OLD DOMINION UNIVERSITY

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Occupational Safety & Health ◆ Environmental Health ◆ Laboratory Safety ◆ Industrial Hygiene ◆ Radiation Safety ◆ Hazardous Waste ◆ Pollution Prevention

Laboratory Waste Management Guidelines

Administered by

Environmental Health and Safety Office

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Overview

Hazardous chemical wastes are regulated by the Environmental Protection Agency (EPA) under the Resource Conservation and Recovery Act (RCRA) and its amendments. Federal and state regulations promulgated under RCRA classify waste as hazardous if it meets certain criteria as specified in the regulations. If a waste is classified as hazardous, disposal must be in accordance with the regulations.

EHS is responsible for managing the University's Hazardous Waste Program. Funding for disposal of "common" hazardous waste streams is through the EHS budget. EHS is not funded for disposal of "uncommon" waste streams, such as unknown waste and waste requiring stabilization. EHS collects hazardous waste generated on campus and transfers it to a storage facility where it is properly stored until picked up by a licensed hazardous waste disposal company.

When is Hazardous Waste Regulated?

Hazardous waste is regulated from the moment it is generated inside the lab until it reaches its final destination for disposal or treatment at an offsite facility.

What is Hazardous Waste?

A hazardous waste is a solid, liquid, or gaseous material that displays either a "Hazardous Characteristic" or is specifically "listed" by name as a hazardous waste.

Characteristic wastes are not listed specifically by their chemical name but they are regulated as hazardous wastes because they exhibit one or more hazardous characteristics. These four characteristics are **Ignitability**, **Corrosivity**, **Reactivity**, and **Toxicity**.

The **Ignitability** characteristic applies to wastes that are:

- Liquids with a flash point less than 140° F
- Solids capable of spontaneous combustion under normal temperature and pressure
- Oxidizing materials
- Ignitable compressed gases
- Examples include ethanol, sodium nitrate, hydrogen gas, xylene and acetone

The **Corrosivity** characteristic applies to wastes that are:

- Aqueous solutions with a pH less than or equal to 2 or greater than or equal to 12.5
- This does not apply to solid or non-aqueous materials
- Examples include hydrochloric acid, nitric acid, and sodium hydroxide

The **Reactivity** characteristic applies to the following:

- Materials that react violently or generate toxic fumes when mixed with water
- Cyanide or sulfide bearing wastes which evolve toxic fumes when mixed with acids or bases
- Materials that are normally unstable or explosive
- Examples include sodium metal, reactive sulfides, potassium cyanide and picric acid

The **Toxicity** Characteristic applies to wastes that have the potential to contaminate groundwater if improperly disposed of. These materials are regulated as hazardous waste due to their potential to leach out specific toxic substances in a landfill. There are currently 40 contaminants on the list that include certain heavy metals, pesticides and organic compounds.

EPA HWNo.	Contaminant	Level (mg/L)	EPA HW No.	Contaminant	Level (mg/L)
D004	Arsenic	5.0	D024	m-Cresol	200.0
D005	Barium	100.0	D026	Cresol	200.0
D006	Cadmium	1.0	D027	1,4-Dichlorobenzene	7.5
D007	Chromium	5.0	D028	1,2-Dichloroethane	0.5
D008	Lead	5.0	D029	1,1-Dichloroethylene	0.7
D009	Mercury	0.2	D030	2,4-Dinitrotoluene	0.13
D010	Selenium	1.0	D031	Heptachlor	0.008
D011	Silver	5.0	D025	p-Cresol	200.0
D012	Endrin	0.02	D032	Hexachlorobenzene	0.13
D013	Lindane	0.4	D033	Hexachlorobutadiene	0.5
D014	Methoxychlor	10.0	D034	Hexachloroethane	3.0
D015	Toxaphene	0.5	D035	Methyl ethyl ketone	200.0
D016	2,4-D	10.0	D036	Nitrobenzene	2.0
D017	2,4,5-TP Silvex	1.0	D037	Pentachlorophenol	100.0
D018	Benzene	0.5	D038	Pyridine	5.0
D019	Carbon tetrachloride	0.5	D039	Tetrachloroethylene	0.7
D020	Chlordane	0.03	D040	Trichloroethylene	0.5
D021	Chlorobenzene	100.0	D041	2,4,5-Trichlorophenol	400.0
D022	Chloroform	6.0	D042	2,4,6-Trichlorophenol	2.0
D023	o-Cresol	200.0	D043	Vinyl chloride	0.2

