Knoxville Campus Policy: SAEC001-K - Hazardous Waste Management Plan	
Version 1	Effective Date: 07/16/2018

Environmental Health & Safety

Hazardous Waste Management

UTK Environmental Health & Safety Program EC-001

The purpose of this procedure is to provide a framework for those individuals on campus who generate or handle hazardous waste. Consult Title 40 Code of Federal Regulations or Environmental Health and Safety for additional information regarding hazardous waste.

Effective Date: 01/01/2009
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Purpose, Applicability, and Scope

Purpose – The purpose of this procedure is to provide a framework for those individuals on campus who generate or handle hazardous waste. Consult Title 40 Code of Federal Regulations or Environmental Health and Safety for additional information regarding hazardous waste.

Applicability – This shall apply to all students, staff and faculty on the Knoxville campus of the University of Tennessee.

Scope – This standard applies to all hazardous waste as defined below.

Abbreviations and Definitions

Abbreviations

DOT-Department of Transportation

EHS-Environmental Health and Safety

HAZWOPER-Hazardous Waste Operations and Emergency Response Standard

IATA- International Air Transportation Agency

RCRA-Resource Conservation and Recovery Act

SAA-Satellite Accumulation Area

TDEC-Tennessee Department of Environment and Conservation

Definitions

Hazardous Waste – The EPA defines hazardous waste as a material that no longer has an intended value with properties that make it dangerous or potentially harmful to human health or the environment. Hazardous wastes can exist as liquids, solids, contained gases, or sludges. They can be the by-products of manufacturing processes or simply discarded commercial products, like cleaning fluids or pesticides.

In regulatory terms, a RCRA hazardous waste is either a listed waste that appears on one of the four hazardous wastes lists (F-list, K-list, P-list, or U-list), and/or exhibits at least one of four characteristics—ignitability, corrosivity, reactivity, or toxicity. Hazardous waste is regulated under the Resource Conservation and Recovery Act (RCRA) Subtitle C, which is enforced by the EPA on a federal level, and by TDEC on a state level.

Roles and Responsibilities

The management of hazardous chemical waste at the University consists of the coordination and direction of the waste generated in hundreds of laboratories and other campus facilities. To manage this large volume effectively, it is necessary to use the services and technical expertise of Environmental Health and Safety (EHS), faculty, and staff members. This section briefly describes the function of each group and its role in the hazardous chemical waste management program.

University Administration

The Chancellor of the University is responsible for the administration of policy pertaining to institutional safety and health-related matters. The chancellor oversees the administration of safety policies through the chain of authority within the institution, delegating to deans, department heads, principle investigators and supervisors the responsibility for ensuring safe work practices of those under their supervision and adherence to established policy and guidelines.

EHS

EHS is responsible for surveillance of all laboratory activities involving the use of toxic agents and all additional chemical and biological problem areas within the confines of the University. A list of staff members from EHS is available as Appendix A.

Specific duties of the department include:

- Monitor the implementation of the safety and health policies of the University.
- Design and improve disposal procedures for chemical waste materials.

- Prepare, submit, and maintain records, reports and manifests as required by government regulations.
- Prepare applications for state and federal permits to generate and properly dispose of hazardous chemical waste.
- Schedule and co-ordinate the activities of the hazardous waste contractors on campus.
- Ensure the university's compliance with all applicable federal (EPA) and state (TDEC) environmental regulations concerning hazardous waste.
- Ensure the university is making an effort to minimize the amounts of hazardous waste generated on campus.
- Be a liaison representing the university during EPA and TDEC regulatory inspections.

Principal Investigator, Classroom Instructor or Supervisor

The principal investigator, classroom instructor, or supervisor has the direct responsibility for assuring that the policy and guidelines established herein are followed by all personnel, including other researchers under their jurisdiction.

Laboratory Workers, Employees, Students, and Other Individuals

The success of the hazardous chemical waste management program at the University is dependent on the conscientious efforts of the individual laboratory worker and staff employee. Because the laboratory workers frequently handle hazardous chemicals, it is essential that they follow the advice, policies, and procedures pertaining to hazardous materials handling. The individual staff members are expected to:

- Manage and dispose of all chemical waste in accordance with established procedures set forth in this disposal policy.
- Maintain the identity of all chemicals with which they work.
- Package and label surplus and waste chemicals in accordance with established procedures set forth in this disposal policy.
- Seek the advice, when necessary, of EHS concerning the proper handling and disposal of hazardous chemicals.
- Ensure they are properly trained on hazardous waste management, and that this documented training is refreshed on an annual basis.

