HAZARDOUS WASTE POLICY

Version	Date	Comments
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PURPOSE

The purpose of the Hazardous Waste Policy is to ensure that all hazardous waste is properly and safely managed from its generation through handling, storage, transportation, and disposal. This policy covers the responsibilities of both the individuals generating the waste (e.g., laboratory personnel) and Norfolk State University Environmental Health, Safety and Risk Management.

Management of hazardous waste shall be conducted in accordance with all applicable local, state, and federal laws and regulations. Norfolk State University Environmental Health, Safety and Risk Management (EHS&RM) routinely coordinates the collection of all unwanted chemicals. Departments are encouraged to recycle chemicals that are not expired and that are usable within the departments. EHS&RM will also collect and offer chemicals for recycling. The chemical inventory for Norfolk State University is available on the MSDS Online https://msdsmanagement.msdsonline.com/company/280BD948-4BA8-4791-8DAB-8C48806A1C40 .

The following procedures must be followed for the disposal of all unwanted hazardous chemicals. These procedures apply to chemicals that EHS&RM does not authorize for disposal in regular trash. This Hazardous Waste Policy does not apply to radioactive waste, Regulated Medical Waste (RMW), and mixed wastes (e.g., hazardous waste & radioactive waste or hazardous waste & RMW).

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DEFINITIONS

Bulking – the consolidation of compatible wastes into a single container for storage/shipment.

Incompatibles – pairs of substances that, when mixed, either react violently or emit flammable or poisonous gases or vapors.

Lab Pack – the consolidation of containers of small quantities of waste (e.g., out dated chemicals in their original containers) into a single container for storage/shipment.

EHS&RM – Environmental Health, Safety and Risk Management Office

EPA – Environmental Protection Agency

Hazardous Waste - Hazardous waste is a waste that is dangerous or capable of having a harmful effect on human health or the environment. A discarded material will be deemed a hazardous waste if it exhibits any of the four hazardous waste characteristics (corrosivity, ignitability, reactivity, or toxicity –D waste) or if it is contained on one of the four separate types of "listed wastes" (F, K, P and U).

Hazardous waste will generally include: all organic solvent waste and solid residues containing those solvents; most waste acids, alkalis, and other corrosive materials; some materials containing heavy metals, explosives, highly reactive materials; and many discarded process chemicals or laboratory reagents. All aerosol cans, which are full or partially full, will be disposed of as hazardous waste. Product wastes containing greater than 10% alcohol will be regarded as ignitable material and disposed of as hazardous waste. More information on the identification and listing of hazardous waste can be found in the Code of Federal Regulations, Title 40, Part 261, and is available on the United States Government Printing Office website:
http://www.access.gpo.gov/nara/cfr/index.html

RCRA – Resource Conservation and Recovery Act

SAA - Satellite Accumulation Area – This is a location within a laboratory or room where hazardous waste is stored. The regulations specify for this area to be located "at or near any point of generation" and to be "under the control of the operator" generating the waste.

POLICY CONTENTS

Waste Generation

- Waste chemicals must be collected in individual, leak proof, sealed containers.
- Chemicals must be compatible with container material (e.g., acids must not be placed in a metal container). Glass containers may be safely used for most chemicals except hydrofluoric acid, acid fluoride salts, and very strong alkalis.
- Waste chemicals must not be placed in unwashed containers, which contain incompatible residual material, from previous chemical storage.
- Select the smallest container available that will properly hold the material, with sufficient headspace above the surface of the liquid to allow room for expansion.

- Containers holding a hazardous chemical or waste shall be kept securely closed, so there is no leak of hazardous waste or escape of vapors during storage, except when it is necessary to add or remove chemicals or waste. Ensure that lids, bungs, or rims are tightly in place.
- Broken or intact hypodermic needles or syringes that are contaminated by chemicals must not be disposed with medical waste. This includes needles that have been used in chemical laboratories only for chemical procedures such as the removal of a solution from a vial through a septum or adding liquid to a gas chromatograph. Collect these (chemically contaminated syringes and sharps) in a separate sharps container that is appropriately labeled with a white or yellow hazardous waste label. Place the hazardous waste label over the biohazard symbol on the sharps container.

Container Labeling

- All containers must be clearly identified and labeled with the proper chemical name(s) of the substance(s) and the accumulation start date at the start of collection. All information must be clear and legible. Trade names, acronyms, abbreviations, codes, or formulas are not acceptable.
- The concentration of each chemical or mixture component must be identified on the label. The units of concentration must be on the label together with their numerical values. When the solute is either a liquid or gas, the concentrations must be stated as, percent by weight or percent by volume or molar concentration.
- All chemical waste which cannot be recycled because it is either spent, past the manufacturer's expiration date, or has been mixed or contaminated with another substance must be labeled with a Hazardous Waste Label indicating the constituents. This label must be affixed to the container prior to adding any waste material into the container. It is acceptable to write the words "Hazardous Waste" on the original manufacturer's label. Note the latter is only acceptable if the chemical is in its original container.

Unidentified Waste

State and federal transportation regulations for waste haulers prevent shipping un-identified or unknown substances. The responsibility for establishing the identity of an unknown substance rests with department wishing to dispose of it. When possible, the waste vendor will take a sample of the unknown substance and have it analyzed by an independent state-certified analytical laboratory to determine the constituents prior to selection of disposal protocol (e.g., fuel blending, incineration, neutralization, recycling, etc.).

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Satellite Accumulation Areas

- Hazardous waste must be stored in Satellite Accumulation Areas (SAA), at or near the point of generation and under the control of the operator generating the waste.

