



UH IBC APPENDIX M: LABORATORY DECOMMISSIONING

Adopted by the UH IBC (UH System)

Prepared by: UH Environmental Health and Safety Office Revision 1

Date: May 7, 2019

I. POLICY STATEMENT:

Prior to laboratories being vacated, all equipment, chemicals, radioactive and biological materials must be properly transferred, removed, or disposed.

II. PURPOSE:

This policy is to prevent and minimize risk to the campus community, including cleaning and maintenance staff, contractors, and new occupants who may enter vacated laboratories containing abandoned hazardous material.

III. APPLICABILITY/SCOPE:

This policy applies to all laboratories and auxiliary spaces serving laboratories and provides for the removal of potentially hazardous material from these spaces when the user is planning to vacate the space. This includes terminating affiliation with the University, relocating to another laboratory space, major laboratory renovation requiring relocation of hazardous materials, and retirement from research activities. This policy applies to all units regardless of location on or off campus. This policy does not apply to facilities such as computer labs and music labs.

IV. DEFINITIONS:

- A. Decommissioning – the formal deactivation of a laboratory.
- B. Laboratory – a facility where quantities of hazardous chemicals, biological, and radiological materials are used in a non-production basis, including research labs, student teaching labs, and clinical labs.
- C. Principal Investigator (PI) – faculty, staff, or researcher responsible for supervising activities within a laboratory.

V. RESPONSIBILITIES:

- A. Deans/Directors are responsible for ensuring that departments and units are aware of and follow the procedures contained in this policy.
- B. Department Chairs/Unit Heads are responsible for the following:
 - 1. Verify that PIs in their department/unit have notified the appropriate campus units, such as the Environmental Health and Safety Office (EHSO), Office of Research Compliance (ORC), and Campus Operations and Facilities (COF), when vacating or relocating a laboratory.

2. Inform appropriate campus units, such as EHSO, ORC, and COF of new laboratory assignments.
 3. Accountable for costs, deficiencies, or regulatory actions or fines resulting from improper management or disposal of regulated materials from laboratories that have not been properly decommissioned.
 4. Ensure all assigned keys are returned to the University.
- C. Principal Investigators (PIs) are responsible for the following:
1. Ensure enough lead time (at least one month) is given for proper management of materials. Required disposal time will vary depending on amount and type of materials involved.
 2. Notify the appropriate departments (i.e., Radiation Safety, Hazardous Materials Management, Laboratory Safety, and Biosafety) when vacating or relocating a laboratory.
 3. Complete the Laboratory Decommissioning Checklist (Attachment 1) and submit to the EHSO and ORC accordingly.
 4. Take specific measures to transfer or dispose of hazardous, radioactive, and/or biological materials before vacating or relocating.
 5. Ensure all equipment, such as fume hoods, biological safety cabinets, flammable or corrosive storage cabinets, freezers, incubators, scintillation counters, autoclaves, and centrifuges are emptied and decontaminated.
 6. All research specific apparatus shall be dismantled, packaged, and removed.
 7. All compressed gas cylinders shall be removed prior to closing of the laboratory.
 8. All papers, books, rags, empty containers, boxes, bottles, glassware, plastic ware, etc., shall be properly disposed of prior to vacating the laboratory.
 9. Return all assigned keys to the University.
 10. If a vacated laboratory does not undergo decommissioning and becomes occupied by a new PI, all materials found within the laboratory become the responsibility of the new PI.

VI. PROCEDURES:

Refer to section V. RESPONSIBILITIES above.

VII. REFERENCES:

- A. Laboratory Decommissioning Checklist – Attachment 1
- B. Hazardous Materials (Chemical User) Disposal Close-out Procedures - Attachment 2
- C. Biosafety Laboratories Close-Out Guidance Document- Attachment 3
- D. Radioisotope Laboratories Close-out Procedures - Attachment 4
- E. Guidance for other regulated and non-regulated items and waste (lab equipment, batteries, etc.) – [Contact Your Campus EHSO](#)

VIII. HISTORY:

Guidelines and procedures on hazardous waste handling have been in existence as listed above in REFERENCES (see B, C, D, and E, above). However, an official policy is warranted to ensure the health and safety of the campus community. This version replaces the previous AP dated March 18, 2011.

**APPENDIX M ATTACHMENT 1
UNIVERSITY OF HAWAI'I LABORATORY DECOMMISSIONING CHECKLIST**

Principal Investigator:	Department:
Department Head/Chair:	Building:
Room Number:	Laboratory Closeout Date:

The purpose of this checklist is to assist Principal Investigators in safely removing hazardous materials from a laboratory and confirming that the area is free from contamination.

