Temple University
Environmental Health and Radiation Safety

# Environmental Health & Radiation Safety Policy

# Biohazardous Waste Management

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## Purpose

Temple University Environmental Health & Radiation Safety (EHRS) has developed this policy to establish a program and standard procedures for the safe handling and proper disposal of biohazardous waste generated on any Temple University (TU) campus in accordance with all local, state, and federal regulations. These regulations include but are not limited to the Occupational Safety and Health Administration (OSHA) Bloodborne Pathogens Standard as codified in 29 CFR 1910.1030, National Institute of Health (NIH) Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules and the Pennsylvania Department of Environmental Protection (PA-DEP) for regulated medical (infectious) and chemotherapeutic waste as codified in Pennsylvania Code Title 25 Chapter 284.

This policy applies to all students, faculty, staff, visitors, and contractors that participate in any activity that generates biohazardous waste of any kind, including but not limited to laboratory research, maintenance, operations, and academic instruction at Temple University.

## Definitions

- **Biohazardous waste (also called regulated medical or infectious waste):** Municipal and residual waste that is generated in the diagnosis, treatment, immunization or autopsy of human beings or animals, in research pertaining there to, in the preparation of human or animal remains for interment or cremation, or in the production or testing of biologicals, and which falls under one or more of the following:

- **Cultures and stocks** of infectious agents and associated biologicals, including the following:
  1. Cultures and stocks of human and non-human primate-derived materials.
  2. Cultures from medical and pathological laboratories
  3. Cultures and stocks of infectious agents from research and industrial laboratories
  4. Wastes from the production of biologicals
  5. Discarded live and attenuated vaccines except for residue in empty containers
  6. Culture dishes, assemblies and devices used to conduct diagnostic tests or to transfer, inoculate and mix cultures

- **Pathological waste:** Human pathological wastes, including: tissues, organs and body parts and body fluids that are removed during surgery, autopsy, other medical procedures, or laboratory procedures. Hair, nails, and extracted teeth are excluded. Embalmed body parts are also excluded.

- **Human blood, blood products and body fluid waste:**
  1. Liquid waste human blood
  2. Human blood products
  3. Items saturated or dripping with human blood
  4. Items that are caked with dried human blood, including serum, plasma, and other blood components, which were used or intended for use inpatient care, specimen testing or the pharmaceuticals
  5. Intravenous bags that have been used for blood transfusions
  6. Items, including dialysate, that have been in contact with the blood of patients undergoing hemodialysis at the hospital or the independent treatment centers.
  7. Items contaminated by body fluids from persons during surgery, autopsy, other medical or laboratory procedures
  8. Specimens of blood products or body fluids, and their containers
  9. Isolation Wastes: Biological wastes or wastes contaminated with blood, excretion, exudates or secretions from humans who are isolated to protect others from highly virulent diseases.

- **Animal wastes:** Contaminated animal carcasses, body parts, blood, blood products, secretions, excretions and bedding of animals that were known to have been exposed to agents infectious to vertebrates, human pathogens, recombinant or synthetic nucleic acids, or human-derived cells or cell-derivatives during research, production of biologicals, or testing of pharmaceuticals.

- **Used sharps:** Sharps, including hypodermic needles, syringes with or without the attached needle, Pasteur pipettes, scalpel blades, blood vials, needles with attached tubing, culture dishes, suture needles, slides, cover slips and other broken glass or plasticware that have been in contact with infectious agents or that have been used in animal or human patient care or treatment, at medical, research, or industrial laboratories.

- **Chemotherapeutic waste:** Waste resulting from the production or use of antineoplastic agents used for the purpose of inhibiting or stopping the growth of malignant cells or killing malignant cells.

## Responsibilities

**Environmental Health & Radiation Safety** is responsible for:

- Ensuring regulatory compliance and acting as the University liaison for regulatory agencies that oversee biological waste related activities and/or conduct on-site inspections.
- Maintaining biological waste contracts with vendors and facilitating biological waste shipments.

**Department Directors / Chairs / Deans**

- Responsible for ensuring that Supervisors, PIs, and Managers comply with the concepts and procedures provided in this program.

