

## **Lab Inspection Corrective Action Guidelines**

The following information is intended to serve as a corrective action guideline for commonly observed laboratory deficiencies during the most recent laboratory inspections and is not an all-inclusive document of laboratory safety guidelines.

### **• Recordkeeping**

- **Chemical Safety Data Sheets** must be readily available at all times. They must be readily accessible in a conspicuous location to all who may enter the lab space. If SDS sheets are available electronically, conspicuous signage must be posted to notate the location of computer, 24-hour access log in information, and the location and name(s) of files.
- **The University of Alabama Chemical Hygiene Plan (CHP)** must be readily available at all times. The CHP was created to comply with OSHA Laboratory Standard 29 CFR § 1910.1450, Occupational Exposure to Hazardous Chemicals in Laboratories. The UA CHP can be accessed through the following link: [Manuals and Policies – Environmental Health & Safety | The University of Alabama \(ua.edu\)](#). Print and place a physical copy in an easily accessible location in every laboratory.
- **Standard Operating Procedures (SOP)** must be readily available at all times. They must be readily accessible in a conspicuous location to all members of the laboratory. These documents provide step by step instruction for all procedures that may be performed within the laboratory, ensuring proper and safe completion of tasks. If SOPs are available electronically, conspicuous signage must be posted to notate the location of the computer, 24-hour access log in information, and the location and name(s) of files. An SOP template is available at [Forms and Supporting Documents – Environmental Health & Safety | The University of Alabama \(ua.edu\)](#).
- **All laboratory members must be familiar with the location of, and have access to, the SDS, UA CHP, and SOPs within the laboratory**
- Chemical Inventory must be maintained and updated through ChemTracker in the [SciShield system](#).
  - All laboratory members should already be familiar with procedures to manage the chemical inventory system.
  - Inventory training for ChemTracker can be requested by contacting the EHS Lab Safety Manager.
- **All laboratory members must receive laboratory safety training from UA Environmental Health and Safety (EHS) as well as applicable research specific**

**training from lead investigators before being granted permission to work in a laboratory. EHS Laboratory Training Assignments are outlined within the Training Academy as part of a predetermined curricula.** Laboratory safety training curricula can easily be edited within the Training Academy by EHS. Contact the Laboratory Safety Manager or Assistant Laboratory Safety Manager at EHS for assistance. Additionally, training status reports are available upon request, or a PI may request students provide certificates of completion from their Training Academy Transcripts. To review current safety training assignments, or to request a change within the Training Academy Curricula, complete the EHS training request form through the following link: [Training Information – Environmental Health & Safety | The University of Alabama \(ua.edu\)](https://ehs.ua.edu/training).

- **Signage**

- Every accessible entrance to a laboratory must have appropriate laboratory door signage posted.
- Posted door signage must include the following information:
  - PI responsible for laboratory space and contact phone number
  - Department Head and contact phone number
  - EHS and UAPD contact phone number
  - Hazard(s) associated with the laboratory
  - Personal Protective Equipment (PPE) required for entry and continued access to the laboratory

Door signage is currently provided by EHS. The PI is responsible for ensuring that accurate information is posted for their laboratory. Applicable edits to signage can be requested by submitting a lab signage form through the following link: [Lab Signage Form – Environmental Health & Safety | The University of Alabama \(ua.edu\)](https://ehs.ua.edu/lab-signage). Office phone numbers are listed on the door signage for the PI. Any personal phone numbers submitted will be kept in an EHS database for privacy unless otherwise requested by the PI.

- All microwaves, refrigerators, and freezers must have signage posted appropriately indicating the following:
  - “NO FOOD OR DRINK” - if in a laboratory.
  - “NO FLAMMABLES” - except in case of explosion proof refrigerator.
  - “FOOD ONLY” - for office microwaves and refrigerators only.
  - Biohazard warnings where applicable.

- **Security**

Access to laboratories must be limited and restricted. Any person who is not a laboratory member and has not received laboratory specific safety training must NOT have access to the space. Doors must never remain unlocked or propped open for any reason.

- **General Lab Safety**

- Areas around safety features such as fire extinguishers, pull alarms, emergency eyewashes/drench hoses, and emergency showers must always remain unobstructed and easily accessible.
  - Fire pull alarms, strobes, and speakers along with other safety features must remain visible and unobstructed
- Laboratory floors, aisles, and hallways must be unobstructed.
  - Boxes, shipping crates, equipment, old or unused electronics, etc. are common means of obstruction and must be removed from walkways.
- Laboratory floors must remain dry and free of slip hazards.
  - Slip hazards may include, but are not limited to, fluid leaks from equipment hoses, oil leaks from pumps, powdered materials, sawdust, and even soils.
- Travel paths must be free of trip hazards. Electrical cords, hoses, and tubing must remain out of travel paths or covered with trip-proof covers if necessary to prevent tripping hazards.
- General housekeeping must be a priority to provide a safe work environment.
  - Countertops must be free of clutter and wiped clean. Used paper towels and gloves are two commonly observed trash items frequently found on countertops. Wipe countertop surfaces with cleaning cloth or material to remove dust and residual hazardous material from spills and immediately dispose of these items properly.
  - Glassware must be routinely washed and put away. Refrain from storing large quantities of glassware next to, or in sinks and on countertops.
  - Floors must be swept to clear any debris that may cause a slip or trip hazard.
  - Cardboard boxes, unused electronic items, and trash must be removed in a timely manner to eliminate clutter and reduce fire hazards.
- Exits must be clearly marked and unobstructed.

