

Laboratory Equipment Decontamination and Disposition

University of Tennessee Safety Procedure LS-015

Document Contact: EHS-Lab Safety

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Purpose, Applicability, and Scope

Purpose – Abandoned, broken, or unwanted laboratory equipment is that which is no longer suitable for its intended purpose and will not (or cannot) be used within a reasonable amount of time. Such equipment may become a nuisance and liability for the University by occupying laboratory space, blocking emergency egress pathways (e.g. hallways, stairwells, etc.), cluttering support areas (e.g. storage rooms, loading docks, etc.), or posing an immediate or long-term hazard to people or the environment. The purpose of this procedure is to provide a framework for the proper decontamination and disposition of laboratory equipment, particularly that which has been used in conjunction with, or potentially contaminated by, hazardous materials, including, but not limited to:

- Biological agents (bacteria, viruses, fungi, parasites, etc.)
- Corrosive chemicals or gases
- Toxic chemicals or gases
- Heavy metals (mercury, lead, cadmium, etc.)
- Asbestos
- Radiological materials (radioisotopes, sealed radioactive sources, etc.)

Examples of laboratory equipment include, but are not limited to, refrigerators, freezers, incubators, centrifuges, biological safety cabinets (BSCs), fume hoods, chemical storage cabinets, water baths, shakers, and analytical instruments.

Applicability – This shall apply to all students, staff and faculty on the Knoxville campus of the University of Tennessee who take ownership of laboratory equipment, whether purchased, borrowed/on loan, or communally shared. In the case where equipment will be disposed of due to circumstances such as a 1) change in ownership; 2) change in location; 3) loss of faculty member through retirement, loss of funding or death; 4) lab renovation; or 5) lab expansion, adherence to UTK Environmental Health & Safety Program LS-003 Laboratory Decommissioning & Commissioning and Appendices shall also apply.

Scope – This procedure applies to all laboratory equipment, excluding consumable goods (e.g. disposable plasticware).

Abbreviations and Definitions

Abbreviations

CFR – Code of Federal Regulations

DHHS – Department of Health & Human Services

EHS – Environmental Health and Safety

EPA – Environmental Protection Agency

IFC – International Fire Code

NFPA – National Fire Protection Agency

OSHA – Occupational Safety and Health Administration

TDEC – Tennessee Department of Environment and Conservation

Definitions

None.

Roles and Responsibilities

Equipment Owner (Principal Investigator) shall:

- Notify departmental leadership, EHS Lab Safety Services, EHS Radiation Safety (if applicable), and Facilities Services of any unwanted equipment at least four weeks prior to a lab decommissioning or relocation.
- Complete all required elements of the Decommissioning Procedure and sign the applicable Lab Decommissioning Checklist (see UTK Environmental Health & Safety Program LS-003 Laboratory Decommissioning & Commissioning, Appendix A or B; <https://ehs.utk.edu/index.php/table-of-policies-plans-procedures-guides/laboratory-decommissioning-commissioning/>)
- Act as the ‘responsible person’ (see below) or delegate responsibilities accordingly.

Responsible Person shall:

- Appropriately manage unwanted equipment. Equipment is not to be removed to hallways, stairwells, loading docks, or otherwise abandoned or inappropriately discarded.
- Work with equipment owner, departmental leadership or other parties to identify the use history of unwanted equipment, if unknown.
- Consult with EHS for a risk assessment and determination of decontamination procedures:
 - Decontaminate equipment according to EHS written instructions.
 - Follow prescribed safety measures, including wearing appropriate personal protective equipment, while cleaning and disinfecting equipment.
 - Full decontamination of some equipment, particularly that with contaminated internal components or compartments, may require contracted services. In these cases, associated costs are the responsibility of the owning department.
- Follow defined disposition procedures (below).
- Resolve any costs incurred for decontamination, disposition, or final disposal of intentionally abandoned equipment.

Department heads shall:

- Communicate and enforce equipment decontamination and disposition procedures to equipment owners within the department.
- Provide the use history of abandoned or unwanted legacy equipment left behind by departed faculty, if known.

- Resolve equipment ownership, or otherwise appoint a responsible person, for jointly-owned or shared equipment within the department.
- Act as the responsible person for any equipment owned and/or managed at the departmental level, or delegate associated responsibilities accordingly.

College administrators shall:

- Resolve equipment ownership, or otherwise appoint a responsible department (or responsible person), for jointly-owned or shared equipment within the college.
- Act as the responsible person for any equipment owned and/or managed at the college level, or delegate associated responsibilities accordingly.

