

Northwestern

Hazardous and Universal Waste
Storage and Disposal

Environmental Health and Safety

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I. Purpose

This program provides the procedures to safely handle, store, and dispose of hazardous and universal waste to comply with all federal, state, and local regulations; ensure the protection of human health and the environment; and ensure minimization of hazardous and universal waste generated on campus.

II. Scope

This program applies to Northwestern schools, units, and departments whose employees and students handle, store, and dispose of hazardous or universal waste in non-research areas at Northwestern University. Refer to the Research Safety [Hazardous Waste Disposal Guide](#) for hazardous waste in research areas. This program also includes maintenance, renovation, custodial, and other similar contractors who may encounter or generate hazardous or universal waste within their project scope. Refer to the Northwestern Slug Control Plan and the Research Safety Emergency and Hazardous Waste Contingency Plan for spill prevention and emergency containment and remediation measures.

III. Definitions

- A. **“Hazardous waste”** is liquid, solid, gas, or sludge waste with properties that make it dangerous or capable of having a harmful effect on human health or the environment. Examples in non-research areas include used oils, solvents, degreasers, contaminated glycol, oily rags, and damaged or broken universal waste materials (e.g., broken lamps).
- B. **“Special waste”** includes hazardous waste, potentially infectious medical waste (PIMW), industrial process waste, and pollution control waste.
- C. **“Universal waste”** is a sub-category of hazardous waste, commonly generated by various establishments, which has been identified by the Environmental Protection Agency (EPA), that can safely be sent for treatment or recycling at approved facilities thus reducing the quantity of these wastes going to municipal solid waste landfills or incinerators. Some states, including Illinois, have their own universal waste regulations. It is expected that universal waste will be generated with the replacement of batteries, lamps, or mercury-containing equipment during maintenance, construction, demolition, and renovation activities.
- D. **Universal Waste Types**
 - i. **“Batteries”** include, but are not limited to, car/automotive, hearing aid, lead-acid, lithium (all types), nickel-cadmium (NiCd), nickel metal hydride, rechargeable, alkaline, small sealed lead-acid (SSLA), and silver oxide or mercury.
 - ii. **“Lamps”** include, but are not limited to, compact fluorescent, fluorescent, high intensity discharge (HID), high-pressure sodium, mercury, metal halide, light-emitting diodes (LED), neon, and ultraviolet (UV).
 - iii. **“Pesticides”** are defined as any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, or intended for use as a plant regulator, defoliant, or desiccant.
 - iv. **“Mercury-Containing Devices”** include, but are not limited to, thermometers, thermostats, blood pressure cuffs, sphygmomanometers, barometers, monometers, etc., which hold elemental mercury.

- v. “Aerosols” subject to this program include containers that use gas to aerate and dispense any material in the form of a spray or foam. This does not include containers that dispense product without aeration, and cans that release only compressed air.
- E. **“Satellite Accumulation Area”** is an established area at or near a point of generation where hazardous waste is initially collected, under the management of a departmental Hazardous Waste Coordinator (see **Section IV.E.**).
- F. **“Centralized Accumulation Area”** is an established area where an entire building’s hazardous waste is stored and all similar waste streams are gathered in preparation for a pick-up under the management of a departmental Hazardous Waste Coordinator.
- G. **“Universal Waste Accumulation Area”** is an established area where universal waste is stored, under the management of a departmental Hazardous Waste Coordinator, where all similar waste streams are gathered in preparation for a pick-up, and typically where universal waste pick-ups occur. These areas may be located near, or in conjunction with, satellite accumulation areas (see **Section V.C.**).

IV. Responsibilities

- A. **Environmental Health and Safety (EHS)**
 - i. Adhere to the requirements of this program.
 - ii. Collaborate with the Hazardous Waste Disposal Vendor, Research Safety, Hazardous Waste Coordinators, schools, units, and departments as necessary to ensure the effective implementation of this program in non-research areas.
 - iii. Provide guidance and consultation, as necessary.
 - iv. Perform annual inspections of satellite accumulation areas, centralized accumulation areas, and universal waste areas, and periodic inspections, as necessary.
 - v. Coordinate and provide training (see **Section X – Training**)
 - vi. Review and revise this program, as necessary.
 - vii. Adhere to the recordkeeping requirements in **Section XI.**
- B. **Schools, Units, and Departments**
 - i. Adhere to the requirements of this program.
 - ii. Provide the necessary resources to support proper hazardous and universal waste storage and disposal within applicable areas.
 - iii. Ensure employees complete all required training (see **Section X – Training**).
 - iv. Ensure employees handle, store, and dispose of hazardous and universal waste in accordance with this program.
 - v. Provide employees with the necessary personal protective equipment (PPE) to safely handle hazardous and universal waste.
 - vi. Ensure contractors identify all hazardous and universal waste within the scope of their projects and properly, handle, store, and dispose of all hazardous and universal waste.
 - vii. Consult EHS, Research Safety, or the Hazardous Waste Disposal Vendor when guidance or consultation related to hazardous or universal waste handling, storage, and disposal processes in non-research areas is needed.

