MONMOUTH UNIVERSITY
POLICIES AND PROCEDURES

Policy Name: Hazardous Waste Management

Original Issue Date: Unknown **Revision Date:** March 17, 2020

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I. POLICY

A. The University is a generator of hazardous waste, as that term is defined in both Federal and State statutes, and as such, shall comply with the provisions of such laws in the management and disposal of all hazardous waste.

II. OFFICE OF COMPLIANCE RESPONSIBILITIES

A. This Office, led by the Director of Compliance/Risk Manager, is responsible for coordinating the disposal of hazardous waste from University operations.

B. The Director of Compliance/Risk Manager shall provide compliance and safety services through technical support, information and training programs, consulting services, and periodic auditing of safety practices and regulatory compliance.

C. The Director of Compliance/Risk Manager shall prepare and submit Biennial Hazardous Waste Generator and Exception Reports, if required.

III. FACILITIES MANAGEMENT RESPONSIBILITIES

A. Facilities Management employees, who have received the proper training, are responsible for the pickup of hazardous waste from generation points, on-site accumulation of hazardous waste (properly packaged and labeled by the originator of the waste) and the transfer of hazardous waste (properly packaged and labeled) to an EPA-approved hazardous waste transporter.

B. A Uniform Hazardous Waste Manifest shall be prepared for each shipment of hazardous waste and the appropriate copies obtained and forwarded to the Office of Compliance for filing.

C. The Director of Compliance/Risk Manager shall be notified of the date and time of the scheduled transporter pick up before such event occurs.

D. Only Facilities Management Employees who have received the proper training are allowed to perform pick-ups, prepare manifests, or deal with hazardous waste in any capacity.

IV. HAZARDOUS WASTE GENERATORS (INDIVIDUALS AND DEPARTMENTS)

A. Individuals and departments are responsible for determining whether their waste is hazardous before pick-up by Facilities Management.

B. Generators are required to properly manage (containers, packaging, markings, and labels) hazardous accumulation sites and to notify Facilities Management for a pickup whenever the threshold quantity (see Section IV, below) of the hazardous waste is reached. At the University the following departments have been identified as hazardous waste generators:

1) Chemistry;
2) Biology;
3) Art and Design;
4) Woods Theatre;
5) Health Center; and
6) Facilities Management.

C. Other potential hazardous waste generators include:

1) University Bookstore;
2) Copy Center;
3) Psychology; and
4) Athletics.

V. CLASSIFICATION OF WASTE AS HAZARDOUS

A. In accordance with the applicable Federal standard, waste is considered hazardous if:

1. It is on either of two lists of specific chemical substances developed by the federal Environmental Protection Agency (EPA);

2. It is on a list of nonspecific sources developed by the EPA that includes a broad range of spent halogenated and non-halogenated solvents;

3. It is on a list of specific sources developed by the EPA that includes primarily industrial processes; and/or

4. It exhibits any of the following characteristics as defined by the EPA (definitions are abbreviated):

    a. Ignitable

        i. Is a liquid with a flash point less than 60 degrees Centigrade (140 degrees Farenheit);
        ii. Is not a liquid and is capable under normal conditions of causing fire through friction, absorption of moisture or spontaneous chemical changes;
        iii. Is an ignitable compressed gas; and/or
        iv. Is an oxidizer.

    b. Corrosive

        i. Is aqueous (liquid-like) and has a pH less than or equal to 2 or greater than or equal to 12.5; and/or
        ii. Is a liquid and corrodes steel at a rate greater than 0.250 inches per year at 55 degrees Centigrade (131 degrees Farenheit).

    c. Reactive

        i. Is normally unstable;
        ii. Reacts violently with water;
        iii. Forms potentially explosive mixtures with water;
        iv. Cyanide or sulfide wastes that generate toxic gases, vapors, or fumes at pH conditions between 2 and 12.5;
        v. Is capable of detonation or explosive decomposition if submitted to strong initiation or under standard temperature and pressure; and/or
        vi. Is classified as a Department of Transportation explosive.

    d. Toxicity Characteristic

i. Is found to contain certain metals, pesticides or selected organics above specified levels in an extract of the waste.

VI. ACCUMULATION OF HAZARDOUS WASTE AT POINT OF GENERATION

A. Hazardous waste may be accumulated in an area of a laboratory or facilities operation near the point of generation.

B. The principal worker(s) generating the waste shall control this area.

C. State and federal regulations stipulate how waste generators shall store hazardous waste and require the following:

1. Any container used to accumulate hazardous wastes shall be labeled with the words “hazardous waste” or a description of the container's contents (e.g. "waste acetone"), regardless of its location, as soon as accumulation begins. This includes accumulation of hazardous wastes within a laboratory or hazardous wastes in a facilities operation.

2. The container must be compatible with the hazardous waste. Use containers that are made of, or lined with, materials, which will not react with, and are otherwise compatible with, the hazardous waste to be accumulated. Often the original container is suitable.

3. Waste containers shall be closed at all times, except when being filled. Do not leave open and unsecured funnels in the containers.

