ENVIRONMENTAL HEALTH & SAFETY

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LABORATORY CLOSEOUT PROCEDURE

Overview

All labs, chemical storage areas, or areas where hazardous and/or biohazardous materials are used or stored must be cleared by Environmental Health & Safety (EHS) prior to being closed and/or vacated by a principle investigator (PI). EHS will provide guidance, facilitate hazardous waste pickups and issue final clearance for labs found to be compliant with these guidelines. EHS has developed this procedure to ensure that laboratories are left in good condition when vacated and to facilitate a smooth transition for future lab occupants.

Responsibilities

Environmental Health & Safety will provide guidance on the proper cleaning and decontamination of labs. EHS will facilitate the pickup and proper disposal of hazardous materials. EHS will confirm that all chemicals listed in RMM for the lab have been transferred to a new owner or removed from the database. EHS will issue final clearance for the vacated lab.

Principal Investigator (PI) is responsible for following this procedure to ensure that labs are left in a suitable condition for EHS to issue final clearance.

Departments are responsible for ensuring that all PIs follow this procedure to ensure that laboratories are left in good condition by PIs and lab managers leaving UNM.

University Services & Surplus Property Departments are responsible for coordinating lab equipment moves and disposing of equipment no longer needed.

Procedure

1. PI or PI's department will notify EHS (505-277-2753 or EHSWEB-L@list.unm.edu) at least 30 days in advance of the pending closure of the lab. Upon notification, EHS will schedule a meeting with the PI and/or a department representative to review details of the closeout schedule and perform an initial walk-through of the lab.
2. PI must complete all action items on Attachments 1, 2, 3 and 4, if applicable.
3. PI will notify EHS when all action items have been completed. A final walk-through will be coordinated with the PI and/or a department representative and a Laboratory Clearance Form (maintained by EHS) will be posted conspicuously if clearance is achieved.

LABORATORY CLOSEOUT PROCEDURE
Attachment 1 – Laboratory Closeout Checklist

Lab Information

Name of lab:

Building Name & Number:

Room Number:

Department:

PI:

Checklist

Chemicals

- ☐ Identify all chemicals for disposal (segregate from chemicals to be kept)
- ☐ Determine if chemicals for disposal are considered hazardous waste by completing *Hazardous Waste Determination* form (required for waste NOT in original container)(see Attachment 2)
- ☐ List chemicals for disposal on a *Chemical Waste Pickup Request* form (https://ehs.unm.edu/waste-management/index.html) and email form to chemsafety-L@list.unm.edu at least 2 weeks prior to lab closeout
- ☐ Redistribute usable chemicals to stockrooms or other labs
- ☐ Clean and decontaminate benchtops, furniture, fume hoods, storage cabinets and other lab equipment (see Attachment 3 – Laboratory Decontamination Procedure)

Animal & Human Tissue

- ☐ Dispose of research animal carcasses and tissue in appropriate biohazardous waste bin
- ☐ Clean and decontaminate refrigerators and freezers (see Attachment 3)

Microorganisms, Cultures and Recombinant DNA

- ☐ Determine which biological materials will be transferred to another PI
- ☐ Dispose of remaining materials by autoclaving or placing in biohazardous waste bin
- ☐ Clean and disinfect/decontaminate benchtops, furniture, biosafety cabinets, gloveboxes, storage cabinets and other lab equipment (see Attachment 3)

Radioactive Materials

- ☐ Determine which radioactive materials will be transferred to another PI
- ☐ Dispose of remaining materials through Radiation Safety Office (505-925-0743)

- ☐ Perform a radiation contamination survey, decontaminate, and re-survey, if necessary (contact Radiation Safety Office for guidance)

Gas Cylinders

- ☐ Identify contents of all cylinders, including empties
- ☐ Remove regulators and manifolds and replace with cylinder cap
- ☐ Contact supplier for pickup (if CRLS - 505-277-5109)
- ☐ Dispose of non-returnable cylinders through EHS by submitting a *Chemical Waste Pickup Request*

Moveable Lab Equipment

- ☐ Clean and decontaminate all moveable lab equipment, whether it is to be left in place, transferred to another lab or submitted to Surplus Property (see Attachment 3)

    - Incubators must be disconnected from CO_2 gas feed line and water jacket must be drained
    - High-pressure liquid chromatographs must be disconnected from chemical feed and waste lines

Empty Containers and Glassware

- ☐ Empty containers that held acutely hazardous materials must be disposed of through EHS by submitting a *Chemical Waste Pickup Request*
- ☐ All other empty containers can be disposed of through EHS or can be reused, recycled or disposed of by placing in a dumpster (not the regular trashcan in the lab) after removing or defacing the label
- ☐ Clean/decontaminate laboratory glassware and redistribute to stockrooms or other labs

Other

- ☐ Check all shared storage areas for hazardous/biohazardous materials and dispose of properly or redistribute to another lab
- ☐ Update emergency information, including external door postings, contacts lists, SOPs, etc.
- ☐ Notify the Facility Operations Manager (if any) when lab is vacated
- ☐ Notify EHS at 505-277-2753 or EHSWEB-L@list.unm.edu when lab is ready for final walk-through inspection

ATTACHMENT 2 - HAZARDOUS WASTE DETERMINATION FORM

Building:	**Room:**	**Generator Name: (The lab's PI/Manager)**

Waste Description: (acid waste, HPLC waste, distillation waste, solvent waste, etc.)