- “NO FOOD OR DRINK” must be posted at the entrance of the laboratory. Cosmetics must not be applied in the laboratory.
- Label any food grade or common household items used in the laboratory as “Laboratory Use ONLY”.
  - Commonly found items include food coloring, nail polish, vegetable oil, and electric water kettles.
- Laboratory members must don appropriate PPE and be properly dressed while in the space. Insufficient or inappropriate PPE is a common deficiency noted during laboratory safety inspections. Proper PPE includes, but is not limited to:
  - Full-length clothing to protect legs
    - For warmer months, researchers can keep a pair of scrub pants or long pants in backpacks or offices for lab use.
  - Shoes that cover the entire foot (Sandals and socks are not shoes that cover the entire foot.)
  - Goggles, safety glasses, and face shields
    - Prescription eyewear is NOT appropriate PPE. Those who wear spectacles must wear goggles or safety glasses designed to fit over the prescription eyewear. Prescription safety eyewear must meet ANSI Standard Z87.1-2015.
  - Lab Coats
  - Respirators when applicable
  - Long hair confined
  - Jewelry and other loose articles removed or confined
  - Procedure specific protective gear such as cryogenic gloves for cryogenics or welding gloves for welding process, etc.
- Chemical Spill kits must be available and appropriate for hazards present in the laboratory space. All laboratory members must be familiar with the location and contents of the kit. The kit must be appropriately labeled for easy identification and accessibility. If the kit is stored in a cabinet, place conspicuous signage on the outside of the cabinet door indicating the location of the chemical spill kit.
- There must be no exposed wiring or damaged electrical cords present within the laboratory.
- Tools must be kept in a designated area. Be sure to return tools to designated tool storage area after use. Do not leave tools on countertops or other locations to create clutter and trip hazards.
- Paper towels and soap must always be available for hand washing at every sink in the laboratory.

- Items greater than 5 pounds must not be stored above eye level.
- Keep ignition devices such as lighters and matches away from flammable materials including chemicals, paper, and cloth.
- Initiate work orders to address building/space related concerns within the laboratory. For example, work requests should be created when there are needs similar to the items listed below:
  - Replacement of any dim or non-functioning light bulbs
  - Repair of any leaky or broken pipes and faucets
  - Unused or non-functional electronic items and equipment collected as surplus or for disposal.

- **Chemical Storage and Management**

- All primary and secondary containers must be properly labeled in English. Hazard Communication Standard Labels require pictograms, a signal word, hazard and precautionary statements, a product identifier and supplier information. A [template](#) label is available on the EHS website with instructions for use.
- Sample vials must also contain as much identification as possible. If a coding system is used to label samples, post a label key, or have one available in a conspicuous location to help identify the contents of the vials. If the label key is stored electronically, conspicuous signage must be posted to notate the location of the computer, 24-hour access log in information, and the location and name(s) of files.
- Chemical containers must be in good condition.
  - Labels must be legible and intact.
  - Containers must be turned with labels facing out to be easily read.
  - Containers must be free of crystallization on the outside.
  - Metal cans must be free of rust.
  - Containers must be intact, i.e., not broken, cracked, or otherwise compromised.
  - Containers must be properly closed when not in use.
- Containers must be segregated by hazard class. Examples include:
  - Flammables stored separate from oxidizers.
  - Acids stored separate from bases.
- Containers must be stored appropriately. For example:
  - Containers with chemicals must be stored in designated storage areas, and not on countertops or inside fume hoods.

- Containers with chemicals must remain capped or closed unless actively adding or removing from the contents.
- Flammables must be stored in OSHA/NFPA approved cabinets or safety containers.
- Corrosives must be stored in acid cabinets.
- Large containers (4 L or greater) must be stored near the floor. Bottles stored on the floor should be placed in secondary containment, such as trays, and away from aisle spaces.
- Hazardous chemicals must be stored below eye level.
- Corrosives and water reactive substances must be stored away from water, such as not next to, or under sinks.
- Gas cylinders:
  - Whether empty or full, gas cylinders must be secured with a chain or strap slightly above the middle of the cylinder and in an upright position.
  - Must not be stored in excess.
  - Flammable gases must have flow restrictors.
  - All cylinders must be capped when not in use.
  - Toxic, pyrophoric, or corrosive gases must be placed in gas cabinets.
- Chemical Fume Hoods:
  - Must not be utilized as a storage area.
  - Must be free of clutter and large materials that could impede air flow.
  - Must be kept clean from spills and splatters.
  - Cords must be routed underneath the sill to allow for complete closure of sash.
  - Sash must be down when hood is not in use.
  - Sills must be kept free to maintain air flow within the fume hood.
  - Some fume hoods are equipped with drains. These are for water ONLY.

