

NAU Pre-Construction building and Lab Decommissioning Guide

TABLE OF CONTENTS

	<u>Page</u>
Disclaimer	1
A. Regulations, Standards and References	2
B. Scope	2
C. Background	3
D. Policy	3
E. Notification and Close-Out Inspection	3
F. Guidelines	3

Disclaimer:

This Decommissioning Process is based on Industry Standards set forth in ANSI Z9.11 (2016), and the specific determinations and actions made by NAU EHS are based on the scope (narrative description and documents) submitted by the client. Any change to project scope, schedule, or planned next use may impact the decommissioning actions and requirements. Do not proceed with any added or changed scope of work without first requesting an update to this decommissioning document in order to ensure safe and effective decommissioning and completion of any required hazard mitigation activities.

A. Regulations, Standards and References

Regulations:

40 Code of Federal Regulations §§ 260–262

Arizona Administrative Code R18–8–260 et seq.

Standards and References:

ANSI/ASSE Z9.11 – 2016 Laboratory Decommissioning

Northern Arizona University Technical Construction Standards, Division 01 35

Northern Arizona University Chemical Hygiene Plan

Northern Arizona University Hazardous Waste Management SOP

Northern Arizona University Universal Waste Compliance Guidelines for Electronic Lamps

Northern Arizona University Biosafety Manual

Northern Arizona University Equipment Decontamination Form

Northern Arizona University Asbestos Program Manual

Northern Arizona University Policy for Hazard Inspections

Northern Arizona University Standard operating procedures for Lead

Northern Arizona University Radiation Safety Policies and Standards

NAU Confined Space Entry Checklist

NAU Lockout/Tagout Program Manual

B. Scope and Applicability

1. This document is applicable to all campus staff, faculty, and students engaged in maintenance, academic, or research activities and provides:
 - a. Guidelines for management, transfer and disposal of hazardous materials when a Principal Investigator or Researcher at Northern Arizona University relocates or closes a laboratory.
 - b. Guidelines and responsibility expectations for Principal Investigators, Researchers, Project Managers and EHS staff conducting pre-construction or Pre-demolition activities in labs or other campus buildings.

Environmental Health and Safety

- c. Expectations for EHS recommendations of the need, scope, schedule, or cost of required pre-construction hazard mitigation prior to construction/renovation. Or determinations of no-hazard.
2. Deviations from this procedure must be reviewed and approved by EHS prior to commencement of planned activities. Failure to comply may result in schedule or work delays, additional expense from hazard mitigation or EHS fees (applicable when the terms of this document are not met), or regulatory and legal liability.
3. The purpose of the decommissioning process is to ensure legal compliance and make the space safe for the next use/occupant. This process does not indemnify the owner, PI, or contractor from adhering to regulatory codes and standards, requirements presented by NAU Environmental Health and Safety (EHS), Purchasing, Technical Construction Standards or Design Guidelines, or other applicable policy or regulatory requirements.

C. Background

NAU EHS has programs and process controls for the purchase, use, storage and disposal of hazardous chemical, biological, and radioactive materials and waste. Additional programs address the management of hazardous building materials, work site safety/worker protection, and pre-/construction/remodeling inspections. These are designed to ensure that hazardous materials, agents, and wastes are appropriately handled to protect human health and the environment as well as to comply with federal, state and local laws, rules and regulations.

This decommissioning guide is intended to meet campus requirements and industry standards (ANSI/ASSE Z9.11) for facility decommissioning under the following circumstances:

1. A PI/researcher is moving locations, relocating equipment or equipment, changing process or chemical/type and use, ending research, cancelling or amending a biological, radiation or hazardous substance permit, or leaving the University
2. A space or facility is being renovated, remodeled, or demolished.
3. A group or department is relocating or disposing of chemical inventory, research, or specimen collection.

D. Policy

Labs: Prior to laboratories being vacated for construction or other purposes, equipment, chemicals, biological and radioactive materials must be properly transferred, removed or disposed. This policy is designed to ensure the safety, prevent and minimize risk to staff or vendors who may enter the vacated facilities.