EHS shall:

- Consult with equipment owners, users, or department heads to establish the use history of abandoned or unwanted equipment, if known.
- Provide a written risk assessment, which shall include information on any known hazardous materials used in conjunction with the equipment. Where appropriate, minor equipment that is free of hazardous materials may be approved as routine waste.
- Provide written instructions for decontaminating/cleaning equipment:
 - At the discretion of EHS management, assist with decontamination procedures (service fees apply)
 - Identify contractors who can provide technical services for decontamination as determined by equipment type and associated hazards.
 - Assist with disposal of hazardous equipment that cannot be decontaminated or cleaned. Hazardous waste disposal costs may be transferred to the equipment owner, department, or college.
- Provide guidance on equipment disposition in accordance with University-approved warehousing (surplus), recycling, or disposal procedures.
- Review, update, and communicate equipment decontamination and disposition procedures as necessary.

Warehousing Services (Surplus) shall:

- Maintain written procedures, forms, etc. for submitting abandoned, broken, or unwanted equipment.
- Provide removal (pick-up services) as necessary.
- Contact the equipment owner, department, and/or EHS with questions or concerns about hazards associated with submitted equipment.

Facilities Services shall:

- Maintain written procedures, forms, etc. for recycling abandoned, broken, or unwanted equipment as appropriate.
- Maintain written procedures, forms, etc. for disposing abandoned, broken, or unwanted minor equipment that is free of hazardous materials and approved by EHS for routine waste disposal (per risk assessment).
- Provide removal (pick-up services) as necessary.
- Contact the equipment owner, department, and/or EHS with questions or concerns about hazards associated with recycled or disposed equipment.

Procedures

1. If possible, obtain the use history of abandoned, broken or unwanted equipment.
2. Contact EHS at ehs_labsafety@utk.edu or (865) 974-5084 to conduct a risk assessment on the equipment and/or provide guidance on the appropriate decontamination and disposition procedures.
3. If the equipment was used in conjunction with, or otherwise exposed to, hazardous materials, decontaminate equipment in accordance with written procedures provided by EHS. If necessary, contact EHS and/or technical service contractors for assistance with decontamination. General instructions for decontamination include:
 - a. Use engineering controls and wear personal protective equipment as prescribed for the equipment and any associated hazards, including preparing and applying decontamination solutions.
 - b. For equipment used in conjunction with biological hazards:
 - i. The disinfectant and contact time will depend on the biological agents (potentially) present. When the agents are unknown, disinfect with a 1:10 bleach solution (vol:vol; 0.5% sodium hypochlorite) with a contact time of 15 minutes, followed by a rinse with water or 70% ethanol. If items are removable and heat-stable, autoclaving is an acceptable alternative to chemical disinfection.
 - ii. Biological safety cabinets used for Risk Group 2 (or higher) infectious agents, human-derived materials, or animal materials of unknown risk must undergo full gaseous (or vaporized hydrogen peroxide) decontamination (contracted service).
 - c. For equipment used in conjunction with chemical hazards or mixed hazards, contact EHS for evaluation and guidance.
 - d. All equipment used in conjunction with radiological hazards, including equipment containing sealed radioactive sources, must be cleared by the Radiation Safety Office.; contact the radiationsafety@utk.edu or (865) 974-5580.
 - e. Equipment that has not been used in conjunction with, or otherwise exposed to, hazardous materials does not require decontamination.
 - f. Once equipment has been decontaminated, it must not be reused prior to disposition.
4. Choose the appropriate method of disposition:
 - a. Reallocate to other labs, departments, or colleges as appropriate. Ensure that equipment inventory transfer adhere to UT Finance and Administration policies ([see form T-64](#)).
 - b. If equipment is borrowed/on loan, return to the owner or home institution. Transportation arrangements and associated shipping costs are the responsibility of the equipment owner, department, or college.
 - c. Release to UT Warehousing Services (Surplus) per the instructions posted at <https://warehousing.utk.edu/departmental-surplus/>. Contact surplus@utk.edu or (865) 974-7925 for additional information.
 - d. Equipment that cannot be transferred per (a) through (c) above may be eligible for recycling. Contact the UT Office of Sustainability at sustainability@utk.edu or (865) 974-3480 for additional information.
 - e. Equipment that cannot be transferred or recycled may be disposed as follows:
 - i. Equipment that cannot be decontaminated is to be disposed as hazardous waste in accordance with U.S. Federal and Tennessee State hazardous waste regulations. Hazardous waste disposal costs may be transferred to the equipment owner, department, or college.

- ii. At the discretion of EHS, (typically minor) equipment that is free from hazardous materials may be disposed as routine waste.

Regulations and References

The following regulations and references address prudent management of equipment, including decontamination and disposition:

- DHHS Biosafety in Microbiological and Biomedical Laboratories, 6th edition (2020)
- EPA Resource Conservation & Recovery Act (40 CFR 260-265)
- IFC Means of Egress, Chapter 10 (2018)
- State Fire Marshal per NFPA 45 (2019)
- OSHA Exit Routes-Means of Egress (29 CFR 1910.37)
- TDEC Division of Solid Waste Management, Hazardous Waste Program (Rule 0400-12-01)
- UTK Environmental Health & Safety Program LS-003 Laboratory Decommissioning & Commissioning and Appendices

Appendices

None.

Disclaimer

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