifuges, refrigerators, freezers, water baths & any other small equipment labeled and/or used for biohazardous work) using freshly made 10% Bleach, Cavicide, or disinfectants listed in your approved biosafety registration.
- [Equipment decontamination forms](#) are available from the OARS website and must be adhered to all equipment that has been disinfected and is safe to move.
  - Biohazard labels can be covered with equipment decontamination tags for equipment that will remain biohazardous following internal moves.

## **Biological Safety Cabinets (BSC)**

- Remove all contents.
- Decontaminate and then disconnect tissue culture media vacuum flask.
- Decontaminate all accessible surfaces with an approved disinfectant.
- BSC (inaccessible parts) will be decontaminated by a certified contractor.
- Re-certify the BSC (by a certified contractor) when the BSC is relocated.
- If the BSC is not being moved and repair work will not open the contaminated inner space, a surface decontamination with an approved disinfectant is sufficient.

## **DEA Controlled Substances**

For registrants with The US Drug Enforcement Agency (DEA):





- Amend your registration (aka license) with DEA and obtain new approval for location of controlled substance (CS) change prior to initiating move.
- If transferring CS to another registrant consult with OARS.
- If disposing CS request OARS destruction services.

## **Radioactive Materials (RAM)**

If the laboratory has been authorized for use of radioisotopes or radiation- producing devices, you must contact OARS at (617) 373-2769 or via email ([oars@northeastern.edu](mailto:oars@northeastern.edu)), for assistance with clearance. All radioactive waste, lead pigs, lead bricks, sheeting, and radioactive sources from equipment must be properly transferred or disposed of. A final contamination survey must be performed by the authorized user and OARS.

- Perform a thorough radiation contamination survey of the laboratory, including equipment, to determine if allowable contamination levels are achieved. Areas found to exceed background readings must be decontaminated and resurveyed until they meet allowable levels. Background levels are considered either under 200 dpm (wipe test) or 0.05 mR/Hr (survey meter scan).
- Remove all “Radioactive” or “Caution – Radioactive Materials” labeling and signs from equipment once it is decontaminated.
- If the radioactive material will be transferred to an authorized user at Northeastern, approval must be granted by OARS. If the radioactive material is to be transferred to another licensee or returned to the manufacturer, arrange for OARS to pick up the material for shipment. Radioactive waste must not be transferred to another authorized user or laboratory; rather arrange with OARS for disposal.
- Equipment that cannot be decontaminated must be disposed of as radioactive waste or arrangements made to have it specially transported to a licensed radioactive waste disposal facility.

## **Closeout Inspection**

Once you have completed all the applicable laboratory decommissioning procedures, contact OARS to arrange for an inspection. Once clearance is completed by involved OARS program managers, an orange “Lab has been decommissioned” sign will be posted conspicuously on the door of the laboratory or area that has been cleared. OARS will also label any eyewash, safety shower, and/or chemical fume hood in the laboratory with an "out of service" tag.

Any regulatory action or fines resulting from improper management or disposal of hazardous materials will accrue to the responsible department.

Questions regarding these procedures should be directed to the Office of Academic and Research and at (617) 373-2769 or [oars@northeastern.edu](mailto:oars@northeastern.edu).



## **Selective Decommissioning**

In unique circumstances, a laboratory may undergo renovations while maintaining an active research program within the space. In such cases, the area to be renovated must be cleared of all hazardous and research materials and equipment, and it must be thoroughly decontaminated. Preparing for such cases requires comprehensive planning involving the Facilities teams, OARS personnel, the PI, members of the PI's laboratory, and the Department Safety Officer (DSO) or College Safety Officer (CSO). Once the space within the active laboratory has been cleared of hazards and materials and decontaminated, the area under renovation must be delineated with red and white striped floor marking tape. This floor marking tape serves as a barrier to separate the ongoing research from the active construction area. Depending on the nature of the renovation work and the proximity of active research, additional barriers such as plastic sheeting may be required. Once the floor tape and other barriers are installed and the lab is cleared for renovation, OARS personnel will complete a selective decommissioning inspection of the lab to ensure that the space is ready for construction to begin. Once clearance has been granted by OARS, the renovation work may begin. For the duration of the project, the DSO and CSO are expected to regularly check in on the work and active research lab to ensure the requirements agreed on in planning are maintained for both the construction and active research to proceed safely.



## Laboratory Decommissioning Form

### RADIATION SAFETY PROGRAM

- **Radioactive Materials** have been properly transferred/disposed and a final contamination survey has been completed.

Radiation Safety Program Manager: \_\_\_\_\_ Date: \_\_\_\_\_

### BIOSAFETY PROGRAM

- **Biosafety Registration** amendment has been submitted and post-move lab visit (if applicable) has been completed.
- **Biological Materials** have been properly disposed/transferred/shipped and appropriate decontamination has been completed.
- **Equipment and work surface** have been properly decontaminated and equipment is labeled with a completed decontamination form.
- **Biological Safety Cabinets** have been professionally decontaminated.
- **Controlled Substances** have been properly transferred or disposed.

Biosafety Program Manager: \_\_\_\_\_ Date: \_\_\_\_\_

### LABORATORY SAFETY PROGRAM

- **Internal Relocation of Chemicals** has been properly transferred and the chemical inventory has been updated in ChemTracker.
- **External Relocation of Chemicals** has been properly transferred and completed.
- **Hazardous Chemical Waste Disposal / Recycling** has been completed and no chemicals remain in the lab.
- **Relocating Compressed Gas Cylinders** (including Liquid Nitrogen Cylinders) have been properly transferred and completed.
- **Electronics Recycling** has been arranged according to University procedures.
- **Compressed Gas Cylinders** have been returned to vendors or OARS contacted for non- returnable.
- **Liquid Nitrogen-lined Freezers** have been properly drained in preparation for moving.
- **Laboratory Equipment Relocation or Disposal** has been properly arranged.
- **General Laboratory Cleanup** has been completed including cleaning of all surfaces, emptying of all drawers and removal of all rubbish.
- **Closeout Inspection** has been arranged with OARS.

Laboratory Safety Program Manager: \_\_\_\_\_ Date: \_\_\_\_\_

Principal Investigator: \_\_\_\_\_ Department: \_\_\_\_\_

Laboratory Location: \_\_\_\_\_

PI is leaving NU: ☐ Yes ☐ No—specify new lab location: \_\_\_\_\_

PI is taking materials and/or equipment from NU: ☐ Yes ☐ No

Principal Investigator Signature: \_\_\_\_\_ Date: \_\_\_\_\_

OARS Leadership Signature: \_\_\_\_\_ Date: \_\_\_\_\_