**Hazardous Waste Management Plan**

**Tennessee State University**

**INTRODUCTION**

Hazardous Waste, as defined by the Resource Conservation and Recovery Act (RCRA), at Tennessee State University (TSU) shall be handled, stored, and disposed of in a manner that:

1. minimizes environmental impacts;
2. minimizes potential liabilities from University activities;
3. complies with Federal, State, and local regulations.
4. protects employees, students, and visitors.

All other wastes shall be handled in accordance with pertinent regulations

**PURPOSE**

The Hazardous Waste Management Plan will address the requirements of the RCRA regulations written by the Environmental Protection Agency. These regulations are amended and administered in Tennessee by the Tennessee Department of Environment and Conservation (TDEC). This plan applies to all TSU Campus operations, research, and academia.

**SCOPE**

This plan refers to all hazardous waste, per RCRA definitions, generated by campus laboratories, classrooms, studios, agricultural activities, workshops, and operations, and to all faculty, staff, and students who have the potential to handle hazardous chemicals.

**DEFINITION**

Hazardous Waste: A waste that is listed in the RCRA regulations found in 40 CFR on one of the four hazardous waste lists (F-list, K-list, P-list, or U-list), or exhibits at least one of four characteristics – ignitibility, corrosivity, reactivity, or toxicity. These wastes have properties that make them dangerous or potentially harmful to human health or the environment. Hazardous waste may be liquid, solid, contained gases, or sludges. They can be the by-products of manufacturing processes or simply discarded commercial products, like cleaning fluids, pesticides, or leftover chemicals as defined in the RCRA Regulations.

Speculative Accumulation: Retaining or storing more amounts of chemicals than are necessary for immediate use or that have no current use or definite future use. It must be demonstrated that the chemical in question will be used in a timely manner or it must be discarded.

Speculative Accumulation may also refer to material that is intended for recycling but is still on site.

Universal Waste: a subsection of hazardous wastes that are managed under the RCRA regulations as universal wastes. These include batteries, certain pesticides, mercury-containing equipment, and spent mercury-containing lamps.

Used Oil: Used oil means any oil that has been refined from crude oil, or any synthetic oil, that has been used and as a result of such use is contaminated by physical or chemical impurities.

**REGULATORY REFERENCE**

40 CFR Parts 260-270

40 CFR Part 273

40 CFR Part 279

49 CFR Parts 170-172

**ROLES AND RESPONSIBILITIES**

#### Office of Environmental Health and Safety (EHS):

* Apply for and maintain hazardous waste site operations registrations.
* Develop and maintain protocols for the University’s Hazardous Waste Management Plan.
* Act as the point of contact for United States Environmental Protection Agency (EPA) and Tennessee Department of Environment and Conservation (TDEC).
* Obtain analysis of waste streams when constituents/concentrations are unknown.
* Develop and maintain hazardous waste profiles for all materials shipped from the facility.
* Assist with training Hazardous Waste Handlers annually.
* Ensure Hazardous Waste is packaged and labeled per Department of Transportation requirements.
* Schedule and complete periodic shipments to remain within the permitted accumulation time for the facility.
* Offer all hazardous wastes for shipment on EPA Uniform Hazardous Waste Manifests.
* Sign reports and notification forms submitted to United States Environmental Protection Agency or Tennessee Department of Environment and Conservation
* Ensure shipping containers of 110 gallons or less are marked with “Hazardous Waste - Federal Law prohibits improper disposal. If found, contact the nearest police or public safety authority or the US Environmental Protection Agency.”
* Promulgate and maintain the Hazardous Waste Emergency Contingency Plan.

#### Hazardous Waste Generating Departments:

* Minimize waste generation where possible.
* Maintain inventory of hazardous waste generated in the department and provide inventory to the EHS Office each month.
* Identify and train Hazardous Waste Handlers for each area that generates chemical waste.
* Contact EHS Office at ext: 5683 or 5202 to coordinate with waste removal, scheduling waste pick-ups, and other relative waste management tasks.
* Maintain inventory of waste management supplies such as containers, labels, secondary containment, spill absorbent, handling tools, funnels, etc….

**Hazardous Waste Handlers:**

* + Attend initial and annual refresher training.
	+ Wear safety glasses/goggles and any other specified personal protective equipment when handling hazardous wastes.
	+ Inspect waste containers before use.
* Ensure waste is properly identified with chemical identity and labeled as hazardous waste.
	+ Ensure that waste containers are kept closed.
	+ Ensure waste containers have secondary containment, such as plastic trays or tubs.
	+ Accumulate used chemical products in designated containers.
	+ Keep waste separated by compatibility. Segregate incompatible wastes, such as flammables and miscellaneous items from corrosives and oxidizers.
	+ Never smoke, eat, or drink while handling waste materials or containers.
	+ Maintain waste containers, satellite accumulation areas and storage accumulation facilities.
	+ Maintain appropriate container labeling and collection records.
	+ Inspect hazardous waste accumulation areas weekly and document inspections.
* Properly dispose of empty containers by triple discarding if they are not P-listed chemicals.