PI's Phone Number:

Generation Process: (how was the waste created? i.e. lab cleanout, HPLC process, organic synthesis process, DNA sequencing, etc.)

Estimated Quantity Generation Rate: (Within 1 month)

☐ **1L or less** ☐ **4L or less** ☐ **20L or less** ☐ **More than 20L**

Characteristics: (Select all that apply)

☐ **Flammable/Ignitable** (D001)

Corrosive (D002)

Only if pH is:

☐ pH ≤2
☐ pH ≥12.5

☐ **Not Corrosive**
Only if pH is >2 & <12.5

Physical State:

☐ Solid
☐ Liquid
☐ Gas
☐ Aerosol

Listed: (EHS will fill in this section)

☐ "F" Listed: **(F001-F037)**
- Non- Specific Source Wastes

☐ "P" Listed: **(P001-P123)**
- Acutely Toxic Hazardous Waste

☐ "U" Listed: **(U001-U359)**

☐ **Toxic**, not identified by EPA Waste Codes.

Selected Waste Codes:

_____ _____ _____

_____ _____ _____

☐ **Reactive/Oxidizer** (D003)

☐ **Toxic** (D012-D043)
A selected group of ten pesticides and twenty-two organic chemicals are classified as hazardous due to their toxicity characteristic.

☐ **D012** Endrin	☐ **D028** 1,2-Dichloroethane
☐ **D013** Lindane	☐ **D029** 1,1-Dichloroethylene
☐ **D014** Methoxychlor	☐ **D030** 2,4-Dinitrotoluene
☐ **D015** Toxaphene	☐ **D031** Heptachlor
☐ **D016** 2,4-D	☐ **D032** Hexachlorobenzene
☐ **D017** 2,4,5-TP (Silvex)	☐ **D033** Hexachlorobutadiene
☐ **D018** Benzene	☐ **D034** Hexachloroethane
☐ **D019** Carbon tetrachloride	☐ **D035** Methyl ethyl ketone
☐ **D020** Chlordane	☐ **D036** Nitrobenzene
☐ **D021** Chlorobenzene	☐ **D037** Pentrachlorophenol
☐ **D022** Chloroform	☐ **D038** Pyridine
☐ **D023** o-Cresol	☐ **D039** Tetrachloroethylene
☐ **D024** m-Cresol	☐ **D040** Trichloroethylene
☐ **D025** p-Cresol	☐ **D041** 2,4,5-Trichlorophenol
☐ **D026** Cresol	☐ **D042** 2,4,6-Trichlorophenol
☐ **D027** 1,4-Dichlorobenzene	☐ **D043** Vinyl chloride

Does the waste contain these metals? If yes, at what concentration?

☐ Arsenic	☐ Lead
☐ Barium	☐ Mercury
☐ Cadmium	☐ Selenium
☐ Chromium	☐ Silver

HAZARDOUS WASTE DETERMINATION FORM

Composition: (list **all** constituents, must equal 100%; approximations are acceptable.)

Compounds:	Volume% (range)	Compounds (continued):	Volume% (range)
1.		7.	
2.		8.	
3.		9.	
4.		10.	
5.		11.	
6.		12.	

Pictograms: (Check all that apply)

 ☐ Health Hazard	 ☐ Irritant	 ☐ Acute Toxicity	 ☐ Flame Over Circle (Oxidizer)	 ☐ Fire Hazard
 ☐ Corrosive	 ☐ Explosives	 ☐ Compressed Gas	 ☐ Environment (Aquatic Toxicity)	

Final Determination:

☐ Hazardous ☐ Non-Hazardous ☐ Used Antifreeze ☐ Used oil

Approved by EHS: _____ **Date:** _____

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LABORATORY CLOSEOUT PROCEDURE
Attachment 3 - Laboratory Decontamination Procedures

Laboratory surfaces and equipment can be contaminated with a variety of materials. When labs are closed/vacated, scheduled for renovation or demolition, or when lab equipment is scheduled to be serviced, moved, temporarily stored, sent to surplus, or disposed of, a thorough cleaning and decontamination must occur so that future occupants and others who come in contact with lab surfaces and equipment are not exposed to hazardous materials previously used in the lab.