Chemicals and Hazardous Waste	Yes	No	N/A
Refrigerators, areas under sinks, fume hoods, cabinets, shelves, and bench tops have been checked for storage of hazardous materials (including shared spaces).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All chemical containers have been labeled and made ready for disposal, transfer, or recycling in accordance with the University of Hawai'i Hazardous Materials Management & Disposal Guidelines.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Refrigerators have been emptied, defrosted, and cleaned.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Storage areas have been cleaned: chemical residues, drips, and spills have been appropriately decontaminated and cleaned.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All bench tops have had disposable liners/covers removed from the work surface and surfaces have been cleaned.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All keys to lockable chemical storage cabinets have been returned to the department.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Controlled Substances	Yes	No	N/A
All storage areas are free of controlled substances.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All controlled substances have been disposed of or transferred according to	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

U.S. Drug Enforcement Agency regulations and requirements.			
Compressed Gas Cylinders	Yes	No	N/A
Cylinders have been properly labeled and secured.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cylinders not in use have been disconnected and capped.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Arrangements have been made for returning empty cylinders to vendors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All cylinders have been labeled and readied for disposal, transfer, or recycling in accordance with the University of Hawai'i Hazardous Materials Management and Disposal Guidelines.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radioactive Materials	Yes	No	N/A
Radioactive waste materials have been handled in accordance with the University of Hawai'i Radioactive Waste Disposal Procedures.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The removal of radioactive materials and termination surveys have been coordinated with the Radiation Safety Officer in accordance with the guidelines in the University of Hawai'i Radiation Safety Manual.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biological Materials	Yes	No	N/A
All work surfaces and storage areas, including walk-in coolers, freezers, refrigerators and incubators, have been decontaminated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All inside working surfaces of the biological safety cabinets have been decontaminated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Certification of the biological safety cabinet is current.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Arrangements have been made for the decontamination and replacement of the HEPA filter in the biological safety cabinet, if required.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All sharps have been properly disinfected and placed in puncture-resistant containers for disposal.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
All biological waste has been autoclaved and properly disposed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are there biological materials that need to be transferred to another location? If yes, contact the Biological Safety Program for transport information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The Responsible Official (Research Office) has been contacted to advise that experiments using Select Agents and/or Toxins will be terminated and the Select Agents and/or Toxins will be destroyed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Equipment	Yes	No	N/A
All equipment has been disinfected and decontaminated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is any portable equipment going to be removed for disposal? If yes, submit a work request to Work Coordination Center.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Is any permanently installed equipment (connected building systems) being removed for transfer with the exiting investigator? If yes, contact Facilities Management.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has all broken glass been placed in a rigid, puncture-resistant container? or cardboard box and sealed in preparation for disposal by Buildings and Grounds Management?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Records	Yes	No	N/A
If any hazardous chemicals are remaining in the lab, has a copy of the current lab/chemical inventory been provided to the department head?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I have, to the best of my knowledge, complied with the requirements of the University of Hawai'i Laboratory Decommissioning Checklist and am not aware of any other items or special circumstances that are not listed on this form.

Principal Investigator: _____ Date: _____

Department Chair: _____ Date: _____

Please submit this completed form to EHSO and ORC: [Your Campus EHSO](#) and biosafe@hawaii.edu

Inquires/Assistance:

Biosafety: 956-2285 biosafe@hawaii.edu

For EHSO/ORC Use Only Final Inspection Sign-Off

Chemical Hygiene Officer: _____ Date: _____

Biological Safety Officer: _____ Date: _____

Radiation Safety Officer: _____ Date: _____

APPENDIX M ATTACHMENT 2
HAZARDOUS MATERIALS (CHEMICAL USER) CLOSE-OUT PROCEDURES

Proper disposition of all hazardous materials used in the workplace is the responsibility of the chemical user or supervisor/Principal Investigator (PI) to whom a chemical use room/laboratory is assigned. Enforcement of this policy is the responsibility of the supervisor/PI. Proper disposition of hazardous materials is required whenever a chemical user leaves the University or transfers to a different laboratory/chemical use room. This process should be started at least a month prior to departure from the chemical use room/laboratory to allow ample time to properly dispose of all materials.