**STORING WASTE**

Per RCRA regulations, hazardous waste may be stored in two different types of areas:

1. Satellite Accumulation Areas and 2.Central Accumulation Areas. Each has its own rules and regulations.

**Satellite Accumulation Areas**

Satellite accumulation areas are in the laboratories of chemistry, biology, physics, and nanotechnology, art studios, engineering, maintenance shops, and fleet services. Satellite accumulation areas must be located at the point of generation of a hazardous waste and must be under the control of the operator of the process generating hazardous waste. Satellite accumulation containers storing incompatible hazardous wastes must be physically segregated, labeled as to contents and with the words “hazardous waste”, and kept closed. Segregation and containment may be provided by storing the containers in plastic trays or bins.

Individual departments are responsible for the maintenance and housekeeping of their satellite accumulation areas. It is common to find satellite accumulation areas in the chemical fume hoods in the laboratories or in cabinets underneath the fume hoods. Maintenance Shops and Art Studios should have satellite accumulation areas established for common collection of shop rags, aerosol cans, and paint related wastes. Satellite accumulation areas must maintain less than 55 gallons of hazardous waste or the area will be determined to be an Accumulation Area. If 55 gallons are collected within the satellite accumulation area or if a waste container is full, the container label must be labeled and dated with the accumulation date. The accumulation date is the date on which the container becomes full and/or is being moved to the Accumulation Area to wait for disposal. When full, the container must be moved to the Accumulation Area within 3 days. Each department is responsible to maintain and control inventory of waste volume per satellite accumulation area and for ensuring that waste containers are properly labeled, kept closed, correctly segregated, and placed in secondary containment. Inspect Satellite Areas once a month using the form found in the appendix. Keep the completed forms on file for 3 years in a place readily available for EPA or TDEC inspection.

**Central Accumulation Areas**

When a satellite accumulation area exceeds 55 gallons of hazardous waste, the waste must be placed in a designated Accumulation Area to await transport to a hazardous waste treatment, storage, and disposal facility (TSDF). It may remain in the Accumulation Area either 90 days or 180 before shipping, depending upon the designation of TSU as a Large Quantity Generator (LQG) of hazardous waste or a Small Quantity Generator (SQG). Each department is responsible for transferring their hazardous waste to room 006 in the Boswell Building, either when the 55 gal limit has been reached or a scheduled pick-up day. Please contact Amanuel Bariagaber at ext. 2939 to arrange a time.

* Secondary Containment for spills is required for Accumulation Areas. All storage for liquid waste will be within a containment area.
* Containers that hold incompatible wastes must be separated from each other by means of spill containment.
* The spill containment area should have a sufficient capacity for 10% of the stored volume, designed to prevent mixing of incompatible wastes if the containers leak.
* The Accumulation Area shall be posted with warning signs such as “NO SMOKING"

All hazardous waste Accumulation Areas shall be inspected weekly for leaks and evidence of deterioration. Inspection results or observations shall be recorded on the Hazardous Waste Accumulation Area Inspection Form (see Appendix A) and maintained on file within the owning department. Keep completed inspection forms on file for 3 years in a place readily accessible for EPA or TDEC inspection.

Situations requiring corrective action shall be reported immediately to the department laboratory manager, principal investigator (PI), or TSU EHS Office. Emergency situations (spills or leaks) should be reported to University Police at 963-5171 and the Hazardous Waste Emergency Contingency Plan should be followed (see Appendix B).

#### Accumulation Containers and Labeling:

* Containers used to accumulate hazardous waste must be in good condition and compatible with the waste.
* Containers shall be kept closed except when adding or removing waste.
* The containers must be clearly labeled as hazardous waste (See Appendix D).
* The container must also be labeled with the waste name and accumulation start date.
* The accumulation start date is the date in which the container is placed in the accumulation area.
* Labels must be visible, legible, and durable.

**UNIVERSAL WASTE AND USED OIL CONTAINERS**

Universal waste containers i.e. lamps, batteries, mercury containing equipment, must be labeled as universal waste and with the identity of the contents. They must be kept closed.

#### Used oil should be labeled as used oil. No further description is necessary on the label.

See Appendix D for examples of Universal waste and used oil labels.

#### WASTE DETERMINATION & CHARACTERIZATION

It is the generator’s responsibility to determine when waste is a waste. In a coordinated effort between the generator of the waste, the EHS Office, and contracted TSDF, waste characterization will be determined and a profile will be developed if not already existing.

If there is negligence in defining when a waste is a waste, the EHS Office will request the owner to make the waste determination. If there is a direct non-compliance with waste determination and characterization, the EHS Office will make the determination for the generator.

#### WASTE PROFILES

* As new waste streams are generated, profiles will be developed through coordinated efforts of the generator of the waste stream, EHS Office, and contracted TSDF.
* Chemical Lab Packs require profiling before shipment.
* Waste profiles are maintained in the EHS Office.
* Waste will not be shipped until Profiles are completed by the EHS Office.