C. Facilities Operations

- i. Adhere to the requirements of **Section IV.B.**
- ii. Assign an adequate number of Hazardous Waste Coordinators to be responsible for the management of hazardous and universal waste storage and disposal in applicable areas.
 1. Facilities Hazardous Waste Storage Map – [Evanston Campus](#)
 2. Facilities Hazardous Waste Storage Map – [Chicago Campus](#)

D. Contractors (e.g., maintenance, renovation, and custodial)

- i. Adhere to the requirements of this program.
- ii. Identify all hazardous and universal waste within the scope of their projects, and properly, handle, store, and dispose of all hazardous and universal waste.
- iii. Not permitted to use Northwestern’s satellite accumulation areas, universal waste accumulation areas, or centralized accumulation areas without explicit approval from the managing school, unit, or department (e.g., Hazardous Waste Coordinator).
- iv. Complete all required training (see **Section X – Training**)
- v. Adhere to the recordkeeping requirements in **Section XI.**

F. Hazardous Waste Coordinators

- i. Adhere to the requirements of this program.
- ii. Designated by each affected department (e.g., Facilities Shops)
- iii. Responsible for the management of hazardous and universal waste storage and disposal in their area, including any satellite accumulation areas, universal waste accumulation areas, and/or centralized accumulation areas.
- iv. Be familiar with the types and quantities of hazardous and universal waste in their area of responsibility.
- v. Serve as the main point of contact for the hazardous and universal waste in their area.
- vi. Ensure hazardous and universal waste containers, satellite accumulation areas, universal waste accumulation areas, and centralized accumulation areas are correctly labeled.
- vii. Ensure satellite accumulation areas and centralized accumulation areas maintain good housekeeping and are in accordance with the storage requirements of this program.
- viii. Inform affected employees, students, and contractors to follow proper hazardous and universal waste storage and disposal procedures in their area.
- ix. Request hazardous and universal waste pick-ups from the Hazardous Waste Disposal Vendor, as necessary.
- x. If a new hazardous waste is introduced, contact the Hazardous Waste Disposal Vendor to perform a waste profile and to ensure proper storage, handling, and disposal procedures are established.
- xi. When activities (e.g., maintenance, renovations, repairs) are occurring near hazardous or universal waste, inform Northwestern employees, contractors, and others as necessary of the potential hazards and ensure activities do not create hazards (e.g., welding near flammable liquids).
- xii. Conduct weekly documented [inspections](#) of satellite accumulation areas, universal waste accumulation areas, and/or centralized accumulation areas when the Hazardous Waste Disposal Vendor is unavailable to perform inspections.

- xiii. Complete all required training (see **Section X – Training**)
- xiv. Adhere to the recordkeeping requirements in **Section XI**.

G. Hazardous Waste Disposal Vendor

- i. Adhere to the requirements of this program.
- ii. Complete waste profiles for every hazardous and universal waste stream. Only the Hazardous Waste Disposal Vendor is authorized to ship hazardous waste off campus.
- iii. Provide containers, supplies, and labels for handling, storing, and disposing of hazardous and universal waste.
- iv. Conduct weekly documented inspections of all hazardous and universal waste storage areas and provide findings and feedback to departmental Hazardous Waste Coordinators to ensure program compliance.
- v. Coordinate with schools, units, and departments for hazardous and universal waste disposal pick-ups, and waste profiling, and provide guidance to ensure proper storage, handling, and disposal procedures are established and followed.
- vi. If requested, provide annual Hazardous Waste (RCRA) Training.
- vii. Ensure workers under their supervision are appropriately trained (see **Section X – Training**)
- viii. Adhere to the recordkeeping requirements in **Section XI**.
- ix. Respond to hazardous and universal waste releases and provide remediation guidance to schools, units, and departments, as necessary (see **Section IX – Release Response**).