Hazardous waste pickup should be completed before the chemical use room/laboratory is vacated. The disposal must follow the University's Hazardous Materials Management Plan. The Laboratory Decommissioning Checklist (Attachment 1) should be completed prior to the chemical user's departure. Once completed, the checklist should be signed and submitted to the user's Dean or Director and to the Environmental Health and Safety Office (EHSO).

If periodic inspections by the EHSO reveal that proper close-out procedures have not been followed, the EHSO will oversee correction/remediation of any problems created by failure to follow those procedures, and the cost of correcting those problems will be charged to the budget of the Level V unit within which the problems were identified.

Contact the UH EHSO with questions or if assistance is needed.

APPENDIX M ATTACHMENT 3
GUIDANCE DOCUMENT: BIOSAFETY FACILITIES CLOSE-OUT

A. Documentation (Close-Out/Moving)

1. Provide a complete inventory of all biological commodities.
2. Submit inventory with a completed and signed BSP-2 form.
3. Attach copies of personally acquired federal and state permits and authorizations. (All federal and state agencies must be notified prior to move).
4. Follow close-out procedures.
5. Current Biological Shipping and Receiving training may be required.

Assess all biological materials (recombinant DNA materials, microorganisms, cells and cell lines, tissues, organs, body fluids, and biologically-derived or -contaminated media) and determine which materials will be moved to your new laboratory, transferred to another investigator or disposed of.

Dispose of the remaining materials as you would have during the course of experimentation. For example, solid materials (including Petri dishes and microfuge tubes) should be autoclaved and disposed of as biological contaminated waste.

B. Moving Biological Commodities from Lab

Many laboratory materials, including biological commodities, are regulated. Regulated biological commodities include all microorganisms: bacteria, fungi, virus, animals (vertebrate and invertebrate), plants, plant parts and seeds, human tissue, blood or body fluids, biological derived toxins and drugs, etc. Federal permits from USDA, CDC, DEA EPA, Commerce, Customs and DOT, as well as State HDOA and HDOH permits may be required prior to transport, transfer or destruction.

1. Cultures and Stocks of Microorganisms

Microorganisms are subject to the requirements of the U.S. DOT when being moved or shipped (Risk Group 2 or greater). HDOA must be notified if the microorganisms have an import or possession permit.

Federal agencies may require notification.

2. Human and Animal Materials (Blood, body fluids, cell line, organs)

We strongly encourage all laboratories working with human or animal materials (blood, sera, cell, tissue) to plan for the movement of these materials, whether at ambient temperatures or frozen. This will allow for an appropriate amount of time to clean incubators and other equipment, and go through the other requisite steps for the move.

3. Preserved Tissue and Specimens

Any tissue or biological specimen preserved in formaldehyde, mercuric chloride, 70% ethanol, glutaraldehyde, DMSO, or other preservatives should be included in your chemical inventory, using the preservative name and volume. These containers **MUST** be shipped as hazardous materials. All containers **MUST** be **PROPERLY SEALED** (so they cannot leak) and labeled with the full chemical name to be lab-packed and moved. Check directly with EHSO Hazardous Materials Management Program, if disposing.

4. Biological Contaminated Wastes

Decontaminate all wastes. Biological waste must not be transported. All sharps containers in use, whether or not they are full, must be disposed of as biological waste prior to the move. See biological wastes procedures.

5. Select Agents and Toxins

Select Agents or Toxins must not be moved by any outside contractors. All necessary federal requirements must be adhered to, including providing notice to USDA and completion of proper forms. Call OVCRGE Compliance for further information.

6. Biological Derived Toxins and Drugs

If they are controlled under Federal/State Drug Enforcement Agencies, the agencies must be notified prior to movement or disposal.

Disposal of biological toxins and drugs must be through an approved disposal method – either autoclaving or neutralization.

7. Animals

The transport of any live vertebrate animals used in teaching or research must be approved by and coordinated through the Animal and Veterinary Services (AVS) and IACUC.

The NFWS or DLNR must be notified for the transport of invertebrates permitted by the NFWS or DLNR.

C. Moving Equipment

All equipment, apparatuses, and fixed structures must be cleaned and decontaminated as necessary. Once decontamination is done, any work that could re-contaminate the premises is prohibited.

Decontaminate all surfaces (interior and exterior), first with soapy water and secondly with an appropriate working dilution of an appropriate disinfectant. Remember: Contact time of at least 10-15 minutes. Rinse with fresh water as some disinfectants are corrosive.

Tag equipment, instruments, apparatuses as cleaned and decontaminated (see "Equipment Owner Declaration" tag on page 5). Tag must be secured to the face of the equipment.