What is a **listed** Hazardous waste?
Unused or unopened chemicals will meet the definition of a **listed** hazardous waste if they appear on one of two lists. The **U-list** contains materials that are hazardous due to their toxicity. The **P-list** contains materials that are hazardous because they are acutely toxic. These lists only apply to unused materials that have one of the listed chemicals as the sole active ingredients. The list also applies to spill cleanups of these unused materials.
The complete U and P lists are included in Appendix A and B of this manual.

Additionally, certain used or spent solvents can be regulated as a hazardous waste if they appear on the **F-list**. This list is included in Appendix C of this manual.

Hazardous Chemical Waste Determination

The characteristics of hazardous waste include ignitability, corrosivity, reactivity and toxicity. In addition, chemicals included on the U-list, P-list and F-list are considered hazardous. This information is presented to provide a general understanding of the federal and state regulations that apply to the disposal of hazardous waste.
EHS staff assumes responsibility for picking up all of the waste chemicals from your laboratory and for making the final hazardous waste determination and appropriate disposal methodologies.

Essential rules for managing hazardous chemical materials

1. When possible, seek ways that will minimize the quantity of waste generated inside the laboratory.
2. Only use appropriate containers for the storage of waste materials.
3. Store chemical waste in a designated Satellite Accumulation Area.
4. Properly label all waste containers.
5. Keep waste containers closed.
6. Complete and submit HazWaste Disposal form for pick-up.

Waste Minimization

The University is required by Federal and State regulations to develop and implement a Waste Minimization Strategy. Ways to help achieve the goal of reducing the volume of chemical waste generated on campus includes but is not limited to:

1. Order the smallest quantity of chemical materials required for your research.
2. Keep an inventory of chemicals on hand.
3. Share surplus chemical with other labs.
4. Purchase mercury-free instruments.
5. Substitute hazardous chemicals with non-hazardous chemicals whenever possible.
6. Reduce the scale of laboratory experiments to reduce the volume of waste being produced whenever possible.

Storing waste in the lab (Satellite Accumulation)

Each location on campus that generates and temporarily stores chemical waste is a Satellite Accumulation Area (SAA). There are specific requirements on managing chemical waste within these areas.

Satellite Accumulation Area Requirements

Only a maximum of 55-gallons of hazardous waste may be stored within any Satellite Accumulation Area. In the case of acutely toxic chemical waste (P-list), a maximum of one quart may be accumulated at a time. Some common P-list chemicals are sodium azide, osmium tetroxide, sodium cyanide. Once either limit is reached, EHS must remove the material from your laboratory within 3 days.

Storage limits

Hazardous waste containers may be stored in a Satellite Accumulation Area for up to 12 months from the day waste was first placed into the container as long as the accumulation limits of 55-gal or 1-quart for are not exceeded.

The location of the Satellite Accumulation Area must be at or near the point where the waste is generated. Waste must not be generated in one room and taken to another room for storage.

Container Management in SAA's

Waste containers stored in a Satellite Accumulation Area must be:

- In good condition
- Compatible with the waste being stored
- Kept closed at all times except when filling
- Labeled with a HazWaste label
- Stored inside secondary containment bins/trays (provided by EHS for no charge)

- Original containers of unused materials do not need a HazWaste label if the original label is clearly legible
- Waste must always remain in the lab
- Never store waste in PUBLIC AREAS (such as hallways)

Waste Containers

- For most large quantities of compatible liquid waste, use the 2.5 or 5 gallon carboys provided by EHS free of charge.

