

1. Purpose

Non-hazardous and hazardous chemical wastes, biohazardous wastes, regulated medical wastes and universal wastes generated by KSU will be handled according to the rules and regulations of the EPA Resource and Recovery Act (Title 40 Code of Federal Regulations (40CFR), Parts 260-268, 273 and Part 279 and Parts 124 or 270). KSU will also comply with the Georgia Environmental Protection Division (EPD) Rules for Hazardous Waste Management.

The purpose of this Program is to provide the procedural framework regarding the handling of wastes from “cradle to grave”. This includes waste determinations, characterizations, laboratory practices and proper disposal.

2. Scope

This policy will affect anyone who generates wastes including but not limited to the student in the laboratory, the Principle Investigator, Faculty and Plant Operations Staff. All wastes will be disposed of by reputable hazardous or biohazardous waste handlers.

The scope of solid waste management covered by this Program includes a variety of materials including non-hazardous waste, hazardous chemical waste, biohazardous waste, regulated medical waste and universal waste.

KSU is a small quantity generator which is defined as one who generates more than 100 kg (220 lbs) but less than 1000 kg (2200 lbs) of hazardous waste and less than 1 kg (2.2 lbs) of acutely hazardous waste per calendar month.

3. Responsibilities

Environmental Health, Safety and Risk Management Department (EHS&RM) is responsible for providing guidelines and training, tracking regulatory requirements, ensuring that the following procedure accurately reflects current requirements, and auditing program implementation.

For the purpose of this procedure, the waste generator is the individual responsible for handling or use of the material being offered for disposal or removal. This applies to all waste, from simple to complex. The person making the initial decision affecting how waste is offered for removal/recycling is most knowledgeable about the nature of the material. It is the generator's responsibility to understand how to properly manage waste.

The generator (e.g., Principal Investigator or supervisor) is responsible for determining if a material is spent or intended for discard, thereby a waste material. The generator must determine if the material is a hazardous waste by characteristic or specific constituents. The hazardous waste generator is also responsible for recognizing opportunities for waste minimization.

Plant Operations is responsible for managing nonhazardous solid waste and providing collection devices, removal equipment, and trained personnel for managing specific categories of waste.

4. Procedure

A. Definitions

Biohazards are biological agents or substances present in or arising from the work environment. They present or may present a hazard to the health or wellbeing of the worker or the community. Biological agents and substances include infectious and parasitic agents, noninfectious microorganisms, such as fungi, yeasts, algae, plants and plant products, and animals and animal products that cause Occupational disease. Generally, biohazards are infectious microorganisms, toxic biological substances, biological allergens or any combination of those materials.

Biological Waste means organic nonpathological waste, including dead animals, animal parts, and tissue.

Blood and body fluids means liquid blood, serum, plasma, other blood products, emulsified human tissue, spinal fluids, pleural and peritoneal fluids.

Generator is any person whose act or process produces waste. At Kennesaw State University, and for the purpose of this document, this would be the Principal Investigator, Laboratory Supervisor, Manager or other person responsible for a local area in which chemicals are used or stored. "Generator" will also be used for matters pertaining to the University as a whole.

Hazardous waste is any solid waste that is ignitable, corrosive, reactive, or toxic, a listed hazardous material, or contains a listed hazardous material.

Medical waste means any solid waste which is generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biological materials, but does not include any hazardous waste identified or listed pursuant to this Article, radioactive waste, and household waste as defined in 40 Codes of Federal Regulations Section 261.4(b)(1) in effect on July 1, 1989, or those substances excluded from the definition of solid waste in this section.

Microbiological wastes means and includes cultures and stocks of etiologic agents. The term includes cultures of specimens from medical, pathological, pharmaceutical, research, commercial, and industrial laboratories.

Nonregulated Hazardous Waste is any solid waste that is technically not a "hazardous waste", but may pose a significant hazard to human health or the environment, or is unacceptable at local solid waste management facilities. Sanitary (municipal) landfills cannot accept liquids or contained gaseous wastes. Wastewater treatment plants must operate within specific limits for their sludge's and treated effluent.

Pathogens means organisms that are capable of producing infection or diseases, often found in waste materials.

Pathological wastes means and includes human tissues, organs, body parts, secretions and excretions, blood and body fluids that are removed during surgery and autopsies; and the carcasses and body parts of all animals that were exposed to pathogens in research, were used in the production of biological materials or in the in vivo testing of pharmaceuticals, or that died of known or suspected infectious disease.

Putrescible means solid waste capable of being decomposed by microorganisms with sufficient rapidity as to cause nuisances from odors and gases, such as kitchen wastes, offal and carcasses.

Recovered materials means those materials which have known recycling potential, can be feasibly recycled, and have been diverted or removed from the solid waste stream for sale, use, or reuse by separation, collection, or processing.

Recyclable material means those materials which are capable of being recycled and which would otherwise be processed or disposed of as solid waste.

Regulated medical waste means blood and body fluids in individual containers in volumes greater than 20 ml, microbiological waste, and pathological waste that have not been treated pursuant to 39134.15 (6) of the Georgia Environmental Protection Division Solid Waste Management Rules.

Resource recovery means the process of obtaining material or energy resources from discarded solid waste which no longer has any useful life in its present form and preparing the solid for recycling.

Sharps means and includes needles, syringes, and scalpel blades.