Remove any universal biohazard symbol.

1. **Equipment Needing Repair:** Contact the service company to determine if they require written verification of decontamination prior to servicing the equipment. The lab is responsible for certifying that equipment has been properly decontaminated. Consult the equipment manual for cleaning/decontamination procedures, policies, and chemical compatibility. If it is not possible to decontaminate the equipment, it must be properly packaged to prevent exposure and labeled to inform non-laboratory staff of the potential hazards present. When a person (University or outside contractor) services equipment in the laboratory:
 - Prepare a working area which is clean and free of hazards,
 - Clear enough space for easy access around the equipment,
 - Remove any hazardous items stored near, on, or under the equipment,
 - Inform the individual of potential hazards in the laboratory (training), and
 - Provide personal protective equipment if necessary.
2. **Centrifuge:** Clean and decontaminate chamber, cups, and rotors or other parts as instructed by manufacturer (consult manual).
3. **Water baths, bio-fermenters, aquariums, reactors, and incubators:** Flush out all drains. Water jackets must be drained and emptied. Prior to water disposal down a sanitary drain, the water should be decontaminated.
4. **Biosafety Cabinets:** All biological safety cabinets require a Biological Safety Program (BSP) evaluation to determine required decontamination, even if they are not moved. If it is moved, the equipment must be certified again after the move to ensure filter integrity. Decide for this work in advance to allow contractors to meet your schedule. All interior and exterior surfaces must be disinfected prior to moving them. This includes under the workbench/grille and the top of the BSC.
5. **Refrigerators:** Empty all refrigerators; clean and decontaminate inside and outside surfaces. Drain drip pans. Vacuum motor and grills.
6. **Freezers:** Freezers containing biological commodities may be moved without emptying them if they contain no infectious substances. If moving, complete inventory must be attached to the outside of the freezer.

Laboratory personnel are responsible for preparing freezers for the move, ensuring that all loose vials and containers are properly packaged using unbreakable containers (plastic, metal, or cardboard).

All spaces within the freezer must be filled with packing material to prevent the contents from shifting during transit.

Once the freezer is prepared to move, decontaminate the exterior of the freezer. Secure and lock down. The movers will secure the freezer lid with plastic straps before moving the freezer.

If freezer will be defrosted prior to move, water must be sterilized prior to draining.

Call vendor for proper instructions regarding liquid nitrogen freezers, cryostats, Dewar flasks, etc.

D. Decommissioning a Lab

All horizontal surfaces, including bench tops, floors, shelves, fire extinguishers, waste cans, electrical conduits, etc. should have been cleaned and decontaminated with appropriate disinfectant with appropriate contact time.

Sanitary drains must be flushed with bleach.

All universal biohazard symbols should be removed (entry doorway, wastes trash cans, bench tops).

E. New Location

The new location cannot be manipulated without proper federal, state and UH authorization. A new floor plan should have been submitted to the BSP. When the materials arrive at the new locations, lab personnel should check contents for breakage/damage. Open all parcels in a biosafety cabinet. All biosafety cabinets must be certified prior to use.

F. Post-Close-out/Move

If inspections by the BSP reveal that proper close-out procedures have not been followed, BSO will oversee the correction/remediation of any problems created by failure to follow those procedures, and the cost of correcting those problems will be charged to the budget of the Level V unit within which the problems were identified.

G. Equipment Owner Declaration Tag

Tag equipment, instruments, and apparatuses as cleaned and decontaminated. Tags should be printed on light green paper and secured to the face of the equipment being moved or relocated. Utilize printable "Equipment Owner Declaration" tags on page 5 (2 tags/page, form fillable).

Contact the UH Biosafety Officer at 956-2285 or email biosafe@hawaii.edu with questions or if assistance is needed.

UH ORS Biosafety Website: <https://research.hawaii.edu/orc/programs/biological-safety/>

Equipment Owner Declaration Tags

CLEANED

Equipment Owner Declaration

I have removed all known hazardous materials (biological commodities, chemicals and radioactive materials) from this equipment. All interior and exterior surfaces have been cleaned and decontaminated. To the best of my knowledge, this item is safe to handle, and does not pose a hazardous materials risk to personnel.

Equipment Type

Signature Date

Print Name

Department Phone

CLEANED

CLEANED

Equipment Owner Declaration

I have removed all known hazardous materials (biological commodities, chemicals and radioactive materials) from this equipment. All interior and exterior surfaces have been cleaned and decontaminated. To the best of my knowledge, this item is safe to handle, and does not pose a hazardous materials risk to personnel.