Properly labeling waste containers

- List all contents (liquid and solid) and the approximate quantity or percent of each. Be sure to include water and other inert components. DO NOT USE ABBREVIATIONS OR CHEMICAL FORMULAS
- Give the total quantity in the container (preferably in milliliters or liters for liquids and grams or pounds for solids)
- Include the building and room number where the waste was generated.
- Do not mark in the DATE area, EHS will date the material on pick-up.
- Attach label to each chemical waste container

Why is labeling so important?

- EHS staff members need this information to decide how to safely manage the material.
- Environmental laws require the generator to label chemical waste materials.
- Chemical constituents must be known to allow us to dispose of chemicals with minimal cost and impact to the environment.

Many chemicals are poured together into drums. Other chemicals are packaged together based on compatibility.

Drain Disposal

Chemicals **must never** be poured down the drain as a method of disposal. Contact EHS if you have specific questions about drain disposal.

Waste Streams with Special Procedures

Unknown materials

Laboratory personnel must make every effort to provide an accurate description of all chemicals given to EH&S for handling and disposal. Unknown chemicals will not be accepted by EH&S since they cannot be handled or disposed of in a safe manner. Hazardous waste disposal companies will not accept unknowns without proper analysis and the analysis of a single sample can easily cost $1,000 or more.

It is the responsibility of the generator (individual or department) to accurately identify all chemical unknowns in their laboratory, either by knowledge or analysis. This may require polling laboratory personnel, students and faculty members to ascertain the owner of such unknown waste and its identity. It must be constantly emphasized to researchers that they identify and label all wastes and project products.

Peroxide forming chemicals

Peroxide-forming chemicals are a class of materials that have the ability to form shock-sensitive explosive peroxide crystals.

Under normal storage conditions the materials listed in this section have the potential to generate and accumulate peroxide crystal formations. These formations may violently detonate when subjected to thermal or mechanical shock.

Labeling Requirements

- All bottles of peroxide-forming chemicals must have the date received marked on the container.
- When the bottle is first opened, the container must be marked with the date opened.

Example Label

DATE RECEIVED:_____

DATE OPENED:_____

DATE EXPIRES:_____

Storage and Use Requirements

- Do not store peroxide-forming chemicals in direct sunlight as light can accelerate the chemical reactions that form peroxides.
- If the peroxide-forming chemical is flammable and requires refrigeration, then an explosion-proof refrigerator must be used.
- Do not distill, evaporate or concentrate a peroxide-forming chemical until you have first tested it for the presence of peroxides. (Peroxides are usually less volatile than their parent material and will tend to concentrate in the hot distillation pot).
- NEVER UNDER ANY CIRCUMSTANCES touch or attempt to open container of a peroxide-forming liquid if there are whitish crystals around the cap and/or in the bottle. The friction of screwing the cap may detonate the bottle. If you encounter such a bottle, contact the office of Environmental Health & Safety immediately for removal. DO NOT TOUCH OR MOVE THE SUSPECT BOTTLE YOURSELF FOR ANY REASON.

Disposal Requirements

- There are three classes of peroxide-forming chemicals based upon the peroxide formation hazard:
  - Class A – Severe Peroxide Hazard
  - Class B – Concentration Hazard
  - Class C – Shock and Heat Sensitive

Peroxide Forming Chemical Lists

Class A – Severe Peroxide Hazard

These are chemicals that form explosive levels of peroxides without concentration. These materials should be disposed of after 6 months.

Isopropyl ether	Sodium amide
Butadiene	Tetrafluoroethylene
Chlorobutadiene(chloroprene)	Divinyl acetylene
Potassium amide	Vinylidene chloiride
Potassium metal	

Class B – Concentration Hazard

These chemicals are a peroxide hazard on concentration (distillation/evaporation). Require external energy for spontaneous decomposition. These materials should be disposed of after one year.