Procedures

Container Management:

1. All containers must be leak-proof and chemically compatible with their contents. Lids should fit properly so that the container is leak proof.
2. When selecting a waste container, pay attention to the original container material to ensure waste added to the container is not incompatible with residues of the original material. Make sure empty containers once used to hold product are clean and does not contain any remaining product residue.
3. Bags may be used only for dry solids. Needles (capped or uncapped), pipettes, broken glass or other sharp-edged materials that are chemically contaminated are not acceptable in bags. All "sharps" should be placed in puncture-resistant containers.
4. Containers which show signs of contamination on their exterior are not acceptable regardless of their contents. EHS must take every step available to protect its staff from potential chemical hazards.
5. Containers and bags marked with biohazard or radioactive warnings are not acceptable for chemical waste disposal. If a waste has biological and/ or radiological and chemical hazards, please contact EHS for guidance before packaging.
6. Minimize void space in containers by assuring that collection containers should be filled to capacity (with a little head room for expansion) before requesting disposal or combining two containers of identical material into one.
7. When adding hazardous waste to a container, only the constituents that are specifically listed on the waste label should be added and care must be taken not to mix incompatibles.
8. All containers must be closed with a tight-fitting lid, unless waste is being added or removed from the container. It is illegal to store waste in an open container.

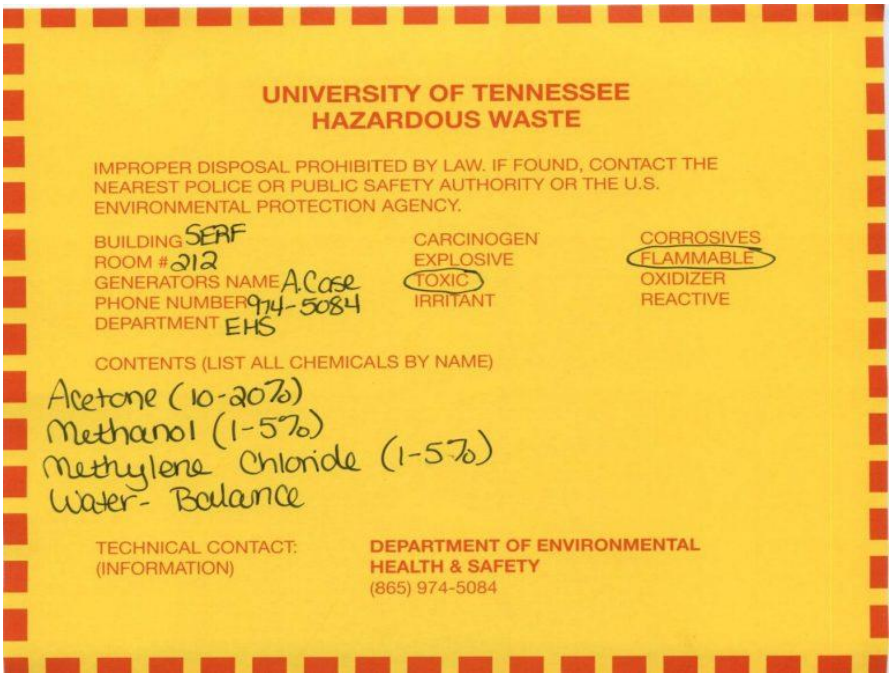
Labeling Requirements:

In order to comply with state and federal regulations and University policy, the following information must appear on each container of hazardous waste.

1. "Hazardous Waste": State and federal regulations require that each container must be clearly marked with the words, "Hazardous Waste". EHS requires that all hazardous waste must be labeled with a UTK hazardous waste label. Labels can be obtained from EHS.

2. Generator's Name: The individual who is responsible for the area or process from which the waste originated and contact information (including name, phone # and room #) for the best person to contact if further information about the material is needed.
3. Chemical Constituents: Write all constituents, whether hazardous or non-hazardous, on the waste label. Formulas, trade names, abbreviations, and general names and nomenclature are not acceptable. The proper chemical name must be written out in its entirety. Provide percentage of constituents, if known. Estimates are acceptable.
4. Do not add an accumulation start date; this will be completed by EHS. The date will be added when the waste is brought to EHS for disposal.

Below is an example of a properly completed hazardous waste label:



Storage Requirements:

1. Any container used for disposal and storage of waste must be marked with the information specified in the Labeling section immediately upon placing the first drop of waste into the container.
2. Whenever possible, store flammable waste liquids and waste corrosive liquids in cabinets designed for these materials.