## ● **Biological Safety**

- Biohazard warnings and signage indicating a BSL2 lab (or higher) must be posted at the entrance of the laboratory.
- Biological materials must be stored away from hallways.
- Biological materials must be in locked refrigerators and/or freezers.
- Disinfectants must always be available for sanitizing work areas and treating spills.
- Biological safety cabinets must be certified within the last 12 months.

- Hazardous chemicals must never be used in biological safety cabinets.
- Avoid overcrowding of biological safety cabinets to maintain proper operation and air flow.
- Appropriate PPE must be worn at all times.
- If a lab utilizes select agents, ensure the following:
  - All applicable signage is posted (toxic warnings, a notice to employees, and emergency exposure procedures).
  - All toxins and select agents must remain secured from unauthorized users.
- Labs with biological material must have clearly identifiable biological waste containers available.
- For additional guidance related to biological hazards, contact the [Biological Safety Officer](#) with the [Office of Research Compliance](#).

- **Radiation Safety**

- All applicable safety and warning signage must be posted at the entrance of the laboratory (radiation symbol, notice to employees, and emergency procedures).
  - The PI must remain in contact with the EHS Radiation Safety Officer regarding radiation activities (sublicense, dosimetry, changes in scope of work, incidents, etc.).
- Proper shielding for subject isotopes must be available and in use.
- All areas that house or use radioactive material must be labeled with a radiation warning.
- Freezers storing radioactive material must be labeled and vials stored within a lock box inside the freezer.
- Appropriate dosimetry must be available.
- Fume hoods utilized for radioactive research must be labeled with radiation signage.
- Researchers using radioactive material must be familiar with decontamination procedures for laboratory.
- For additional guidance related to Radiation Safety, contact the [Radiation Safety Officer](#) at Environmental Health & Safety.
- If non-ionizing radiation is utilized, ensure the following:
  - Proper warning signage is posted at the laboratory entrance.
  - Class specific PPE and shielding is available and in use.
  - Location of lasers is always known by the Laser Safety Personnel of EHS.

- **Hazardous Waste**

- A clearly defined Satellite Accumulation Area (SAA) must be present in the area where waste is generated. Ensure the following:
  - Waste containers must remain fully closed when not in use and only opened when actively adding waste.
  - Only hazardous waste is stored in the SAA (i.e., do not store equipment and tools in the SAA).
  - Waste containers must be in good condition (no leaking, rust, bulging, or damage).
  - Each waste container must be properly labeled as “Hazardous Waste” with full chemical names of contents provided in English. Abbreviations and chemical formulas are not accepted. Waste labels are provided by EHS through the following link: [Hazardous Waste Labels – Environmental Health & Safety | The University of Alabama \(ua.edu\)](#).
  - Waste containers near drains or sinks must always utilize secondary containment.
    - Secondary containment must be made of a material impervious to leaks (such as a plastic storage bin) and be free of cracks and gaps. Cardboard boxes are not acceptable secondary containers.
    - Secondary containment will be necessary for hazardous waste stored inside a fume hood since the drain present inside a fume hood is for water ONLY.
  - Regularly submit waste disposal requests to prevent storage of large volumes of hazardous waste. A disposal request can be placed through the following link: [Waste Disposal Request – Environmental Health & Safety | The University of Alabama \(ua.edu\)](#).
- Sharps waste (needles, razor blades, scalpels, broken glass, and other items with potential to puncture or cut):
  - Must be immediately discarded in a designated puncture resistant container.
    - Used razor blades and uncapped sharp tools are commonly observed on countertops. Immediately dispose of used unwanted sharps. Store reusable sharps in designated storage receptacle.
  - Containers must be clearly marked, readily available, and not exceed  $\frac{3}{4}$  full.
    - Broken glass containers must only house glass items.



- Gloves, paper towels, and other items must be placed in regular trash receptacles and NOT in disposed sharps containers such as broken glass boxes.

- **Biological Waste**

- Solid biohazard waste must be stored in red biohazard bags available in the laboratory. Solid biohazard waste must never be stored in regular black trash bags. as this will affect proper disposal.
- Waste being carried in a hard-sided container must have a biohazard label on each side.
- Waste solids must be discarded as regulated medical waste, and autoclaved or disinfected as appropriate.
- Sharps must be placed in biohazard labeled sharps containers.
- For additional guidance related to biological waste disposal contact [EHS Laboratory Safety Team and the Biological Safety Officer](#).

- **Radioactive Waste**

- Waste containers must remain fully closed when not in use and only opened when actively adding waste.
- Waste must be kept separate from other hazardous chemical waste.
  - Radioactive waste must have a separate designated radioactive SAA.
  - Ensure proper labelling of contents with identification of isotope and activity.

**For additional guidance on corrective actions, contact the [Laboratory Safety Team](#).**