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Laboratory Close-Out Procedure

Overview

Laboratories that are vacated or abandoned without first being cleared of all hazards is a common cause of lab accidents, incidents and near-misses. The responsible party leaving the institution, relocating a laboratory, terminating laboratory research activities, or temporarily relocating during a renovation project must first ensure that all hazards are identified and removed. Prior to transferring a lab to a new department or occupant, the responsible party and their department are responsible for ensuring that the space, including shared space, is cleared of all hazards belonging to the responsible party, and that all biological, chemical, and radiological materials are removed prior to vacating the space. All remaining equipment, including biosafety cabinets and storage cabinets, must be properly decontaminated, including all surfaces, such as counters, drawers, floors, fume hoods, etc. All New Mexico Institute of Mining and Technology (New Mexico Tech , NMT) laboratory rooms, chemical storage areas, and areas where hazardous equipment or materials are used or stored will be inspected and evaluated by staff from the Research Compliance and Safety Office before being vacated.

Research Compliance and Safety should be notified of pending moves/closures in advance, preferably at least **eight weeks prior** to the lab-closure. Once notified, Research Compliance and Safety will provide additional guidance and assistance during a pre-close-out inspection to identify any outstanding safety issues.

Definitions

- **Responsible party:** Any New Mexico Tech employee who is responsible for the scientific operations, upkeep, safety, and compliance of a laboratory space and supervises other personnel that work in a lab space. **For the purpose of this definition, the responsible party is the person responsible for a laboratory.** When a responsible party vacates a laboratory without

following this procedure first, the role of responsible party defaults to the department chair or center director.

- **Research Material**: lab equipment, chemicals, radioactive material, electronics, and associated supplies used in a laboratory by a responsible party or others under the responsible party's supervision.

Responsible Party Duties

The responsible party for each laboratory is responsible for the safe operation of the laboratory. This includes transfer/removal of hazardous material from the laboratory and leaving these facilities in a safe condition when vacating the premises. This guideline outlines the responsibilities and duties in the laboratory close-out process and provides suggestions for handling/disposal of hazardous materials.

Lab Closeout Procedure Steps:

1) **Notification and Initial Walkthrough**

   Eight **(8) weeks prior to vacating a laboratory ,** notify the Hazardous Materials and Laboratory Safety Specialist of the pending move/closure by completing the NMT Close-Out Survey. Upon receipt of notice, the Hazardous Materials and Laboratory Safety Specialist (Lab Safety Specialist) will contact the department/lab representative to schedule an initial walkthrough of the laboratory to identify areas of potential concern.

   a) Complete the Laboratory Close-Out Notification Checklist and email the completed document to Hazmat@nmt.edu.

   b) The Lab Safety Specialist will help to identify any safety issues during the lab walkthrough. Together, the Lab Safety Specialist and appropriate lab personnel (responsible party) will jointly develop a close-out plan that is customized to the lab and will agree upon target dates for critical process steps. Steps can include:

      i) Transfer/disposal of all chemicals, biological material and radioactive material, including research samples.

      ii) Disposal of all hazardous and non-hazardous waste.

      iii) Removal/transfer of equipment.

      iv) Review of the chemical inventory to flag items of concern, i.e., peroxide formers, controlled substances, gas cylinders, etc.

      v) Coordinating procurement of 3rd party vendor disposal service, when applicable

The end goal is to ensure no materials remain after the responsible party has left the lab space. Any hazardous materials that remain behind must be assigned to a new responsible party designated by the department.

After all work in the lab is completed, a final walkthrough of the space will be conducted by Research Compliance and the lab representative, see Final Inspection, below.

2) **Prior to Moving Time**

Review the following close-out items. General points are covered to help safely and efficiently vacate the lab spaces. Where needed, more consultation will be provided by Research Compliance and Safety.

a) Review lab space to ensure all hazardous and unknown materials and research samples have been identified and labeled accordingly. Identifying and disposing of "unknowns" is a major risk in laboratory close-outs, causing delays and financial costs.
b) Seek assistance from the Hazardous Materials and Laboratory Safety Specialist to plan the safe transfer and disposal of any particularly hazardous substances (violently reactive chemicals, toxic gasses, etc.).
c) Follow-up on the status of time-critical close-out steps such as radioactive and chemical waste collection, moving of special equipment, etc.
d) If the research materials are moving to a new NMT lab space, visit the intended space to ensure that no equipment or materials remain from prior occupants.
e) Verify that all modifications in the new space will be completed before the move.

No equipment used with radioactive materials should be moved by lab personnel if external removable contamination is present. The Radiation Safety Officer will provide testing for equipment, including freezers and refrigerators; this service will be arranged through the Hazardous Materials and Laboratory Safety Specialist.