Acetal	Dioxane (p-dioxane)
Cumene	Ethylene glycol dimethyl ether (glyme)
Cyclohexane	Furan
Cyclooctene	Methyl acetylene
Cyclopentene	Methyl cyclopentane
Diacetylene	Methyl-isobutyl ketone
Dicyclopentadiene	Tetrahydrofuran
Diethylene glycol dimethyl ether (diglyme)	Tetrahydronaphthalene
Diethyl ether	Vinyl ethers

Class C – Shock and Heat Sensitive

These chemicals are unsaturated monomers that may autopolymerize as a result of peroxide accumulation if inhibitors have been removed or depleted. These materials should be disposed of after one year.

Acrylic acid	Styrene
Butadiene	Vinyl acetate
Chlorotrifluoroethylene	Vinyl chloride
Ethyl acrylate	Vinyl pyridine
Methyl methacrylate	

Waste Oil

Waste oil should be collected in a proper waste container for collection by EHS staff. These oils are commonly found in vacuum pumps and other types of laboratory equipment. If the oils are contaminated with specific chemicals then please include this information on the chemical waste label.

Ethidium Bromide Waste Disposal

Ethidium bromide may present a hazard if it is poured down the drain untreated or placed in the trash. Ethidium bromide is not regulated by the EPA as hazardous waste, but ODU manages ethidium bromide waste as a special waste, and should be managed the same as a hazardous waste.

Any ethidium bromide waste should not be poured down the drain, or thrown in the trash, unless the waste has been deactivated or filtered. The following are the recommended disposal procedures for ethidium bromide:

Waste Stream	Description	Waste Disposal Procedure
Buffer Solutions	Typically contain very small concentrations of EtBr (<0.5 mg/L)	EH&S strongly recommends that buffer solutions be run through a filter or treated with tea bags prior to drain disposal. *(See below for approved Filter Methods)*
Stock solutions, cesium chloride solutions	Typically contain higher concentrations of EtBr (1–10 mg/ml)	The high concentration of EtBr in most of these solutions makes filtration/absorption impractical. Dispose of them through EH&S.
Gels	Typically contain lower concentrations of EtBr (3–5 mg/L)	**Allow gels to dry out**, then place in bags. Use a *5 gallon bucket, labeled *"Ethidium Bromide Waste"* with double bag liner. (No Biohazard Bags). Dried gels may be bagged with EtBr-contaminated debris. Dispose of gels through EH&S.
Contaminated Debris	Gloves, spill cleanup materials, and other lab supplies contaminated with EtBr	Broken glassware and sharps must be placed in puncture-resistant containers. Other debris may be placed in labeled bags and mixed with Gel waste. Dispose of contaminated sharps and debris through EH&S.
Crystals and powders	Typically pure or concentrated EtBr	Dispose of EtBr crystals and powders through EH&S.

*EH&S will provide buckets free of charge to store Ethidium bromide gels/debris.

Approved Filter Methods for Buffer solutions

Charcoal Filtration
Filtering the aqueous EtBr waste solutions (free of other contaminants) through a bed of activated charcoal is a relatively simple and effective method for removal of EtBr. The filtrate may be poured down the drain. There are two kits available for charcoal filtration.

1. **Funnel Kit**
   Commercial filter funnel kits are available that use a packaged charcoal disk that is graduated for easily tracking the amount of aqueous solution that can be run through it. This is particularly useful for labs that generate large amounts of solutions at a time.

   - Filter the EtBr solution through the charcoal filter.
   - Pour filtrate down the drain.
   - Place charcoal filter in a sealed container (mayonnaise jar) and label as a hazardous waste.

2. **Greenbag Kit**:
   Another simple charcoal filtration method is the Green Bag, manufactured by BIO 101; The Green Bag® Kit allows rapid and trouble-free concentration of EtBr from large volumes of solutions into a small "tea" bag containing activated carbon, which is then conveniently disposed along with other solid (contaminated debris) hazardous wastes. One kit has the capacity to remove 500 mg of ethidium bromide from solu

   - Place the Green Bag into the EtBr solution.
   - Allow to sit for the allotted time.
   - Pour filtrate down the drain.
   - Dispose of the Green Bag in a sealed container (mayonnaise jar) and label as a hazardous waste.