Equipment Type

Signature Date

Print Name

Department Phone

CLEANED

ATTACHMENT 4 CLOSEOUT PROCEDURES FOR RADIOISOTOPE LABORATORIES

MOVING TO ANOTHER LABORATORY

1. Submit an Amendment Application to Authorization Form, RSP-3a, to add a new laboratory location to your current authorization.
 - a. Include floor plan of new lab space with areas marked for restricted area. Show where radioisotopes and radioactive waste will be stored on the floor plan.
 - b. Show which sink will be the hot sink, if any.
2. Once new lab space is approved by the Radiation Safety Committee, do the following:
 - a. Dispose of any radioactive waste by calling RSP for a waste pickup.
 - b. If you need to move any radioisotopes to the new lab, call RSP to decide to move your material.
 - c. Clear out all large equipment not being kept at old lab. Clear all lab benches of materials, supplies, chemicals, etc.
 - d. Move refrigerators, freezers, LSCs, gamma counters, and glassware from lab benches.
3. Do a wipe test survey to ensure no contamination remains. Mark any fixed contamination that is present.
4. Call RSP to perform a final close out survey. If any contamination is found, you will have to decontaminate it and have RSP resurvey the area.
5. If you fail to clean up the contaminated areas identified, RSP will charge your department for the time spent cleaning up the laboratory.

LEAVING THE UNIVERSITY OR STOPPING RADIOISOTOPE USE

1. Submit a memorandum to the RSO stating that you will close out your authorization.
2. Arrange to have radioisotopes transferred to another PI or university, or dispose of your radioisotopes and arrange for a waste pick up. The RSP will assist you with the paper work to transfer your radioisotopes to another university.
3. Clean your lab equipment of any contamination and transfer equipment to another PI or have it disposed of. Notify RSP if giving fixed equipment to another PI.
4. Clear lab benches as much as possible of all lab supplies, which were used with radioisotopes.
5. Call RSP for a close out survey or decommissioning survey. If any contamination is found, you must decontaminate the areas and have RSP resurvey your lab. If you do not decontaminate the area, RSP will charge your department for the time spent cleaning up.

Contact the UH Radiation Safety Officer at 956-5097 or email ntg@hawaii.edu with questions or if assistance is needed.

UH EHSO Radiation Safety Program Website: <https://www.hawaii.edu/ehso/radiation-safety/>

ADDITIONAL INFORMATION

Please answer the following questions as thoroughly as possible for user's reference:

- 1) **What impact will this new or revised policy/procedure have on other UHM campus programs/departments/offices?** This updated policy will provide departments a clearer and up to date list of what is required to decommission a laboratory.
- 2) **What steps were taken to ensure all appropriate constituents were consulted (who was consulted, what concerns were raised, how were these concerns addressed, etc.)?** Internal review and comments were sought from the EHSO Director, relevant EHSO Program Managers and their respective staff, OCR staff, as well as the UH Chemical and Physical Hazards Committee (CPHC) which is comprised of VCR-appointed faculty. No major concerns were raised as this update clarified the decommissioning process, removed redundant language, provided a more concise checklist, and updated the policy with relevant departmental contact information. UHM Faculty from the CPHC noted the need to account for keys being returned at the end of a lab closeout. This policy was updated to reflect that feedback.
- 3) **Does this policy/procedure have a financial impact? If so, how?** No change in financial impact expected from the previous iteration of the policy.
- 4) **Does this policy/procedure affect space (classroom, research, etc.) on campus? If so, how?** This policy provides guidelines for the proper decommissioning of lab space and accounting of hazardous commodities prior to allocating space to a new user.
- 5) **Are there safety measures that need to be implemented prior to execution? If so, please specify. Who will be responsible to ensure safety standards?** The policy is geared around safety measures and serves as a mechanism for handling regulated hazardous commodities and lab equipment. The UH EHSO and ORC will be responsible for verifying that the required checklist is completed once submitted by the respective departments.
- 6) **What steps will be taken to ensure that proper clarification and training is provided to the appropriate campus representatives?** Notices will be sent out to Deans, Directors, Chairs, and PI's, as appropriate, to communicate the revised policy. Additionally, the policy will be made available on the EHSO website.
- 7) **What steps will be taken to ensure update and compliance of this policy?** Regular internal review will occur and subsequent changes based on regulatory agency requirements. Compliance with this policy will be a combined effort of the departments, ORC, and EHSO.