Non-Lab facilities and construction areas: Prior to commencement of moving, demolition or construction activities, Buildings or building spaces scheduled for impact must be thoroughly inspected by EHS for the purpose of identifying any hazardous materials or conditions, and determining any hazard mitigation which must be completed to maintain compliance with safety and environmental regulations and standards.

****Inspection type and extent are determined by the proposed scope of planned work. Work***

Environmental Health and Safety

scope must be clearly defined by the PI or Project Manager and submitted with the request for inspection by EHS. (See Below)

E. Notification and Inspection Process Guidelines

PI/Researcher/Project Manager shall notify EHS prior to commencement of activities

1. EHS must be notified either when the move-out or construction date is known, or when the project scope of activities is clearly and completely defined in order to ensure proper scheduling and allow for required safety assessments and inspections. Notification should be made by the Project Manager, PI, or other responsible party at least 20 business days prior to move-out/construction.
 - a. Notification may be made through the NAU Hazard Inspection Request system or ServiceLogger ([accessible on EHS website](#)), by phone, or in person. **DO NOT MAKE INSPECTION REQUESTS THROUGH THE FACILITY SERVICES WORK CONTROL CENTER. NO WORK ORDER IS REQUIRED AND THERE IS NO FEE FOR THIS INSPECTION AS LONG AS THE REQUIREMENTS OF THIS GUIDE ARE MET.**
2. Following initial notification, EHS will provide a basic scope summary form to be completed by the PI/Researcher/Project Manager. The information in this document will be used to determine the extent and limitations of the project scope. Accuracy and completeness are critical. Additional documents and addenda are encouraged.
3. EHS response will include guidance and assistance to ensure that all hazardous material regulations are addressed and satisfied.
4. In the case of fume hoods that are being moved to a new location or permanently decommissioned, EHS must be notified of the Fume Hood Tag # for inventory management or re-commissioning procedures.
5. If hazard abatement or mitigation activities are required, EHS staff will issue recommendations for hazard mitigation and any associated oversight.
6. Assistance with mitigation pricing, scheduling, and other logistics is available upon request. The required hazard mitigation is related to the scope of construction or moving. Because scope and schedule are subject to change, the accuracy and completeness of hazard mitigation scope is the responsibility of the Project Manager or PI.

EHS shall provide all mandatory and advised inspections, assessments, and evaluations:

1. Respond to client requests within a reasonable time based on client submitted scope and schedule, anticipated hazards or mitigation efforts, and other known or expected complicating factors.
2. Conduct a Lab Close-Out Inspection and/or Pre-construction hazard assessment which includes assistance with or follow up audit of PI or occupant clean out and decommissioning work to ensure completion and compliance with any regulations or EHS safety policies.
3. Assist the department or Principal Investigator in the identification of all hazardous materials and hazardous waste
4. Identify chemicals or other materials that are to be moved by either NAU movers or outside vendors, or that can be approved for self-move, and provide guidance to ensure safe movement
5. If deemed necessary, conduct/develop a Job Hazard Analysis (JHA) for workers involved in the decommissioning process.
6. Pack and move remaining hazardous materials (Fee for service may apply if the requirements in this guide/ EHS policies are not met or if spaces are vacated/decommissioned without proper notice), or provide guidance/recommendations on safe handling and movement.
7. Provide assistance in the identification of hazardous waste and remove all chemical, biological, and

Environmental Health and Safety

- radioactive waste.
8. Determine if known radioactive materials or heated perchloric acid was used in chemical fume hoods and that no contamination is present.
 9. Examine the affected spaces to determine the presence of any previously hazardous building materials.
 10. Perform a site assessment or attend contractor meetings to determine any environmental compliance (IE wastewater, storm water, air quality, waste disposal, etc.) requirements associated with the planned work.
 11. Make recommendations for any necessary hazard mitigation required prior to the start of moving or construction activities.
 12. Assist PI or Project manager with pricing estimate for hazard abatement and/or oversight services to be performed by NAU or specialty vendors (Pricing may include vendor fees and EHS fee for service).
 13. Record and provide to customer all inspection findings either through established EHS reporting systems, or in writing on EHS standard format report forms.
 14. If necessary, evaluate new space to ensure that safety requirements for any incoming hazardous/dangerous substances or work processes are met prior to move-in.