3. Maximum amount that can accumulate in the lab is 55 gallons of hazardous waste or 1 kilogram of acutely toxic waste (Appendix B). If you accumulate more than the maximum amount, the waste needs to be removed from your lab no later than 3 days after these maximum amounts are reached.
4. All waste must be stored in secondary containment (i.e. cabinets and trays), and should be segregated according to hazard class (i.e. flammables, toxics, etc.). The EHS web-site has a partial list of common incompatible chemicals.
5. All hazardous waste should be stored in a Satellite Accumulation Area (SAA) which should be clearly marked with a sign (signs can be obtained from EHS).

Disposal:

Hazardous waste should be brought to the following locations, or contact EHS at 974-5084 to coordinate a pickup. Waste should never be left unattended outside the waste room. It must be accepted by an EHS representative. Note that times are subject to change. Please visit the EHS website, https://ehs.utk.edu/ for details and the latest schedule.

Walters Waste room (Room M209):
Hours: The first and third Wednesday of every month, 12:45-1:45 p.m.

SERF (Science & Engineering Research Facility) Waste room (at loading dock):
Hours: Every Wednesday, 2:00-3:00 p.m.

Dabney Buehler Approximately monthly there is a direct pickup by the UTK waste contractor at the loading dock. This is announced via email (usually to the Chemistry Listserv).

JIAM Every other Tuesday 1:30-2:30p

Strong Hall Every other Thursday 1:30-2:30p

Additional Waste Rooms (Mossman) will be added in 2018
Dates and times to be determined

General Requirements:

1. Hazardous waste should never be disposed of down the sanitary sewer, the storm sewer, placed in the regular trash, by evaporation (a container without a lid implies evaporation for volatile substances), mixing with a biohazard, or mixing with a non-hazardous substance (i.e. dilution).
2. The following items are not classified as hazardous waste and are not included in this policy: sewage; regular trash; universal waste (fluorescent bulbs, batteries); radioactive and biohazard.

3. The burden of hazardous waste determination lies with the waste generator. If unsure whether a waste is hazardous, reviewing the material safety data sheet (MSDS or SDS) or original container labels are good starting points. Unlabeled containers present a number of problems. When in doubt, assume the waste is hazardous and manage as a hazardous waste. EHS should be consulted with any questions concerning hazardous waste determinations.
4. Every effort must be made to minimize and reduce the volumes of hazardous waste generated on campus. Please refer to UTK's Hazardous Waste Minimization Plan for ideas on waste reduction.

Record Keeping

EHS shall serve as the primary location for records related to hazardous waste. Records shall be maintained on the following

- Hazardous waste manifests
- Annual reports
- Land disposal restrictions
- Waste stream profiles
- Waste determinations
- Disposal certificates
- Waste Minimization Plan
- Emergency Contingency Plan
- Training
    - DOT Hazardous Material Shipping
    - IATA Hazardous Materials Shipping
    - OSHA Hazardous Waste Operations
- Communiqués from and to:
    - Regulatory agencies
    - Hazardous waste vendors
    - Generators of hazardous waste

- University administration

Most of these records must be maintained for three years to meet regulatory requirements. However to be prudent these records will be kept indefinitely.

Training records shall be maintained by the individual department to whom the employee or student reports. Training records for employees may also be kept in IRIS.

Training and Information Requirements

The director of EHS shall ensure that select staff members in the department are adequately trained in the following subjects:

1. Hazardous substances
2. DOT shipping requirements
3. Hazardous waste management; RCRA regulations
4. Personal protective equipment
5. OSHA HAZWOPER
6. Procedure for submitting the annual report to the Tennessee Department of Environment and Conservation

Department heads, having individuals (staff, faculty and students) under their control who generate hazardous waste, are required under federal and state law to ensure these individuals have been trained and that training must be documented. Training is available from EHS in the form of traditional classroom, or online formats. Training must be completed annually for individuals who generate and manage hazardous waste. For training information, refer to the EHS website or 974-5084.

References

- OSHA 29 CFR 1910.120 (Hazardous Waste)
- EPA 40 CFR 260-270 (Hazardous Waste)
- Tennessee Code Annotated (1200-01-11)

Disclaimer

The information provided in this document is designed for educational use only and is not a substitute for specific training or experience.

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Appendices

EC-001 Hazardous Waste Management Plan (downloadable pdf)

Attachment A: Waste Management Contacts

Attachment B: List of Acutely Hazardous Substances

Attachment C: Checklist for Laboratory Hazardous Waste Management