V. Hazardous Waste Requirements

A. General

- i. Hazardous waste must never be placed in the regular trash (e.g., trash can, dumpster), poured down the drain or sewer, released into the environment, or otherwise placed in a manner where it could be mistaken as regular trash or nonhazardous waste, or in a manner that violates this program.
- ii. All hazardous waste shipments off campus must be manifested.
- iii. Hazardous waste must never be handled or stored near:
 - 1. Ignition or heat sources,
 - 2. Drains or sewers,
 - 3. Incompatible chemicals, materials, and waste streams, and
 - 4. Equipment or processes that may introduce hazards or create a release.
- iv. All hazardous waste must be handled and stored in secure locations that prevent unsafe access and in a manner that prevents the release of any materials or components.

B. Containers

- i. Must be stored at satellite accumulation areas and centralized storage areas.
- ii. Cannot exceed 55 gallons for each hazardous waste stream.
- iii. Must be compatible with the waste contents and free of defects or damage that would cause leakage, spills, or other environmental releases.
- iv. Must be structurally sound, compatible, and appropriate for the materials they are holding so that it does not present any physical or health hazards.
- v. Must include a visible label stating, “Hazardous Waste” and the specific contents.

- vi. Must be placed in a secondary containment that allows for 10% of the total container volume or placed on spill decks that allow for the entire volume of the largest container to be collected, whichever is greater.
 - vii. Must be kept closed except when adding hazardous waste.
- C. Satellite Accumulation Areas
- i. Must be located away from ignition and heat sources, drains, sewers, incompatible chemicals, materials, and other waste streams, equipment, or processes that may introduce hazards
 - ii. Must be located in a secure location to prevent unsafe access.
 - iii. Must include visible [signage](#) reading “Satellite Accumulation Area.”
 - iv. When hazardous waste containers are full, they must be dated and relocated to a centralized accumulation area by the Hazardous Waste Disposal Vendor within 3 days.
 - v. Spill kits with sufficient supplies to address the anticipated types and quantities of hazardous waste must be readily available.
 - vi. A fire extinguisher of an appropriate type must be located near each satellite accumulation area.
- D. Centralized Accumulation Areas
- i. Must be located away from ignition and heat sources, drains, sewers, incompatible chemicals, materials, and other waste streams, equipment, or processes that may introduce hazards.
 - ii. Must be located in a secure location to prevent unsafe access.
 - viii. In addition to the label requirements of **Section V.B.v.**, containers must have a visible label indicating the collection date, which is when accumulating begins.
 - iii. Must include [signage](#) reading “Hazardous Waste Storage Area.”
 - iv. Hazardous waste may only be stored for a maximum of 90 days, at which point it must be picked up for disposal.
 - v. Hazardous waste that was relocated from a satellite accumulation area can only be stored in the centralized storage area for a maximum of 4 days, at which point it must be picked up for disposal.
 - vi. Spill kits with sufficient supplies to address the anticipated types and quantities of hazardous waste must be readily available.
 - vii. A fire extinguisher of an appropriate type must be located near each centralized accumulation area.

VI. Universal Waste Requirements

A. General

- i. Universal waste must never be placed in the regular trash (e.g., trash can, dumpster), poured down the drain or sewer, released into the environment, or otherwise placed in a manner where it could be mistaken as regular trash or nonhazardous waste, or in a manner that violates this program.
- ii. All universal waste subject to this program must be sent to a registered facility for proper treatment or recycling.
- iii. Universal waste must be placed in a cool, dry location and never placed or handled near ignition or heat sources, drains, sewers, incompatible chemicals, materials, and other waste streams, equipment, or processes that may introduce hazards or create a release.

- iv. Universal waste must be located in a secure location to prevent unsafe access.
 - v. All universal waste must be handled in a manner that does not create hazards and prevents breakage and/or a release of any materials or components. Examples include, but are not limited to:
 - 1. Lamps are not to be intentionally crushed or broken on campus under any circumstance.
 - 2. Do not attempt to remove the mercury in order to retain the equipment. Dispose of equipment in its original state.
 - 3. Aerosols that show evidence of leakage or damage must be stored separately in a closed container with absorbent materials.
- B. Containers
- i. Universal waste must be stored in individual containers for each type of material and must be visibly labeled, or marked, with the date of the earliest discard date as well as a clear description of the material.
 - ii. Containers must be structurally sound, compatible, and appropriate for the materials they are holding so that it does not present any physical or health hazards.
 - iii. Containers and lids must remain closed except when adding or removing universal waste.
 - iv. Universal waste that shows evidence of leakage or damage must be stored separately and must meet the requirements of this section.
- C. Universal Waste Accumulation Areas
- i. Must be located away from ignition and heat sources, drains, sewers, incompatible chemicals, materials, and other waste streams, equipment, or processes that may introduce hazards.
 - ii. Must be located in a secure location to prevent unsafe access.
 - iii. Must include [signage](#) reading “Universal Waste Storage Area.”