**Departments, Principal Investigators (PI) and/or Supervisors** are responsible for:

- Ensuring that all personnel and/or contractors are properly trained and adhere to the biohazardous waste management concepts and procedures provided in this program as well as any additional departmental internal procedures; and
- Ensuring that all biohazardous wastes generated are discarded in compliance with the provisions of the current edition of the Temple University Biosafety Manual.

**Biohazardous Waste Generators** are responsible for:

- Adhering to the biohazardous waste management concepts and procedures provided in

this program as well as any additional departmental internal procedures; and
- Ensuring that all biohazardous wastes generated are discarded in compliance with the provision of the current edition of the Temple University Biosafety Manual.

## Collection

- Sharps must be collected in a sturdy, puncture-proof, leak-proof container that displays the universal biohazard symbol.
- Solid biohazardous waste must be placed in a biohazard symbol-labelled, closeable container lined with biohazardous waste bag with sufficient integrity to contain the waste.
- Liquid biohazardous waste must be disinfected by the addition of fresh bleach, to a final concentration of 10% of the total liquid waste volume. The liquid must be mixed and allowed to stand for 15 minutes, prior to drain disposal.
- Boxed sharps and bagged biohazardous waste should be pick-up by Housekeeping, or directly by biohazardous waste outside hauler.

## Storage

- Non-sharps, solid biohazardous waste must be stored in closed, leak-proof containers. The outer container must be either disposable or capable of being disinfected for reuse. The inner container (usually a biohazardous waste bag) must be disposable.
- Used sharps containers may be stored by the waste generator until ¾ full, as long as waste is in non-putrescent state.
- Central Storage Locations: Biological waste that is collected from the University may be stored, consolidated, and packaged for disposal at a central storage location This location is a secure area that is marked with applicable signs indicating the hazard present. In the event of a spill or accidental release, spill kits are available onsite to facilitate a timely response and cleanup.

## Disposal

- Liquid biohazardous waste must be chemically disinfected and then disposed of into the sewer system. An acceptable disinfectant is sodium hypochlorite (commercial bleach) added to constitute 10% of the total volume.
- Sharps, once placed in puncture resistant containers, will be transported by a certified waste vendor to an outside facility.
- Solid biohazardous waste will be transported by an approved certified waste vendor to an

outside facility.

- For mixtures of biohazardous waste and chemical and/or radioactive waste, consult EHRS prior to the generation of this waste, for the proper method of disposal.
- Final disposal of biohazardous waste is coordinated through EHRS. Biohazardous waste is stored on-site until removed by a licensed transporter for disposal at an approved TSDF.

NOTE: Consult EHRS for the proper handling, storage and disposal of biohazardous waste generated in a biosafety level 3 (BSL3 facility).

## Transport

- Only approved biohazardous waste haulers shall be allowed to remove biohazardous waste from Temple University.

## Training

- EHRS personnel, trained in biohazardous waste management procedures, will provide classroom or online instruction to incoming employees who will be performing biohazardous waste generating procedures and/or handling biohazardous waste. The purpose is to educate, to ensure that employees understand their roles and responsibilities in order to comply with applicable biohazardous waste management regulations.

- It is the responsibility of supervisors and principal investigators, in the case of laboratories, to ensure that proper site-specific on-the-job training is completed and includes the standard operating procedures for biohazardous waste handling and emergencies.

## Recordkeeping

- The following records are maintained by EHRS: all permits, licenses, inspection logs, training records (except site specific), and regulatory agency correspondence for activities managed by EHRS. These documents are kept on file for a minimum of three years.

- Additional records may be maintained by other University departments who oversee specific
biohazardous waste management activities not directly managed by EHRS.

## References

- OSHA Bloodborne Pathogens Standard 29 CFR 1910.1030
- Pennsylvania Code Title 25 Chapter 284 (Regulated medical and chemotherapeutic waste)
- NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules (*NIH Guidelines*)
- CDC - Biosafety in Microbiological and Biomedical Laboratories (BMBL) 6th Edition
- Temple University Biosafety Manual