

LABORATORY DECOMMISSIONING

Principal Investigators (PIs), who intend to leave employment at UNL, relocate to another UNL assigned space, or remodel an existing laboratory space must ensure that proper decommissioning takes place, as described in this SOP. PIs are accountable for all items and materials in their area, including research samples, used chemicals, and materials purchased, created or inherited from former lab occupants, equipment, etc. Departments are responsible for all costs incurred when the decommissioning process is not followed.

The decommissioning process can take significant time to complete and may require coordination of several departments (e.g., EHS, Facilities, Office of Research, etc.), so advance planning and notification to EHS is advisable. The decommissioning process and recommended notification time frames are outlined below. This SOP can be used as a checklist by PIs, laboratory staff, and department administrators to assist in a smooth and efficient decommissioning process.

Contact EHS sixty to ninety days prior to the laboratory change and inform of your plans and schedule.

Chemicals

With respect to **chemicals** that are associated with the laboratory:

- Review all chemical containers (stocks, working solutions, used chemical collection containers) in the laboratory for appropriate labeling, container integrity, and seals/lids. Rectify all deficiencies. The cost for analysis of unknowns will be assumed by the responsible PI and/or department.
- Consult with others in your department to determine if they have a need for usable stocks of chemicals that you no longer need. DO NOT leave chemicals for use by the next occupant.
- Clearly and legibly label all used, spent, and unwanted chemicals that are not re-distributed to others as "Waste" and the name of the product. Tag for collection by EHS. See the EHS SOP, **Hazardous/ Radioactive Material Collection Procedures**. Do not dispose of unwanted chemicals via the sewer or trash, unless approved in writing and in advance by EHS. In certain circumstances, EHS may be able to arrange an alternate procedure for significant quantities of chemicals to avoid the need for tagging individual containers.
- If self-transporting chemicals from one campus location to another, see instructions in Appendix A. Transport by common carrier is subject to dangerous

goods/hazardous materials transport regulations, including current training by the person preparing the shipment and registration of the transporter as a hazardous materials transporter. See EHS SOP, ***Packaging and Shipping Hazardous Materials/Dangerous Goods***.

- Arrange for pickup of all compressed gas cylinders by the supplier.
- Notify EHS if significant quantities (i.e., more than thermometer quantities) of mercury were used in the laboratory. EHS staff will conduct a mercury vapor survey of suspect areas (i.e., storage areas, sinks, use areas, etc.).
- Clean all work surfaces, durable equipment used with chemical agents, fume hoods, storage locations, etc. Notify EHS if perchloric acid was used in a fume hood.

Radioactive Materials

If the laboratory has been used with **open-source radioactive material**:

- Tag all radioactive waste for collection by EHS.
- Tag all stocks, samples, and sources that contain radioactive materials for collection by EHS. If you wish to transfer any radioactive material to another laboratory, consult with EHS prior to the transfer so transfer and shipping paperwork can be completed.
- Following removal of all radioactive waste and inventory, decontaminate all areas where radioactive materials were used or stored (including counters, floors where waste containers were stored, sinks, fume hoods, biological safety cabinets, refrigerators, freezers, etc.). Verify the efficacy of the decontamination process with swipe surveys.
- Decontaminate all durable equipment used with radioactive material and verify the efficacy of the decontamination process with swipe surveys.
- Survey results of decontaminated areas and equipment must be less than 200 **dpm** per 100 cm². DO NOT remove radioactive material labeling until the decontamination has been confirmed by the EHS Radiation Safety Office.
- Return all radiation laboratory documentation (RSO-8 forms, survey logs, and other associated records) to EHS.
- Return all dosimetry (badges and rings) to EHS.
- Contact the EHS Radiation Safety Office to complete a decommissioning audit. At the time of the audit, inform EHS of any equipment which has been used with radioactive material that will be transferred to UNL Inventory or another laboratory.

If **radiation producing devices** (e.g., x-ray machine), radioactive material containing device (e.g., electron capture detector), or class 3B or 4 lasers have been used in the laboratory:

- Inform EHS of the intended disposition of lasers and radiation producing/ radioactive material containing devices (e.g., transfer to another UNL laboratory, transfer to a non-UNL facility, transfer to UNL Inventory, etc.) and the associated schedule. In some cases, oils, sealed sources, etc., may need to be removed from the equipment prior to transfer. X-ray generator oil may require testing for PCBs.
- Return all dosimetry (badges and rings) to EHS.

- Contact the EHS Radiation Safety Office to complete a final close-out audit.