F. Records.

1. The PI/Researcher/Project Manager shall maintain the following records.
 - a. Copies of permits and licenses associated with the space.
 - b. Copies of any EHS inspection reports or space decommissioning documentation.
 - c. Copies of chemical inventories and waste disposal records.
 - d. Copies of completed equipment decontamination forms.
 - e. Copies of JHA documents associated with normal facility use or decommissioning.
2. EHS shall maintain the following records.
 - a. Copies of any EHS issued inspection reports, permits, or other documents.
 - b. Copies of JHA documents associated with normal facility use or decommissioning.
 - c. Analytical data associated with the decommissioning process

*In the event that the responsible party leaves/is leaving the university, Records shall be archived with other records related to the space decommissioning project.

G. Guidelines for PI or Occupant performed move-out/decontamination/ decommissioning.

1. General Guidelines
 - a. Never Transport Hazardous materials alone.
 - b. Always wear appropriate PPE for materials being transported and follow EHS Guidelines for Chemical or Hazardous Waste.
 - c. Never perform demolition or disturbance of building components prior to completion of the EHS hazard assessment process.
 - d. Ensure that all EHS recommendations are followed. Contact EHS for additional guidance if necessary.

Environmental Health and Safety

2. Building and Construction Safety Guidelines:

- a. Do not begin any demolition or renovation prior to completion of an EHS inspection for hazardous building materials (IE asbestos, lead, PCB, silica, etc).
- b. Work on hazardous building materials must be performed by workers with adequate training, under a negative exposure assessment (NEA) or similar documentation of non-exposure. NAU employees should contact EHS for assistance preparing and monitoring the NEA. Contractors are responsible for preparing and recording the NEA for any work performed by their employees.
- c. All waste from hazardous building materials must be appropriately manifested, transported, and disposed. Contact EHS for assistance or guidance on waste disposal.
- d. Hazard mitigation work shall be scheduled before the commencement of other construction/demolition activities. If construction/demolition scope changes, expands, or if previously hidden materials are discovered, work shall stop until additional hazard mitigation may be completed and the area made safe to continue.

3. Compressed Gas Cylinder Guidelines:

- a. All compressed gas cylinders shall be handled by trained personnel only (Training available through EHS).
- b. Gas cylinders shall be removed from the laboratory space and returned to the gas supplier or designated storage area when not in use.
- c. Cylinders owned by the laboratory and moved to the new location must be transported in a safe and legal fashion. (EHS can provide guidance on gas cylinder transport).
- d. Gas cylinders shall be properly identified, labelled and pressure regulators must be removed and protective valve caps installed before transportation.

4. Chemical Safety Guidelines:

- a. All the chemicals shall be properly identified and segregated based on compatibility and hazard class. The responsibility lies with the Principal Investigator, Researchers, and the Department. EHS does not accept unidentified chemicals but can assist with identification if needed (Fee for service may apply if the requirements in this guide/ EHS policies are not met or if spaces are vacated/decommissioned without proper notice).
- b. Hazardous chemical waste must be stored in appropriate containers for transport and disposal. EHS can supply containers upon request.

5. Fume Hood Guidelines:

- a. For all instances of hoods being disconnected from the building ventilation system, the safety of those involved is the responsibility of the project manager.
- b. When working on or dismantling fume hoods, universal safety precautions shall be followed and personnel must wear appropriate ppe.
- c. If potential contamination is identified or if there is a persistent chemical odor in fume hood system, stop work and contact EHS for assistance.
- d. Maintenance on a roof: Contact EHS for guidance on fall protection and PPE for any hazards associated with the fume hood or nearby exhausts (appropriate PPE must be utilized). Note: The use of respirators by NAU employees must follow the protocol established by the NAU Respiratory Protection Program (Accessible on the [EHS](#)

Environmental Health and Safety

[website](#)).