  Typically, there is an SAA in each laboratory or work area where chemicals are used and waste is generated.
- Hazardous waste must be stored in secondary containment. Incompatible materials must not be stored in the same secondary containment bin.
- Acutely hazardous wastes are listed in 40CFR261.33(e). These wastes may be a commercial chemical product, off-specification commercial product, spill residues of an acutely hazardous material, or a substance is the sole active ingredient of a formulation (e.g., pesticides).
- Chemical wastes must be segregated by general waste type (e.g., flammables, poisons, acids, and alkalis) and arranged so that incompatible substances will not mix.

A few general principles that must be followed for safe chemical and hazardous waste storage include the following:

1. Store acids and bases separately.
2. Keep acids apart from cyanides or sulfides.
3. Acids should never be put into steel containers.
4. Water-reactive, strong acids such as organic acid halides, organic acid anhydrides, inorganic acid anhydrides, and strong acidic salts must be kept apart from both alkalis and water.
5. Oxidizing agents must be kept apart from reducing agents and organic compounds.
6. Water-reactive agents must be stored apart from water, aqueous solutions, and acids.
7. Air-reactive materials must be packed in containers that are sealed off from the atmosphere.
8. Explosive and shock-sensitive materials present risks that require special handling. Consult with Lab Managers before purchasing, handling or preparing for disposal.
9. Containers must be arranged so that identification is readily visible.
10. State and federal regulations allow up to fifty-five gallons of hazardous waste, or one quart of acutely hazardous waste in a Satellite Accumulation Area (SAA). Once accumulation limits are met, container labels must be dated with the start date excess accumulation begins. When the limit is reached, excess waste must be removed from the SAA within three days.
11. Do not allow spill residues to accumulate in the bottom of the SAA bins.

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Accumulation Area Waste Inspections

Waste containers should be inspected daily for signs of leakage, corrosion or any other forms of deterioration.

1. Check to ensure that all containers are capped and properly labeled. These inspections need only be visual and do not have to be documented.
2. Any containers found to be leaking or deteriorating must have their contents transferred into a new container.
3. Any minor spillage that occurs when adding waste to the container must be cleaned up immediately by the individual. All spillage or near misses must be reported to the EHS&RM if large enough to require outside help in cleaning up the spill.

Waste Shipment

- EHS&RM will make arrangements for proper offsite disposal hazardous waste.
- Collected waste may be taken to central storage in McDemmond, Wood Science or Facilities.
- The waste vendor will pick-up and packaging of materials from these areas.
- The waste vendor completes the Hazardous Waste Manifest Form and packing slips.
- All drums require the proper hazardous waste (RCRA) and DOT labeling.
- A Hazardous Waste Manifest Form is utilized for each shipment and the returned copies from the Disposal/Transfer Site are retained in the EHS&RM files.
- Only trained and authorized individuals may sign manifests. Each of these individuals receives RCRA training annually. The waste vendor has been made aware of trained and authorized personnel and will seek one of them to sign the manifest.

Drain Disposal of Dilute Acids and Alkalis

Certain materials are suitable for drain disposal. These should be carefully considered to ensure they do not cause damage to the plumbing system or cause other problems such as odors in a building. Acids and alkalis that have been rendered neutral by the experimental process may be discarded by drain disposal. Neutralization should be done in small quantities (e.g.,, no larger than 1 liter). This should be done as part of the experiment generating the waste. **It is illegal to collect a quantity of waste, from multiple experiments, and conduct batch neutralization.** Proper care must be taken to adjust solutions to a pH of between 6 and 9. Generally, 1N hydrochloric acid can be used to neutralize alkaline materials and 1N sodium hydroxide can be used to neutralize acid materials. When creating these 1N solutions, remember to ***SLOWLY add the acid to the water or the alkali to the water, not vice versa.***

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Drain disposal is properly done in the following manner:

1. Protective gear (gloves, laboratory apron, and safety goggles) must be worn.
2. Before pouring the solution, turn on the tap to get a good flow of water to wash it down.
3. Make sure that the sink and drain lines are washed free of any substances that will generate noxious gases when mixed with the solutions. These substances include cyanides, sulfides, bisulfides, sulfites, bisulfites, nitrates, and nitrites.
4. Pour the solution down the drain slowly, making sure that before, during and after pouring, the tap is turned on to provide a strong flow of water that aids in washing it down the drain.

If you have questions about the suitability of materials for drain disposal, or about the proper disposal of any potentially hazardous or laboratory material, please contact the Laboratory Manager or EHS&RM (3-9142).

Inventory Control

Each laboratory and work area is encouraged to maintain an appropriate inventory of chemicals in their laboratory as a method to reduce unnecessary purchase and disposal.

The following methods can reduce the amount of chemicals in laboratories and work areas and minimize waste generated from expired or unwanted excess chemicals:

- Check your chemical inventory before ordering – there may be inventory in stock.
- Purchase smaller containers of chemicals or fewer containers of chemicals.
- Avoid purchasing larger quantities of chemicals to save on raw material costs. (Chemical disposal costs are often much higher than the initial purchase cost.)
- Do not accept “free” samples from chemical distributors or manufacturers, unless you are certain that you will be using the materials. Chemical disposal costs are often much higher than the initial purchase cost.
- Rotate stock of chemicals in the laboratory to ensure the older chemicals are used before the newer chemicals.
- Substitute less hazardous chemicals that are more environmentally friendly for traditionally used chemicals.

EDUCATION AND COMPLIANCE

The Department of Environmental, Health and Safety and Risk Management will educate and train all stakeholders and appropriate audiences on the policy’s content as necessary.

All stakeholders have a shared responsibility for complying with this policy and Federal and State laws.