Biological Materials

If the laboratory has been involved in activities with **biological materials** (i.e., recombinant or synthetic DNA, human/plant/animal pathogens, diagnostic specimens, biologically-derived toxins, etc.):

- If in possession of select agents, consult with EHS prior to conducting any preparation for the move. Specific procedures must be followed.
- Decontaminate all waste materials and unwanted stocks, generally by autoclaving or via UNL's infectious waste contractor. Dispose of autoclaved materials.
- Consult with EHS prior to transport of any viable biological agent. If offering for transport by carrier: the person preparing the shipment must have current dangerous goods/IATA shipment training; the material must be packaged in accordance with DOT/IATA specifications and accompanied by appropriate paperwork; and the transporter must be registered as a transporter of hazardous materials. Other transfer permitting requirements may also apply (e.g., CDC or APHIS permits) depending on the agent. See the following EHS SOPs for additional information:
 - ***Packaging and Shipping Hazardous Materials/Dangerous Goods***
 - ***Import and Transfer of Etiologic and Other CDC Regulated Agents***
 - ***Importing Animals and Animal Products***
 - ***Non-Genetically Engineered Plant-Related Articles Requiring APHIS Permits***
- Following removal of all waste and viable stocks, decontaminate all use (including counters, floors, sinks, biological safety cabinets, etc.) and storage areas (including refrigerators, freezers, etc.). Consult with the EHS Biosafety Officer about decontamination methods for biological safety cabinets, incubators, and other equipment that may be contaminated with biohazards.
- If any equipment is to be reassigned to other faculty and removed from the lab, special decontamination procedures may be required.
- Decontaminate all durable equipment used with biological agents.
- Contact the EHS Biosafety Officer for a final walk-through. The Biosafety Officer will remove agent placards/signage from doors, equipment, etc., at the time of the final walk-through and upon demonstration that decommissioning has been completed.
- Amend or terminate all IBC protocols using NUGrant by submitting the appropriate form.
- If an APHIS permit is associated with your laboratory operations, all related materials must be destroyed or the permit updated with APHIS authorities to allow for intra- or inter-facility transport.
- If laboratory personnel have been required to participate in medical surveillance exams, consult with UNL's medical provider to determine if an exit examination is necessary; and schedule as appropriate.
- If the laboratory has been involved with live animals, contact the UNL Institutional Animal Use and Care Program for guidance.

General housekeeping

Take care of general cleaning needs of the space:

- Remove trash, debris, and general combustibles (e.g., paper, cardboard, etc.).
- Notify the Building Maintenance Reporter (BMR) of needed facility repairs or maintenance items (e.g., out-of-date or missing fire extinguishers, out-of-date inspections on fume hoods or biological safety cabinets, etc.).
- Follow the same procedures above, as applicable, for shared/common-use areas.
- Dispose of sharps containers. Ensure the containers are rigid, puncture-resistant, sealed closed, and labeled.
- Remove lab-specific signage (i.e., NFPA diamonds, laboratory contact information, posted chemical inventories, etc.). However, do not remove biological or radiation labels/signs/placards. These items will be removed by EHS personnel at the time of final decommissioning.
- Decontaminate/clean equipment and appliances that will be scrapped or sent to inventory prior to service by Maintenance and removal by Moving Services. Notify Moving Services and Inventory of typical household appliances that have been used in laboratory operations that could result in residual contamination (e.g., acid digestions, ethidium bromide preparation, etc.) and which should therefore be disposed rather than sold at public auction. Clearly label the appliance prior to pickup by Moving Services.

Other Considerations

Consult with the Office of Research regarding additional requirements or restrictions related to Material Transfer Agreements, Export Controls, and property ownership.

Appendix A

SELF-TRANSPORT OF CHEMICALS

1. Complete all steps outlined in the main body of this SOP.
2. Segregate chemicals that will be self-transported by compatibility. For compatibility guidance and other chemical hazards consult the applicable Safety Data Sheets (SDS).
3. Verify the integrity of chemical containers/lids. Pack compatible chemical containers into sturdy boxes or totes. The 4 x 1 gallon boxes in which solvents are commonly received are preferred so the weight is kept manageable. If another type of overpack container is to be used, it must be at least as sturdy as a 4 x 1 gallon box. Provide cushioning around individual containers by filling voids with inert packing material (i.e., Styrofoam, vermiculite, etc.). Seal containers of reactive chemicals in 'ziplock' bags prior to packing. Large containers should be packed on the bottom with smaller containers on top. Lecture bottles should be boxed valve end up. Arrange for transport of larger compressed gas cylinders by the vendor.
4. Complete a packing inventory for each box/tote. List each chemical by proper chemical name, container size and number of containers of each. Relatively non-toxic/non-reactive/non-flammable chemicals that are similar in nature (i.e., buffers, media, some stock solutions) do not need to be inventoried separately if one general description can be applied to all. Prior to transport, review all packing boxes and inventories to ensure that all containers are packed compatibly, the boxes are adequate, and the inventories are complete. Affix one copy of the packing inventory to the outside of the box; retain the other copy to place next to the driver in the transport vehicle.
5. Pre-plan vehicular transport to select the most appropriate transport vehicle, route, and time of transport. A transport vehicle that separates the driver from the cargo space is most desired (i.e., pickup with a covered bed; cube van). Select a route and time that provides the least amount of traffic.
6. Load the packing boxes, and block/brace them in the transport vehicle to prevent shifting of the load during transport. Do not transport chemicals in the same vehicle/load that may produce a dangerous reaction (i.e., acids and cyanides) in the event of a release. Place the extra copies of the inventories next to the driver. Ensure that an emergency communications device (i.e., cellular telephone) is available to the driver. In the event of a release during transport, notify the campus operator at 402-472-7211 or UNLPD at 402-472-2222.
7. Carefully transport the materials to their new location. Use material handling equipment (i.e., hand carts) to safely move the boxes from the unloading area to the laboratory.