VII. Inspections

- A. The Hazardous Waste Disposal Vendor will perform weekly documented inspections of satellite accumulation areas, centralized accumulation areas, and universal waste accumulation areas, including the containers, labels, and surrounding conditions, to ensure program compliance.
- B. Inspections must document the materials and conditions of each area, including any deficiencies.
- C. Inspection reports must be sent to the departmental Hazardous Waste Coordinator and EHS with any corrective actions necessary to maintain compliance with this program.
- D. In the absence of inspections performed by the Hazardous Waste Disposal Vendor in **Section VII.A.**, the departmental Hazardous Waste Coordinator (see **Section IV.E.**) must conduct weekly documented [inspections](#).

VIII. Hazardous and Universal Waste Disposal Procedures

- A. The Hazardous Waste Disposal Vendor will determine when satellite accumulation area, centralized accumulation area, and universal waste accumulation area pick-up and disposal is necessary, based on the weekly inspections.
- B. Inappropriate disposal of potentially hazardous materials or deviations from this program must be immediately reported to ehs@northwestern.edu.

- C. Additional disposal pick-ups can be requested and scheduled by contacting hazardous-waste@northwestern.edu. (Note: A recurring bi-weekly pick-up can consolidate transportation costs when multiple pick-ups are scheduled on the same day).

IX. Release Response

- A. Only trained and authorized personnel may respond to a release (e.g., oil spill, broken fluorescent lamps).
- B. Immediately leave the area and attempt to prevent others from entering the area if it is safe to do so.
- C. Contact the Hazardous Waste Disposal Vendor, Environmental Health and Safety, or Research Safety immediately.
- D. Call 911 if the release is significant or poses an immediate safety or health threat.
- E. Response will vary based on the situation but will be managed by one of the parties listed in **Section IX.C** and/or emergency responders if a serious incident.
- F. When applicable, adhere to the Northwestern Slug Control Plan.
- G. Do not return to the area until the parties listed in **Section IX.C** state it is safe to do so.

X. Training

- A. Northwestern employees and students required to work with, or around, hazardous and universal waste in non-research areas must complete annual online [Hazardous Waste Awareness \(RCRA\) Training](#) and biennial online [Personal Protective Equipment Training](#).
- B. Employees designated as Hazardous Waste Coordinators must, in addition to the requirements of **Section X.A.**, complete annual [Hazardous Waste Coordinator \(RCRA\) Training](#), which includes:
 - i. How to identify hazardous and universal waste,
 - ii. Hazardous waste listing and characteristics,
 - iii. Hazardous waste handling, storage, and disposal, and
 - iv. Training and recordkeeping requirements.
- C. Maintenance, custodial, renovation, and similar contractors must ensure that employees are adequately trained on hazardous and universal waste handling, storage, and disposal procedures, as applicable to the project scope.
- D. The Hazardous Waste Disposal Vendor is responsible for ensuring that their supervised workers are appropriately trained and provided with the necessary PPE and equipment to perform work safely on campus.

XI. Recordkeeping

- A. EHS maintains non-research employee training records in myHR Learn and are kept for the duration of employment, plus 1 year.
- B. The Hazardous Waste Disposal Vendor will maintain hazardous waste profiles and manifests, regulatory compliance reports, weekly inspections, and any other relevant documentation for at least 3 years.
- C. Hazardous Waste Coordinators and EHS are responsible for maintaining any inspections they perform for at least 3 years.

XII. Regulatory Authority and Related Information

Northwestern and its vendors and contractors will comply with the United States Environmental Protection Agency standards, Occupational Safety and Health Administration's (OSHA) standards, and any other applicable codes and standards, including:

- A. [Title 40 CFR, Parts 239 – 282, US Environmental Protection Agency Standards for Resource Conservation and Recovery Act \(RCRA\) Regulations](#)
- B. [Title 40 CFR, Part 273 – Standards for Universal Waste Management](#)
- C. [Title 35, Illinois Administrative Code, Environmental Protection, Subtitle G: Waste Disposal](#)
- D. [Northwestern Sustainable Waste Management Policy](#)

XIII. Contact

For questions contact Environmental Health and Safety at ehs@northwestern.edu or (847) 467-6342.