4. The containers in the waste accumulation area cannot leak. Consider the use of secondary containment, such as a tray, larger container or basin. If a leaking container is found, immediately clean up any spilled material according to established spill cleanup procedures and transfer the waste into a container that is in good condition.

5. No more than one quart of acutely hazardous waste, or 55 gallons or other hazardous waste may be accumulated in a satellite waste accumulation area. If this threshold quantity is reached, the worker shall transfer the waste to the Facilities Management accumulation area within three calendar days. The container shall bear a hazardous waste label with the accumulation date, either the date the threshold quantity was reached or the date it was placed in the Facilities Management accumulation area marked on the container.

6. Hazardous waste must be segregated in containers according to the type of waste.

7. There are two 180-day accumulation area on campus, which are located in the Waste & Recycling Transfer Compound, west of Parking Lot 22 and Edison Science Building Room 100HS. Facilities Management (Fire and Safety Personnel) shall approve any accumulation of wastes in these areas. Wastes accumulated in these areas shall be shipped to an off-site authorized commercial facility within 180 days from the date accumulation began as indicated on the container.

VII. POLICY ON DRAIN DISPOSAL OF HAZARDOUS WASTE

A. The Regional Sewerage Authority has stringent rules concerning drain disposal of hazardous wastes. These restrictions, in addition to New Jersey Pollutant Discharge Elimination Rules, effectively preclude drain disposal of most wastes. There are a few wastes for which either drain disposal or disposal via laboratory trash is safe and permissible.

B. Before disposing of any waste in drains, you must check that the waste is allowed to be disposed of in this manner. Any questions should be directed to the Director of Compliance/Risk Manager.

VIII. PACKAGING HAZARDOUS WASTES BY THE GENERATOR

A. Materials that are to be disposed of as hazardous waste shall be placed in appropriate, US DOT compliant, sealable containers.

B. Waste disposal cost is based on volume, not weight; therefore, whenever possible, containers should be filled, leaving headspace for expansion of the contents. Often the original container is perfectly acceptable.

C. Containers shall be kept closed except during actual transfers.

D. Do not leave any hazardous waste container open or with an unsecured funnel in it.

IX. LABELING OF HAZARDOUS WASTE CONTAINERS BY THE GENERATOR

A. Waste containers shall be labeled with the words “Hazardous Waste” along with the names of the principal chemical constituents and the approximate percentage of each chemical constituent.

B. Labeling shall be as accurate as possible and legible and should include the name of the generator, the name of the lab or the department, and an

extension where someone who is knowledgeable about that specific waste can be reached in case questions arise during packaging for disposal.

X. DISPOSAL PROCEDURE

A. Hazardous waste pickups shall be coordinated in Facilities Management by the Supervisor of Electrical, Fire and Safety Systems on an as-needed basis.

B. Do not call for hazardous waste pickup until the waste is properly identified.

C. It is the generator's responsibility to identify and properly label all hazardous wastes.

D. The disposal contractor cannot legally transport or dispose of unidentified/unknown waste.

E. Arrangements for chemical analysis of unknowns can be made through the department and the Office of Compliance.

XI. PROCEDURE FOR DISPOSAL OF EMPTY HAZARDOUS WASTE CONTAINERS

A. Chemical/product containers that have been emptied (generally this means drained of their contents by normal methods including pouring, pumping, aspirating, etc.) are not regulated as hazardous waste. However, such containers may still be regulated by the DOT for over-the-road transport.

B. Each container shall be triple-rinsed with water or other suitable solvent capable of removing the original product and air-dried to ensure that it is free of liquid or other visible chemical residue.

   a. The solution used to rinse the container shall not be put down the drain until a determination has been made that the solution is not categorized as hazardous waste.

C. Containers with caps removed that have been triple-rinsed in a ventilated area may be placed in the trash or recycled.

D. If the original contents were highly toxic, the container should be rinsed first with an appropriate solvent and the washings disposed of as hazardous waste.

E. Containers meeting these criteria should be placed in receptacles provided by Facilities Management.

F. The waste generator shall determine whether the washings shall be collected and disposed of as hazardous waste.

a. For volatile organic solvents (e.g. acetone, ethanol, ethyl acetate, ethyl ether, hexane, methanol, methylene chloride, petroleum ether, toluene, xylene, etc.) not on the list of acutely hazardous wastes, the emptied container can be air-dried in a ventilated area (e.g. a chemical fume hood) without triple rinsing.

G. If residues remain after triple rinsing, the container should be placed with hazardous waste for disposal.

XII. USED OIL

A. As of October 21, 1996, used oil is no longer considered a hazardous waste, per the New Jersey Department of Environmental Protection, with the following exceptions:

1. Vacuum pump oil from laboratories shall be treated as hazardous waste due to the possibility of contamination with other chemicals.

2. Many cutting oils may not meet the definition of used oil. Contact Facilities Management (Supervisor of Electrical and Fire and Safety) before disposing of cutting oils in order to determine whether they should be treated as used oil or hazardous waste.