# WASTE MINIMIZATION

As a large quantity generator, TSU must have a program in place to reduce the volume and toxicity of waste generated to the degree to be economically practicable and minimizes the present and future threat to human health and the environment. (see Appendix C.)

* Include the reduction of both hazardous and non-hazardous wastes and emissions at the source as a prime consideration in research, service and operations.
* Give top priority to technologies and methods that substitute non-hazardous materials and utilize other source reduction approaches in addressing all environmental issues.
* Vigorously pursue waste abatement programs such as recycling, reuse and purchase of recycled materials to reduce the need for disposal of waste that cannot be reduced at the source.
* Encourage pollution prevention and waste abatement through improvements in purchasing policies and specifications.
* Periodically review waste characterization to ensure that all waste materials are properly classified.
* Review current efforts in order to determine if improvements can be made in the system of waste management, source reduction and waste generation costs.
* Train employees regarding waste minimization and proper waste management.
* Maintain good housekeeping
* Clearly mark contents on containers of hazardous materials
* Maintain accurate inventory of chemicals.
* Practice substitution of high environmental impact chemicals with less hazardous properties such as: replacement of mercury containing equipment, replacement of formaldehyde with a formalin, replacement of acetone usage for cleaning purposes…etc

**TREATMENT OF WASTE**

Treatment of waste by the generator is prohibited under RCRA regulations. This includes, but is not limited to the neutralization of acids and bases, evaporating chemicals in a fume hood, and so on.

#### MANIFESTS & LAND BANS

#### Signing the Hazardous Waste Manifest

* Only personnel who have received training per CFR 40 in Hazardous Waste Management may sign the manifest.
* The following personnel are authorized to sign Hazardous Waste Manifests:
* Assistant Director, EHS
* Assistant Coordinator, EHS
* No other person is authorized to sign the manifest.

#### Hazardous Waste Manifest Recordkeeping

A completed manifest is the copy that has been signed by a representative of the Treatment, Storage or Disposal Facility in Block 20 of the form. This signifies that the shipment has reached its destination. Once the completed manifest is received, it will be filed in the hazardous waste files located in the TSU Environmental Health and Safety Office.

* If a completed manifest is not received back within 35 days, the EHS Office will contact the designated facility (Block 8) and determine if the shipment has been received.
* If the completed manifest is not received by 45 days, the Director of EHS will initiate notification to the Regional Administrator of the United States Environmental Protection Agency informing of this discrepancy.
* When the manifest package is complete the EHS Office will place this record into the Hazardous Waste files.
* Manifests for the active year plus the previous three years shall be kept on file in a readily accessible location. All other manifests will be archived indefinitely.

**Land Ban Forms**

All Land Ban Forms are signed by the Assistant Director or Assistant Coordinator of EHS, maintained with the waste manifests, and kept indefinitely.

**Universal Wastes Manifests, Used Oil Shipping Documents**

Universal waste shipments and used oil shipments are managed by the owning department of the waste or recyclables. Original documents of the shipments are forwarded to the EHS Office for recordkeeping. The documents for the previous three years shall be kept in a readily accessible location. All others will be archived indefinitely.

**REQUEST FOR SHIPMENT**

If generating departments are in need of a hazardous waste SHIPMENT, they must contact the EHS Office (Ext. 5683 or 5202) to schedule a pick up with an approved Treatment, Storage and Disposal Facility. Hazardous Waste must only be removed from the campus by a company that is registered and permitted by the EPA or TDEC.

#### EMERGENCY/CONTINGENCY PLANNING

The Hazardous Waste Emergency Contingency Plan provides guidance for chemical emergencies. Academic Departments such as Chemistry, Biology, Physics, and Nano Technology have Chemical Hygiene Plans that address and provide guidance for chemical emergencies as well.

* The provisions of the contingency plan must be carried out immediately in the event of an emergency.
* Personnel safety for hazardous waste emergencies is incorporated into the contingency plan.
* Qualified persons are designated as the Primary and Alternate Emergency Coordinators for the University. The Emergency Coordinator shall be on‑site or on-call at all times to respond to all emergencies.
* The Emergency Coordinator shall be familiar with the Hazardous Waste Emergency Contingency Plan, all operations, and the campus map.
* The Emergency Coordinator shall have the authority to commit resources necessary to respond to emergencies.

#### TRAINING

* Documented training is required for personnel involved in the management, handling, and storage of hazardous wastes.
* Training records shall be maintained in the individual academic departments that generate the waste and copies sent to EHS.
* Training includes proper management of the waste streams, labeling, containers, emergency procedures outlined in the department’s Chemical Hygiene Plan and University’s Hazardous Waste Emergency Contingency Plan.
* Hazardous waste handlers and their supervisors / managers must complete training or on‑the‑job instruction relevant to their duties to include hazardous waste management procedures and contingency plan implementation.
* Training must be completed before duties are assigned and training must be repeated annually.

**PLAN REVIEW**

The following items will be reviewed annually for compliance or for necessary improvements with the management plan protocols.

* Inspection Records of accumulation areas.
* Manifests (for signatures, return copies) and Land Ban Forms.
* Hazardous Waste Management Plan.