3) **Moving time**

a) Although staff who work with hazardous materials should be trained in how to clean up small hazardous materials spills, always move items during normal university business hours so that others are available to assist in the event of a spill or accident.
b) Provide secondary containment for bio-hazardous materials, chemicals, and radioactive materials during transport (even when moving only a short distance).

c) Do not transport hazardous materials without at least one other person present who is trained on your laboratory emergency response procedures and capable of providing assistance.
d) Never transport hazardous materials on public roads.
e) Always wear appropriate personal protective equipment (PPE) for the materials being handled (e.g., safety glasses or goggles, lab coat, gloves, closed-toe shoes, etc.).
f) Have boxes, plastic bags and containers for broken glass, etc., ready and available before you begin.
g) Ensure any required warning signs (radioactive materials, biohazard signs, etc.) have been posted in your new lab location.
h) Review the location and inspection records of safety showers, eyewashes, fire extinguishers, and all available means of exit from the laboratories and the building.
i) Review the old lab space. Do any materials remain in the space that need to be removed?

4) **<u>Final Clean Up</u>**
   a) **Non-Hazardous Equipment and Supplies**
      i) Turn off and disconnect all equipment from power supplies.
      ii) Empty everything from laboratory storage areas, e.g., refrigerators, freezers, cupboards, etc.
   b) **Biological Hazards**
      i) A solution of 5.25% sodium hypochlorite (household bleach) diluted between 1:10 and 1:100 with water is effective at decontaminating most surfaces which have come in contact with infectious material. Allow contact for at least 20-30 minutes and follow-up with water to remove any bleach residue.
      ii) If other disinfectants are used, read the label to ensure the chemical is effective against the biological agent and the appropriate contact time is used.
      iii) Ethanol should not be used as a disinfectant against non-enveloped viruses (ex. Adenovirus).
   c) **Chemical Hazards**
      i) For assistance with what type of cleaner or cleaning material to use and how to dispose of materials used to clean contaminated surfaces, contact the Hazardous Materials and Laboratory Safety Specialist at hazmat@nmt.edu.
      ii) Clean and decontaminate all spaces that are being vacated, including removing all bench paper and contents of cabinets and any equipment that will be left behind, including shared equipment.

iii) Laboratory equipment or laboratory surfaces that are potentially contaminated with a hazardous material must be decontaminated before being removed from the lab. Wipe down all contaminated surfaces with a cleaning agent capable of removing the contaminant. If equipment contains a hazardous material integral to the operation of that piece of equipment (e.g., oil, mercury and asbestos), the hazardous material must be removed prior to disposal (examples of internal parts that may contain hazardous materials are mercury switches, mercury thermometers, transformers, oil pumps, and compressors).

iv) Notify the Hazardous Materials and Laboratory Safety Specialist of:

(1) any equipment or procedures that may have contributed to hazardous chemical residues remaining on surfaces (e.g., perchloric acid).any equipment or areas that cannot be fully decontaminated (e.g., material potentially containing asbestos).

d) **Radioactive Hazards**

i) A special decontaminating solution (e.g. Radiacwash, Count-off, Liftaway) is recommended. Contact the Radiation Safety Officer for assistance in selecting the decontamination method. Wipe the surface with a paper towel to remove the contamination, changing paper towels often. After the equipment has been cleaned, it must be dry before a subsequent survey can be performed.

ii) The Radiation Safety Officer must perform the final survey prior to disposal; contact the Radiation Safety Officer at RSO@nmt.edu to schedule.

5) **Final Inspection**

a) Notify the Hazardous Materials and Laboratory Safety Specialist that the lab space is ready for a close-out.

b) The Lab Safety Specialist will meet and review the Laboratory Close-Out Procedure Checklist form with the responsible party. If the form has been satisfactorily completed, Research Compliance and safety staff will also sign the form and provide a copy to the lab and department, if requested.

c) After all forms have been completed and signed, the laboratory space will be considered clear of hazardous materials.

Additional Resources

Hazardous Material Handling/Disposal

Please refer to the Hazardous Waste Pick Up Instructions at https://www.nmt.edu/research/hazmat.php for questions on disposal practices. Contact the Lab Safety Specialist for waste labels and requests for chemical/radioactive waste pick-up.

- **Biological Materials**
  - **Assess any biological materials:** (e.g. recombinant DNA materials, microorganisms, cells and cell lines, tissues, organs, body fluids, biologically-derived or contaminated media) and determine which materials will be transferred to the new laboratory or to another responsible party. Dispose of the remaining materials, per NMT disposal guidelines, e.g., autoclaving and disposing in biohazardous waste containers.
  - **Select Agents:** Certain biological material and toxins are considered Select Agents (see 42 CFR 73.4 and 73.5) and cannot be transferred to other university personnel or transported off campus without prior approval from the Lab Safety Specialist, the department of Health and Human Services, and/or the United States Department of Agriculture. Contact the Lab Safety Specialist for more information.
  - **Infectious Waste, Animal and Human Tissues, and Toxins:** Contact the Lab Safety Specialist for more information.