3. PCB contaminated oil shall be treated as hazardous waste. Contact Facilities Management (Supervisor of Electrical and Fire and Safety) if there is any suspicion of PCB contamination.

4. Oil mixed with any other hazardous wastes shall be treated as hazardous waste.

B. Used oil shall be collected and disposed of by a commercial facility approved by the NJ Department of Environmental Protection for used oil disposal.

C. Used Oil Collection Tips

1. Minimize the amount of water in the oil.

2. Keep all collection vessels, especially drums, sealed except when filling the container.

3. Label containers “Used Oil”, **NOT** “waste oil” or “hazardous waste”.

D. Spills or Releases of Oil

1. Oil spills should be cleaned up immediately. Use absorbent materials (vermiculite) and lined 5-gallon pails.

2. Releases to the environment (including releases to the sewer, soil, or impervious surfaces outdoors) shall be reported immediately to the Office of Compliance.

XIII. MERCURY DISPOSAL

A. As of October 21, 1996, waste metals that will be reclaimed are no longer considered hazardous waste per the New Jersey Department of Environmental Protection.

a. Mercury and Mercury debris (e.g. broken thermometers, spill debris) shall be collected by Facilities Management personnel and sent to a mercury reclamation/recycling plant.

b. Mercury compounds shall continue to be handled as hazardous waste.

B. Disposal Procedures

1. Collect mercury in a sealable container. Place broken thermometers or similar materials in a sealable plastic bag or plastic/glass jar.

2. Label the container “WASTE MERCURY”.

3. Call Facilities Management (Supervisor of Electrical, Fire and Safety Systems) at Ext. 3425 to notify him/her of the mercury waste.

4. Keep the material in your laboratory or work area until it is picked up.

5. Any department that currently has a process for properly disposing of waste mercury may use their own procedure, as long as the process complies with all applicable Federal and State Law.

C. Broken Thermometers and Similar Materials

1. In the event that a thermometer, manometer or similar mercury-containing device breaks, proceed as follows:

a. Put on a pair of gloves and eye protection.

b. Pick up the broken glass or debris and place in a puncture-resistant container.

c. Clean up any remaining mercury using a mercury spill kit.

d. Place the mercury in a glass or plastic jar or a sturdy plastic bag. Only add visibly contaminated debris. Seal the bag and affix a label identifying the material as "mercury spill debris."

e. Follow the mercury disposal procedures outlined above.

D. All facilities on campus that currently use mercury thermometers should consider replacing them with non-mercury or digital thermometers.

XIV. PHOTOGRAPHIC EFFLUENT

A. A key characteristic of photo processing effluent is the silver concentration. This silver is treated as a hazardous waste by the EPA.

B. At the University, all photography labs shall recover silver from photo processing effluent before the solution can be discharged into the sewer.

C. All University personnel who work with photographic effluent shall follow all manufacturer guidelines for dealing with this product and process.

XV. BATTERIES

A. Most used batteries containing hazardous metals (e.g. mercury, cadmium, lead, and silver) are classified as universal waste rather than hazardous waste. This allows the University to recycle many batteries, while continuing to ensure that the batteries are handled in an environmentally sound manner. All Lithium batteries must be prepared and shipped from campus as a USDOT Class 9 hazardous material.

B. Facilities Management administers a collection program to encourage this recycling effort. Used batteries, aside from regular alkaline batteries, shall be brought to the Facilities Management building. Before used batteries may be brought to the Facilities Management, the originator of the used batter must prepare and package the battery to prevent any dangerous evolution of heat or short circuiting. Typically, this can be accomplished by packaging each battery in a non-conductive package or covering

exposed terminals or connectors with non-conductive caps or non-conductive tape.

C. Regular alkaline batteries may be disposed of in the regular trash.

XVI. WASTE MINIMIZATION

A. The U.S. Congress made waste minimization a national policy and the responsibility of each waste generator. On each waste manifest for hazardous waste pickups, the University shall certify that the University has tried, to the extent economically feasible, to minimize the amount of hazardous waste generated at our institution.

B. Meeting the objectives of waste minimization at the University requires the cooperation of everyone who produces hazardous wastes. General principles for waste minimization, in order of priority, are:

1. Elimination-any modification that results in the elimination of waste generation.

2. Substitution-replacement of hazardous substances with less hazardous materials.

3. Scale Reduction-a reduction of the amount of hazardous materials used in a procedure.

4. Recycling-the use of waste materials either back into the same process or into a different process with no treatment or modification.

5. Reclamation-any process that allows materials to be used again after some sort of purification, such as solvent distillation.

6. Treatment-an additional step added to an experimental or analytical procedure to reduce or eliminate the toxicity of the waste.

XVII. LIST OF HAZARDOUS WASTES

A. A complete list of hazardous waste can be found in 40 CFR, Chapter I, Subchapter I, Part 261 - Identification and Listing of Hazardous Waste, Subpart D

1. This information can be accessed on-line at: https://www.ecfr.gov/ (click on Title 40, Volume, 28, Part 261) and are also available in the Office of Compliance.