LABORATORY START-UP, AUDITING AND CLOSEOUT

This section has been included to provide guidance to all principal investigators (PIs) and laboratory managers on appropriate start-up, auditing, and close-out procedures. It is imperative that these procedures be followed to ensure compliance with all applicable federal, state and local requirements.

Instructions for Principal Investigators (PIs)

Background

It is the responsibility of each Principal Investigator (PI) to be aware of all applicable safety requirements. Failure to follow safety requirements may lead to an unsafe occupational setting. Such non-compliance may also result in fines from external regulatory agencies such as the Occupational Safety and Health Administration (OSHA).

Laboratory Start-up Procedures

New PIs must complete the “Notice of Laboratory Occupancy” Qualtrics form (prior to arrival if possible). Once notice is received, an OESO representative will contact the PI to schedule a visit to the laboratory, at which time all applicable safety policies and procedures will be discussed. Every effort will be made to schedule the on-site visit within the first week of occupancy. Thereafter, laboratory safety audits will be conducted on a periodic basis.

- Laboratory Door Signs with Emergency Contact Information

  Each laboratory room should have emergency contact information posted at the door. In the event of an emergency, such as a fire or hazardous spill, response personnel will need to contact those responsible for the laboratory. The sign should include the names of the principal investigator (PI), the lab manager, and a department contact. Office and after-hour phone numbers and/or other contact information should be provided on the sign. Also, any special instructions the PI would like emergency personnel to be aware of can be listed on the sign. An example of an emergency contact information sign can be found at http://www.safety.duke.edu/ergonomics/computer-ergonomics/laboratory-door-signs-emergency-contact.

  The following special requirements may be applicable to your laboratory operations. See the links for more information and/or call OESO-Laboratory Safety Program 919-684-8822 for guidance.

- Lab-specific Chemical Hygiene Plan (required of all labs that use chemicals): Each laboratory must have a Laboratory-Specific Chemical Hygiene Plan, list of Particularly Hazardous Substances (PHSs) used in the lab, and lab-specific Standard Operating Procedures (SOPs) for any PHSs and nanomaterials used in the lab.
• **Chemical Reporting and Toxic Substance Control Act:** The Department of Homeland Security (DHS) promulgated the Chemical Facility Anti-Terrorism Standards (CFATS) in 2007. This program was designed to secure the nation’s chemical infrastructure by identifying high risk chemical facilities and requiring them to implement risk-based performance standards and other requirements. Facilities that manufacture, use, store or distribute certain “chemicals of interest” are covered by these requirements.

Because of the way DHS defined chemical facilities, colleges and universities such as Duke have to comply with this regulation. To determine if we must institute additional security measures, OESO must determine Duke’s aggregate quantities of these chemicals. For most of the chemicals on the list, we have determined that our aggregate quantities are well below the DHS thresholds. However, the list includes some chemicals that Duke has or could have in quantities close to the thresholds. These chemicals, along with other chemicals that are tightly regulated by the Environmental Protection Agency, are on Duke’s “Targeted Chemical Reporting List”.

The Toxic Substance Control Act (TSCA), administered by the Environmental Protection Agency (EPA), was established to ensure that the human health and environmental effects of chemical substances are identified and properly controlled prior to placing these materials into commerce (Fact Sheet). Although research laboratories such as those found at Duke University are exempted from many of the requirements of this act, certain provisions still apply.

**For compliance with Chemical Reporting and TSCA, complete the annual report found on the Laboratory Safety and Waste Management System found by going to [www.safety.duke.edu](http://www.safety.duke.edu), selecting “Laboratory Safety”, then “Lab Safety and Waste Management”**.

• **Chemical Waste Disposal:** All new PIs must carefully review the Duke Chemical Waste Policy. If any chemical waste will be produced, information on proper disposal can be found at: [http://www.safety.duke.edu/environmental-programs/hazardous-waste](http://www.safety.duke.edu/environmental-programs/hazardous-waste).

• **Application for Possession of Radioactive Materials:** An application must be submitted to the Radiation Safety Officer (RSO) for the use of all radioactive materials. Only after the application has been reviewed and approved by the RSO, shall the laboratory be allowed to purchase or use radioactive materials. Information on how to become an “authorized user” can be found at: [https://lsw.duhs.duke.edu/radsafety/new_au/main_menu.asp](https://lsw.duhs.duke.edu/radsafety/new_au/main_menu.asp). Contact Radiation Safety Division 919-684-2194 for more information.