Alternatives to Ethidium Bromide

GelRed and GelGreen are nucleic acid gel stains from the company Biotium which offer cell membrane impermeability, high sensitivity, instrument compatibility, stability, and compatibility with all downstream manipulations. Concentrations less than 750 mg/L (750 ppm) may be disposed of in the sink if they have been neutralized with sodium bicarbonate first. Biotium, the manufacturer of GelRed and GelGreen produced a safety report and an overview of the dye, which can be viewed here. Visit Biotium's website to learn more http://www.biotium.com/product/product_info/Newproduct/GelStains.asp

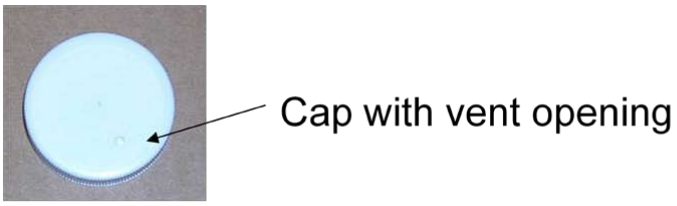
SYBR Safe comes from the company Invitrogen and claims that Sybr safe is less mutagenic, non- genotoxic and non-hazardous for waste disposal. Full details of this product including a downloadable version of a report, compiled by Molecular Probes, on the mutagenicity and environmental safety of the product, from the test results of two independent organizations, can be accessed at: http://probes.invitrogen.com/products/sybrsafe/. . SYBR Safe in particular might be less mutagenic than ethidium bromide, but should be treated like ethidium bromide before disposal.

Gas Producing Waste Streams

Several common laboratory chemical mixtures tend to produce gas and must be stored carefully to prevent pressurizing or exploding containers.

Aqua regia is a mixture of concentrated Nitric acid (HNO3) & Hydrochloric Acid (HCl)
Piranha solution is a mixture of Sulfuric acid (H2SO4) & Hydrogen peroxide (H2O2).

All gas producing wastes must be stored in poly containers that have special vented caps. Glass containers must never be used for any gas producing waste streams due to the risk of explosion from over pressurization.



Compressed Gas Cylinders

- In general, compressed gas cylinders are the property of the vendor that delivers and replaces these units for the laboratory. Compressed gas cylinders must be returned to the vendor when they are empty or no longer needed.
- Compressed gas cylinders must be properly secured to benches or walls with appropriate strapping at all times while being stored or in use. All compressed gas cylinders must be clearly labeled with the contents.

Lecture bottles

- Lecture bottles (small compressed gases) are purchased through chemical supply vendors (such as Sigma Aldrich and Matheson). EHS recommends that researchers attempt to purchase lecture bottles from vendors who will accept partially full or empty containers when they are no longer needed in the lab. Airgas offers returnable lecture bottles in many common gases through their Safe-T-Cyl program.
- The disposal of lecture bottles is extremely expensive. If the vendor or supplier will not accept an unwanted lecture bottle, contact EHS to arrange for its disposal.

Unwanted lecture bottles should be removed from the laboratory when they are no longer needed as they present a genuine concern for long-term storage and management.

Mercury containing items

Mercury containing items such as thermometers, thermostat switches and manometers must be collected for proper disposal and not placed in the regular trash.

Mixed waste

Mixed wastes are produced when a material is both a hazardous waste and a radioactive waste. These types of waste are extremely expensive to dispose of. Always contact EHS **prior** to generating these types of waste streams to discuss the disposal options and any charges that your lab may incur. Uranyl Nitrate is a commonly purchased reagent that is classified as a mixed waste since it is radioactive and also an oxidizer. Another common example of mixed waste is any mixture of a long lived isotope with a flammable solvent or other material that meets the definition of a hazardous waste

Empty Glass Containers

Disposal:

- All empty chemical glass containers must be rinsed and air dried before disposal.*
- Remove caps and Deface/Remove all labels.
- Empty containers should be taking directly to trash dumpster inside a cardboard box, with a bag liner. Or vendor purchases "Broken Glass" box
- Mark the box "Broken Glass" or "Glass: Handle with care"

*Empty containers that held acutely toxic hazardous wastes (P-list) must be managed as hazardous waste and given to EHS for disposal. DO NOT TRIPLE RINSE.