- **Chemical Materials**
  - Chemicals can be transferred to other laboratories within the department, or other university departments, with the acknowledgement of Research Compliance and updating the laboratory chemical inventory of the recipient's location. Contact the Hazardous Materials and Laboratory Safety Specialist at Hazmat@nmt.edu or 575-517-0646.
  - Chemicals to be disposed of must be properly containerized and labeled. Proper labeling requires the chemical name of each chemical to be listed on the container. If a container has a mixture of chemicals, each chemical must be listed with its relative percentage. Chemical formulas, abbreviations, or trade names are not acceptable. For any commercial chemical product that is not labeled with its chemical name, a Safety Data Sheet must be requested from the company and supplied to Research Compliance with the chemical. When you have chemical waste ready for pickup, complete an online request at https://www.nmt.edu/research/hazmat.php.

- If you have unknown chemicals or high hazard materials, such as peroxidized ethers or violently reactive chemicals, special handling may be required. **Outside experts may need to be contracted for identification, stabilization and disposal of such substances.** Contact the Lab Safety Specialist at hazmat@nmt.edu or 575-517-0646.

- **Transporting hazardous chemicals, biohazardous substances or radioactive material**
  - If transporting containers of biological materials, chemicals, or radioactive materials to another location on campus, place the container in a secondary container that is capable of holding the contents if the original container breaks.
  - Containers must be in good condition, tightly sealed and labeled. An unlabeled container is considered an unknown and cannot be transported.
  - Liquids should be packed in vermiculite or other sorbents such as spill pads, and placed in containers that will not leak if tipped over.
  - Beakers, flasks, etc., must be empty, as they are unsuitable for transportation while containing any material.
  - If transporting materials off campus, you must comply with applicable U.S. Department of Transportation (DOT) regulations. This may require obtaining the services of a specialized contract hazardous materials transportation service.
  - Staff must not transport hazardous materials in personal vehicles. DOT certification is required to transport hazardous materials in company vehicles.
  - Gas cylinders may be moved using a handcart equipped with a strap. Cylinders must be securely strapped for transport, regulators removed and cylinder caps replaced.
  - Gas cylinders with an Airgas label attached must be returned to Airgas; call Facilities Management at 575-835-5844. If an Airgas label is not affixed to the cylinder, please contact the Hazardous Materials and Laboratory Safety Specialist at 575-517-0646 or at hazmat@nmt.edu for more information and guidance.
  - Tubing and regulators that are connected to corrosive or hazardous compressed gas cylinders should be detached using safe procedures such as purging and venting to a hood or ventilated area. Contact the Hazardous Materials and Laboratory Safety Specialist for assistance or directions on this process.
  - TheLab Safety Specialist will pick up lecture bottles; use the chemical waste pickup request form available at https://www.nmt.edu/research/hazmat.php.
  - DEA controlled substances must be managed under the requirements of your registration. For disposal, please contact Research Compliance and Safety at research.compliance@nmt.edu for more information.

- The Radiation Safety Officer will assist with the following items. Authorized users on a radiation protocol, must inform the RSO at RSO@nmt.edu.
    - Terminating the radioactive materials protocols.
    - Ensuring laboratory facilities and equipment are free of contamination.
    - Ensuring all radioactive materials, radioactive waste, and potentially contaminated equipment or surfaces are properly labeled.
    - Disposing of radioactive waste by completing a request at https://www.nmt.edu/research/hazmat.php.
    - If the authorized user is leaving the university, it is their responsibility to return dosimeters, and any borrowed equipment, such as survey meters, radiation protection equipment, and shielding devices to the Radiation Safety Officer.
    - Informing the Radiation Safety Officer of any radioactive material or survey meter being transferred to another Authorized User, to another location on campus, or to another licensed institution.
    - Scheduling a final laboratory radiation survey (and bioassay, if appropriate) with the Radiation Safety Officer.

Laboratory Equipment Disposal/Removal

NMT's Property Office manages all equipment for disposal or resale. It is the responsibility of the equipment's owner (the PI) to ensure all hazardous materials have been removed prior to it being released to the Property Office. This includes X-ray machines and lasers; contact the Hazardous Materials and Laboratory Safety Specialist for guidance on disposal of these specific items.

If you have laboratory equipment that will be picked up by the Property Office any equipment used with biological, chemical or radioactive materials must first be decontaminated. The person submitting the pick-up request must certify that the item(s) were appropriately decontaminated and are safe for Property to collect. Any questions/concerns can be discussed with the Hazardous Materials and Laboratory Safety Specialist at hazmat@nmt.edu.

Contact for Questions

Benjamin Thomas, Hazardous Materials and Laboratory Safety Specialist can be reached at 575-517-0646, hazmat@nmt.edu, or ben.thomas@nmt.edu.