• **Registration for Work with Recombinant DNA:** Experiments involving the utilization of rDNA may require approval by the Duke University Institutional Biosafety Committee (IBC) prior to submission to outside agencies and the initiation of experimentation. PIs should refer to the rDNA chapter of the Biological Safety Section of this manual and/or contact OESO - Biological Safety Division 919-684-8822 for more information. To go directly to the rDNA project registration form click [here](http://www.safety.duke.edu/environmental-programs/hazardous-waste).
- **Written standard operating procedures (SOP) for work with biohazards and/or hazardous chemicals:**
  - Biosafety Level 2 (BSL2) SOP:
  - Hazardous Chemical SOPs

- **Personal Protective Equipment Hazard Assessment:** The [PPE Hazard Assessment form](#) must be completed for any required PPE that is not covered in the Lab Safety Manual and lab-specific SOPs.

**Laboratory Closeout and Relocation Procedures**

All laboratory closeouts and relocations must be conducted in accordance with standard procedures for the removal of hazardous materials. The OESO Laboratory Safety Division (919-684-8822 or labsafety@dm.duke.edu) should be notified as soon as the laboratory closeout/relocation is anticipated (preferably 3-4 months), no less than 30 days prior to the departure date. Notice is given by completing the [Laboratory Closeout/Relocation Notice](#). Upon receipt, the OESO will provide specific instructions for proper shut-down to the laboratory’s assigned safety contact. The departing/relocating principal investigator shall be held fully responsible for all Institutional requirements. The laboratory will be cleared for new occupancy only after all requirements are met.

If proper notification is not given, the principal investigator and/or the department will be held responsible for all cost incurred for safe disposal of remaining hazardous material wastes.

The following is a list of requirements which must be met for each class of hazardous agents used before a laboratory is released by the OESO.

**Biological Hazards**

1. All biological materials (e.g. blood, fresh tissue, bacterial cultures) must be removed from the laboratory by disposing according to Institutional policy, by shipping to another facility while conforming to the approved shipping regulations, or by transferring to another PI. This includes those materials stored in refrigerators, freezers, incubators and cold rooms.
2. All equipment which has come in contact with potentially infectious materials must be properly decontaminated and labeled with the “Laboratory Equipment Statement of Hazard Assessment”.
3. All biological waste must be properly decontaminated and disposed of appropriately (autoclave, etc.).
4. All benchtops or other work surfaces on which biological materials were manipulated must be wiped down with an approved disinfectant.
5. The OESO shall determine the appropriate decontamination method for all biological safety cabinets. If formaldehyde gas decontamination is deemed necessary, the departing PI will be financially responsible.
Chemical Hazards

1. All chemical containers must be labeled with the chemical name or a best description of the compound and hazard warning.
2. All chemicals not transferred to another Duke laboratory will be considered chemical waste. Contact OESO-Environmental Programs (919-684-2794) to discuss disposal options.
3. Chemicals being shipped or transferred to another facility must be packaged and labeled according to approved regulations.
4. All benchtops and equipment (including fume hoods) must be cleaned of visible contamination using a compatible cleaning method (e.g. detergent/water solution, ethanol, etc.).
5. All equipment which has come in contact with hazardous chemicals must be properly decontaminated and labeled with the “Laboratory Equipment Statement of Hazard Assessment”.
6. Compressed gas cylinders must be returned to their supplier (e.g. National Welders). Cylinders owned by the PI (e.g. lecture cylinders) may be submitted to the OESO-Environmental Programs for proper disposal.

Radiation Hazards

1. Notify the Radiation Safety Officer, at 919-684-2194, of intention to terminate authorization.
2. Dispose of all radioactive materials by one of the following methods:
   - Materials can be transferred to another authorized user while complying with all license restrictions of that user. Approval from the Radiation Safety Officer is required prior to radioactive material transfer.
   - Materials can be disposed of through the OESO-Environmental Programs Division.
   - Materials can be shipped to a non-Duke licensee while conforming to all applicable shipping regulations. Radioactive materials will be prepared for shipment by the Radiation Safety Division. Note: There will be notification/acceptance requirements at the new facility.
3. Perform a thorough radiation contamination survey of the laboratory, including equipment, to determine if allowable contamination levels are achieved. Those areas found to exceed the allowable limits must be decontaminated and resurveyed until within allowable limits. Once this is complete, any equipment must then be labeled with the “Laboratory Equipment Statement of Hazard Assessment”.
4. Notify the X-ray Program lead at 919-684-2194, of intention to terminate use of X-ray producing devices.
5. All X-ray producing devices have to be made inactive before sending to surplus.

Laser Hazards

Notify the Laser Safety Manager (LSM), at 919-684-2194, of intention to terminate use of lasers. The LSM will provide information or assistance with proper disposal of lasers.

APPENDICES

Laboratory Startup/Closeout/Relocation Notices