Recycling/Reuse:

After Rinsed

- Reuse the container to store or dispose of future chemicals, spill clean-ups.
- Share with co-workers.

Disposal of Chemically Contaminated Needles / Syringes / Sharps

Dispose of all chemically contaminated needles, syringes and razor blades as infectious waste by placing them inside an approved sharps container. Contact EHS for disposal.

Approved Sharps containers

- Are rigid, leak-proof, puncture resistant boxes of various sizes made of hard red plastic, with a lid that can be securely sealed to keep contents from falling out, and clearly marked with the biohazard symbol.
    - Maximum size per container not to exceed 14 quarts

DEA Controlled substances disposal

General Information:

The purchase, use, storage and disposal of controlled substances are regulated by the United States Drug Enforcement Administration (DEA). Detailed information relating to controlled substances can be found online at the DEA Diversion website.

Lists of controlled substances:

If you are unsure whether or not the substance(s) you have is regulated as a controlled substance refer to the online lists at the DEA website. There are five schedule lists of controlled substances which can be viewed by schedule or alphabetically.

Disposal Procedures:

The procedure involves sending a letter from EHS along with the DEA form 41 requesting permission to destroy the substances on location.

- Fill out DEA form 41: http://www.deadiversion.usdoj.gov/21cfr_reports/surrend/
- Attach letter from EHS, explaining how were destroying the materials. (Contact EHS for letter)
- Retain copies of paperwork for your records.

Refrigerants in equipment

Many types of laboratory equipment contain refrigerants that must be removed from the equipment prior to disposal. Facilities can provide this service. Contact Facilities Management to obtain more information on this service.

Battery recycling

Information about recycling batteries can be found on the Recoverable Resources webpage.

Non-hazardous Waste Disposal

There are many chemical reagents and chemical products that do not meet the definition of a hazardous waste. These materials also can be collected by EHS for proper disposal along with your other chemical waste streams.

Requesting a chemical waste pickup

University personnel, such as Principal Investigators, lab managers and shop supervisors, are responsible for completing this form in its entirety prior to the pickup of hazardous waste.

HazWaste Disposal Request Form (PDF)

- Fill in the name of the person requesting the pickup (contact), their department, building, room # where the waste is located, phone extension and date the form was completed.
- The "Identification of Waste" section must include the following container and contents information:

- All contents (liquid and solid) and the approximate quantity or percent of each. Be sure to include water and other inert components. The total percent of the contents should equal 100 or the total volume in the container should equal the sum of the volumes of the contents. DO NOT USE ABBREVIATIONS OR CHEMICAL FORMULAS.
- The total quantity in the container (preferably in milliliters or liters for liquids and grams or pounds for solids).
- The size and type of the container (ex. 500 ml glass, 1 L plastic)
- Sign and date the form certifying that the information included on the form is accurate and to the best of your knowledge.
- Label all containers with HazWaste labels.

REQUEST FOR DISPOSAL OF HAZARDOUS WASTE

(Please send requests to EH&S via campus mail or fax 683-6025)

Contact (print name) John Safety	Department Biology	Date 1/1/11
Building: MGB	**Room #:** 1111	**Phone #:** 3-0000

IDENTIFICATION OF WASTE

ID# *EH&S USE ONLY*	**Chemical Name / Contents** *Use full chemical or product names(s)-List all components.* ***Do not use abbreviations.***	**Amount in container**	**Size and type of container**
	Methanol Waste	3x 2.5 L	2.5 L Glass
	Formaldehyde Soltuion 37%	4 L	4 L Glass
	Lead Citrate 2% , Water 98%	450 ml	450 ml Plastic
	Potassium Carbonate	100 g	100 g Plastic

Declaration: The materials listed are accurately described above and are packaged and labeled according to the Procedures for Disposal of Hazardous Waste on the EH&S Website.