Ensuring that lab surfaces and equipment are cleaned and decontaminated is the responsibility of the laboratory Principal Investigator (PI) or their designee. If these individuals are no longer at the university, it becomes the responsibility of the department that owns the laboratory and/or equipment.

Items That Require Decontamination - Laboratory surfaces and equipment that must be decontaminated include, but are not limited to:

- Benchtops and counters
- Sinks
- Furniture
- Shelving
- Floors
- Chemical Fume Hoods
- Biosafety Cabinets
- Refrigerators & Freezers
- Incubators
- Water Baths
- Centrifuges

These items may be contaminated with:

- Hazardous materials (residues of materials that are toxic, corrosive, flammable, reactive)
- Biohazardous materials (infectious agents, rDNA material, biologically-derived toxins, human and animal tissues and bodily fluids)
- Radioactive materials

Procedures for Hazardous Materials Decontamination

For labs where hazardous materials such as acids, bases, flammables, and toxics were used:

- Minimum PPE required for decontamination is lab coat, hand protection (gloves) and eye protection (goggles).
- Clean all surfaces and equipment with warm soapy water or a 1:100 solution of Alconox detergent.

For labs where, toxic metals that *are not* water reactive were used:

- Clean all surfaces and equipment with a freshly-made 25% aqueous detergent solution that contains tri-sodium phosphate (TSP). Capture the rinseate in a container and submit to EHS for disposal as hazardous waste.

For labs where water reactive materials were used:

- Refer to the Safety Data Sheet for guidance on decontamination procedures.

Procedures for Biological Decontamination

- Wearing proper PPE, disinfect all surfaces with PREempt RTU Multi-Surface One-Step Disinfectant.
- Sanitize all surfaces with a 1:10 water and bleach solution. Allow solution to remain in contact with equipment surfaces for 10 minutes. **Note:** When bleach is used, a second wiping with 70% ethanol is needed to remove residual chlorine, which may corrode stainless steel.
- For biological safety cabinet (BSC) decontamination, wipe down the primary work surface, underlying catch basin, side walls, back wall and interior surface of the window with an appropriate disinfectant. To decontaminate the catch basin, remove the front intake grill, lift out the work surface tray and wipe off interior with a paper towel soaked with disinfectant.
    - When taking a BSC out of service, a BSC certifier must be contacted for gaseous decontamination.

Procedures for Radioisotope Decontamination

For radioisotope decontamination assistance, contact the Radiation Safety Office at 505-925-0743.

Questions?

For questions about laboratory decontamination, contact EHS at 505-277-2753 or EHSWEB-L@list.unm.edu.

For questions about the process of submitting equipment for surplus, contact Surplus Property at 505-277-2923.

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Laboratory Closeout Procedure
Attachment 4 - Laboratory Equipment Decontamination Form

The PI or their designee must decontaminate lab equipment prior to a lab closeout and before equipment is serviced or moved. Attach this completed form to each piece of equipment that has been decontaminated.

This equipment is being decontaminated for ☐Disposal ☐Relocation ☐Repair ☐Lab Closeout

Type of Equipment/Model: _____ Serial #: _____

Building: _____ Room: _____ Bay: _____

Dept./Div.: _____ Owner/PI: _____ Phone: _____

1. ☐ **Decontamination method for equipment exposed to Biohazardous Material** ☐N/A
   - ☐Disinfected using (check one):
     - ☐ PreEmpt RTU ☐10% bleach ☐Other: _____
   - ☐ Biohazard label removed
2. ☐ **Decontamination method for equipment exposed to Hazardous Chemicals** ☐N/A
   - ☐Cleaned and/or neutralized with appropriate detergent such as Alconox
   - ☐ Used cleaning supplies (PPE, paper towels) bagged and labeled as Hazardous Waste
3. ☐ **Decontamination method for equipment exposed to Radioactive Material** ☐N/A
   - ☐ Fully surveyed for radioactive materials (inside and out), has been decontaminated, and is not radioactive
   - ☐Radiation hazard label removed
   - ☐UNM Radiation Safety Office (505-925-0743) has cleared the equipment
4. ☐ **Incubator water jacket** -- drained and CO2 disconnected ☐N/A
5. ☐ **Stored energy** (e.g., electrical, pneumatic) -- discharged or de-pressurized ☐N/A
6. ☐ **Refrigerator/freezer** -- contents have been removed & unit wiped down ☐N/A
7. ☐ **Unwanted/broken equipment --** wiped down and list has been sent to Surplus Property ☐N/A
8. ☐ **Universal Waste (bulbs, batteries)** -- boxed, labeled; submit Service Request to FM Recycling ☐N/A

I certify that, to the best of my knowledge, this item is free of hazardous materials and other hazards, including those noted above.

Signature: _____ Name: _____ Date: _____

Comments: _____