Solid waste means any hazardous or nonhazardous garbage, refuse or sludge from a waste treatment plant, water supply treatment plant or air pollution control facility, domestic sewage and sludge's generated by the treatment thereof in sanitary sewage collection, treatment and disposal systems, and other material that is either discarded or is being accumulated, stored or treated prior to being discarded, or has served its original intended use and is generally discarded, including solid, liquid, semisolid or contained gaseous material resulting from industrial, institutional, commercial and agricultural operations, and from community activities. Solid waste does not include recovered materials; solid or dissolved materials in domestic sewage; solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permit under 33 U.S.C. Section 1342; or source, special nuclear, or by product material as defined by the federal Atomic Energy Act of 1954, as amended (68 Stat. 923).

Special wastes mean solid wastes that can require special handling and management, including white goods, whole tires, used oil, lead acid batteries, and medical wastes.

White goods includes refrigerators, ranges, water heaters, freezers, unit air conditioners, washing machines, dishwashers, clothes dryers, and other similar domestic and commercial large appliances.

Used oil means any oil which has been refined from crude oil or synthetic oil and, as a result of use, storage, or handling, has become unsuitable for its original purpose due to the presence of impurities or loss of original properties, but which may be suitable for further use and is economically recyclable.

Universal Waste is a broad term the Environmental Protection Agency uses to identify certain widely generated wastes. The Universal Waste regulations have streamlined hazardous waste management standards for the federal universal wastes (batteries, pesticides, thermostats, and lamps). The regulations govern the collection and management of these widely generated wastes. This facilitates the environmentally sound collection and increases the proper recycling or treatment of the universal wastes mentioned above.

B. Chemical Wastes

Before beginning a project, it is the responsibility of the waste generator to minimize waste by determining the hazards associated with the chemical/product and choosing the chemical/product of lesser hazard. Pls and Supervisors should order and store minimum amounts of hazardous chemicals and products. Be aware that certain chemicals are difficult and costly to dispose of. Some examples follow:

- 1) Heavy metals such as mercury, barium, cadmium, chromium, beryllium, silver, selenium, and tellurium.
- 2) Chlorophenols, dioxins, and cyanides.
- 3) Compressed gases including lecture bottles or containers with liquids under pressure. Arrange with the supplier to return empty or unused containers.
- 4) Manufacturer's samples. Either arrange for the manufacturer to accept return of unused products or provide an MSDS or product data sheet with a description of the product and its characteristics.

Satellite accumulation areas may be established at or near the point of generation of the waste where up to 55 gallons of hazardous waste or 1 quart of acutely hazardous waste can be stored. If the stored wastes exceed these limits, the waste must be moved to a 180-day storage area within 3 days. This area must be one in which spills can be contained. A sink or an open area outside is not acceptable as an accumulation area.

Waste containers must be labeled with the words "hazardous waste" or "non-hazardous waste" and the contents of the waste container. A log sheet beside the container is the recommended

way of tracking what is placed in the waste container. EHS&RM along with the chemical waste contractor will characterize the waste based on the contents. If containers are too small to hold a label, they should be placed in secondary containment and that should be labeled.

The waste containers must be closed unless waste is being placed in the container. Funnels with positive latch lids are available for purchase and should be used when necessary.

Once the container is full, a waste card should be created in Chematix and the waste submitted for pick-up by EHS&RM. The start accumulation date is the date when the container is full, not the date when the first waste is placed in the container.

At no time is chemical waste to be placed in the sanitary sewer.

PIs and Supervisors will review their chemical inventories twice a year and dispose of out-dated and unnecessary chemicals. Special attention should be given to peroxide formers and other potentially explosive chemicals. These chemicals should not be kept past the manufacturers' expiration date.

C. Biological Waste

Biological waste must be placed in red biohazard bags (decanted, if necessary). After tying the bag, place it in a cardboard box provided by EHS&RM. The box should be prepared beforehand by taping the bottom of the box in two directions (shipping tape creating a bottom that is solid tape). The box with the contents must be weighed and cannot exceed 45 lbs. A "pathological only" sticker will be placed on the box.

Once the box is ready, create a waste card in Chematix identifying the waste as regulated medical waste, pathological only. Submit to EHS&RM for pick-up.

D. Regulated Medical Waste

Regulated medical waste must be placed in a red biohazard bag and placed inside the biohazard labeled cardboard box. The boxes and bags will be provided by EHS&RM. Sharps are to be collected in rigid sharps containers. Once full, the container should be closed and placed in a red bag which is then placed inside the box. When the box is full, a waste card should be created in Chematix stating either regulated medical waste with or without sharps. Submit a pick-up request to EHS&RM.

E. Universal Waste

Universal waste includes fluorescent tubes, high intensity discharge bulbs (HID), compact fluorescent bulbs (CFB), batteries, pesticides and thermostats.

All fluorescent tubes, HID and CF bulbs must be placed in sturdy containers that will protect them from breaking. The original box that held the bulbs is the best container to use. When that is not available, fiber or poly drums will be provided. The bulbs must be placed inside the

containers and the top must be placed on the containers. Bulbs may be stored in closets in this manner until they are collected and placed in the central collection area.

Batteries will be collected in a central location and recycled by a battery recycling company.

Pesticides disposal will be coordinated with the chemical waste contractor.

Thermostats containing hazardous materials will also be disposed of through the chemical waste contractor.