- e. Older fume hoods and duct systems may be constructed with asbestos or lead components. Do not commence demolition or dismantling of any fume hood without first requesting inspection for these hazards by EHS.

6. Biosafety Guidelines:

- a. All biohazardous use areas, materials, or waste must be decontaminated properly; Sharps shall be collected in closable, leakproof, and puncture-resistant containers. Once $\frac{3}{4}$ full, smaller containers shall be closed and placed in biohazardous waste collection drums for disposal.
- b. Ensure no biological/hazardous waste is left in the laboratory.
- c. All materials including spilled material and other visible contamination must be removed by laboratory personnel.
- d. If any equipment was used to store or work with biological materials, it must be wiped with a 1:10 bleach solution by laboratory personnel prior to moving or disposal. EHS must be contacted for instructions if radioactive biological materials have been stored in the unit.
- e. A biological safety cabinet may only be moved after decontamination and the cost of decontaminating the cabinet is the responsibility of the laboratory/researcher. Whenever a biological safety cabinet is moved, it must be re-certified prior to use.
- f. If a biological refrigerator or freezer is to be discarded, in addition to the steps above contact Facilities Management to place a work order to have the Freon removed from the compressor (inoperable units) or, NAU Surplus Properties (working units). The cost of Freon removal is the responsibility of the laboratory.
- g. After completing the appropriate decontamination and filling out the equipment release form ([available on EHS website](#)) contact the Biosafety office at EHS to obtain a clearance to move or removal of the equipment.

7. Radiation Safety Guidelines:

- a. Prior to decommissioning, all radioactive use areas, materials or waste must be transported, stored, or disposed of in accordance with applicable state/federal regulations, and NAU policies set forth in the NAU Radiation Safety Program (<https://nau.edu/nau-research/research-safety-and-compliance/environmental-health-and-safety/safety-programs/radiation/>). If present, sharps shall be collected in appropriate sharps containers and disposed through environmental health and safety. Ensure no radioactive waste is left in the laboratory.
- b. All materials including spilled material and other visible contamination must be removed by laboratory personnel, and the area must be monitored for residual contamination prior to release. Monitoring shall be conducted in accordance with the EHS procedure for contamination monitoring (P:NAU:RAD:3), and the results recorded on the NAU contamination monitoring log (F:NAU:RAD:7).
- c. Any required decontamination must be performed in accordance with EHS policy for Radioactive decontamination/decommissioning (P:NAU:RAD:16), and recorded on the area decontamination/decommissioning log (F:NAU:RAD:16).
- d. Equipment used for activities involving radioactive materials, or which carry radioactive sources may only be moved after decontamination and completion of the EHS equipment release form (available on the [EHS website](#)).

Environmental Health and Safety

- e. After completing the appropriate decontamination, contact the Radiation Safety office at EHS to obtain a clearance to move or dispose of the equipment.

* Referenced procedures and forms are available on the [EHS Website](#).

H. Compliance and Accountability.

In accordance with Campus Policy, the university will take specific and prompt action in order to enforce compliance with the terms and conditions of various licenses, permits, or certifications issued by, or to the university, and also with applicable federal, state, and local regulations pertaining to the use, handling, storage, and disposal of hazardous materials, Student/worker safety, or environmental compliance.

This policy applies to individuals at the university who fail to exercise due diligence with regards to the decommissioning or remodeling of space(s) in their charge where hazardous materials are present or used as prescribed in this standard. EHS resources and services in support of decommissioning are provided at no charge to the client provided the Decommissioning Standard and other EHS policies are adhered to. The responsible party or, college/division/department/unit will be responsible for all costs associated with the decommissioning of space(s) that have been closed or vacated without notice, or where required processes have not been adhered to.