John Safety 1/1/11

Contact signature and date: **EHSO personnel signature and date:**

Completed forms should be sent to EHS via campus mail, Fax (683-6025) or email to ehsdept@odu.edu

Training Requirements

The following training course must be taken by all employees who work in a laboratory and generate chemical wastes.

- **Laboratory Safety Training**: contact EHS at 683-4495 to schedule training.

Common Lab Inspection Violations

Missing or incomplete labels and open containers are two of the most commons violations found in research laboratories. Waste containers must be kept closed at all times except when waste is being added. All containers must be labeled with a properly completed chemical waste label.

HAZARDOUS WASTE	
Chemical Name(s)	**Amount**
Methanol	**5 ml**
Chemical Hazard Classification: ☒Flammable ☐Corrosive ☐Reactive ☐Toxic/Poison	
DATE (EHS Use Only):	

What Happens to all of the waste?

Most of the solvent waste generated at ODU is blended with similar materials and used as a fuel. We also send many other waste streams for recycling. Most other chemical are sent for thermal incineration at an approved hazardous waste treatment facility.

Chemical Spill Procedures

Spills of toxic substances or accidents involving any hazardous chemical should be resolved immediately according to ODU's "Hazardous Materials Emergency Response Plan". Laboratories should be equipped with materials to control all possible spills.

Lab Closeout Procedures

If your laboratory is moving locations on campus or you're leaving the University, use the following packet to assist your department and EHS.

- https://www.odu.edu/content/dam/odu/offices/environmental-health-safety/docs/odu-lab_relocate_closeout-packet.pdf

ODU Laboratory Close-out / Relocation Checklist

Building:_____Room:_____ Researcher/PI:_____

Phone / email:_____

☐ **RELOCATING LABORATORY** If so, to: Bldg._____Room #_____

☐ **VACATING LABORATORY**

	Date Completed or N/A
Chemical	
Fume Hoods have been cleared of all chemicals and equipment?	
Fume Hoods have been wiped/washed out and decontaminated?	
A chemical waste inventory (HazWaste Disposal Form) has been submitted to department/EHS for all chemical waste and unwanted chemicals?	
All items for disposal have EHS HazWaste Labels attached?	
All chemicals, including compressed gases, have been removed or are scheduled to be transferred?	
Chemical storage cabinets including flammable/corrosive cabinets, drawers, bench tops, and shelves have been cleaned?	
Biological	
Submitted amendments for IBC/IACUC protocols with new location information or closure information?	
Countertops have been cleaned/decontaminated?	
Freezers and refrigerators have been cleaned/decontaminated? Warning labels removed.	
Incubators/water baths have been properly decontaminated?	
Biohazard areas/biological safety cabinets have been properly decontaminated?	
All biological waste has been properly disposed of?	
All biological materials have been removed/transferred from the lab?	
Any controlled substance (i.e., DEA regulated) has been properly documented for transfer/disposal? DEA Notified?	
Radiological	
If lab is being relocated, has form RSO-6 been completed and submitted to the RSO? (Transport of radioactive material may ONLY be performed by the RSO).	
Disposal/ transfer of all radioactive material has been requested by completing form RSO-50?	
Preliminary closeout surveys and swipes have been performed and documented?	
Posted radiological equipment has been surveyed and decontaminated?	
A laboratory close-out survey request has been sent to the RSO?	
Any assigned dosimetry has been turned into the RSO?	

Department Sign-Off

Submit completed check-list to department head for signature

Researcher_____Date_____

Signature Printed Name

Department Head_____Date_____

Signature Printed Name

Appendices

Appendix A – P and U list for toxic materials

Appendix B – F-list for spent solvents

For more information on Chemical Waste Management, visit our website:
http://www.odu.edu/facultystaff/university-business/safety/hazmat/chemical-waste-management