FLORIDA GULF COAST UNIVERSITY
ENVIRONMENTAL HEALTH & SAFETY

Management and Disposal of Hazardous Waste

Purpose:

FGCU shall take every precaution when handling hazardous chemicals and wastes to avoid hazards to human health and the environment.

The University will manage all waste in accordance with applicable regulations, with the goal of remaining a *Very Small Quantity Generator* of hazardous waste. To remain exempt from the full hazardous waste regulations that apply to generators of larger quantities, the University must comply with three basic waste management requirements:

1. Identify all hazardous waste that is generated.
2. No more than 100 kilograms or 220 pounds of hazardous waste may be stored on the site at any time.
3. Ensure the contracted transporters of hazardous waste are qualified and are transporting to a qualified offsite treatment or disposal facility.

Standards:

Chapter 403.704 and 403.721, Florida Statutes, and Chapter 62-730, Florida Administrative Codes, Rules of the Department of Environmental Protection (DEP); Title 40, Code of Federal Regulations, Chapters 260 ~ 279.

Violating these rules for transportation, treatment, storage, or disposal of hazardous wastes can result in cash fines and/or criminal imprisonment.

Definitions:

As used in this policy, the following terms shall have the assigned meaning:

Characteristic Wastes:

- *Corrosive Characteristic Waste* - Any type of waste which has a pH of less than 2 (acidic) or greater than 12.5 (basic), or corrodes steel at a rate specified by EPA.
- *Flammable/Ignitability Characteristic Waste* - Any waste with a flash point of less than 140°F (60°C) that can create fires and includes liquids or friction sensitive substances under certain conditions.
- *Reactive Characteristic Waste* - Any waste which is unstable, can readily undergo a violent change, reacts violently with water, is capable of detonation or explosive reaction, or contains sulfides or cyanides that have the potential for generating toxic fumes or vapors.

- *Toxic Characteristic Waste (or TCLP)* - Any waste identified through an EPA method (**T**oxic **C**haracteristic **L**eachate **P**rocedure) that has the potential of forming a leachate that may cause groundwater contamination. If any product contains a constituent greater than a specified concentration as determined by the TCLP, it is a hazardous waste.
- *Contaminated Media and Debris* - Environmental media (i.e. soil or ground water) contaminated by a listed hazardous waste must be managed as that listed waste regardless of the concentration of waste they contain. Media and debris contaminated with a characteristic hazardous waste must be managed as a characteristic hazardous waste only if they exhibit a hazardous waste characteristic.

Hazardous Waste - Any solid waste (as defined by the Federal Solid Waste Disposal Act) which possess hazardous characteristics, such as ignitability, corrosiveness, reactivity, or toxic characteristics (TCLP) as defined by the Code of Federal Regulations (40 CFR 261~262).

Listed Hazardous Waste - Any chemical or product as listed in 40 CFR 261.31 - 261.33. Listed wastes are divided into four categories, according to their origin, often referred to as P, F, K, and U wastes. Listed wastes are always hazardous regardless of their chemical composition-no testing is required to identify them.

- P Listed wastes - Unused Waste, Acutely Hazardous Commercial Chemical Products - i.e. aldrin a chemical used as an agricultural insecticide.
- F Listed wastes - Waste from Generic Industrial Processes - i.e. certain used solvents from cleaning or degreasing.
- K Listed wastes - Waste from Specific Industry Sectors - i.e. certain petroleum refining waste.
- U Listed wastes - Unused Waste, from Commercial Chemical Products - i.e. DDT and formaldehyde.

Mixtures - A mixture of a listed waste and any other waste will remain regulated as a listed waste regardless of the percentage of the listed waste in the mixture.

RCRA - The Resource Conservation and Recovery Act is the public law that creates the framework for the proper management of hazardous and non-hazardous solid waste.

Satellite Accumulation Area - A temporary storage and collection area of hazardous waste, **near the point of generation**, which is under direct control of the person or operator generating the waste.

Solid Waste - For purposes of this program, a solid waste may be any solid, liquid, or containerized gas, which no longer has an appropriate and legal intended use for the University.

Storage Area - This is a regulated area in which all containers must be labeled, dated, and inspected weekly, in which hazardous wastes are temporarily stored while awaiting transport to a licensed disposal facility.

Responsibility:

It is the responsibility of the departmental supervisor, instructor, and/or laboratory manager to ensure the proper management, and storage of all hazardous wastes generated by their respective department, laboratory, or research operation.

Environmental Health and Safety:

Environmental Health and Safety collects hazardous wastes from generators in a timely manner; verifies appropriate identification and labeling information; provides appropriate temporary storage, and arranges for transportation and disposal of the waste in a safe and legal manner.

Emergency Notifications and Emergency Response:

State and Federal regulations 40 CFR 262.34(d)(4) require that the University develop and maintain an Emergency Response Plan to address spills, fires and other emergencies associated with hazardous waste.

Spills and releases of certain chemicals in excess of their Reportable Quantities (RQ) require immediate notification of the National Response Center and the State Warning Point. Environmental Health and Safety or other designee should be contacted immediately if a large amount of a substance has been spilled or released.

Spills of small quantities occur on occasion. In most cases these spills can and should be handled by FGCU laboratory or shop personnel in a safe manner. Spilled materials and absorbents must be handled as a hazardous waste if applicable criteria are met as defined above under definitions under Listed Hazardous Waste.

Spills that cannot be handled safely by laboratory or shop personnel should be referred to Environmental Health and Safety who will contact the proper agencies.

Spills of large quantities, extremely hazardous substances, or any spill that is an immediate threat to personal safety or the environment shall be handled through the Emergency Notification System. That system shall be activated as follows:

1. Contact University Police (UPD) at 911. Inform them of the exact situation, chemicals and quantities involved, and the location.
2. University Police will contact Lee County and the San Carlos Park Fire Department. University Police will also contact the Director of EH&S or designee.
3. The Director of EH&S or designee will determine if RQ's have been exceeded and make appropriate notification to the State Warning Point and the National Response Center

Procedures for Departments Generating Hazardous Wastes:

1. Identify all hazardous waste at the source. A material does not become a waste until it can no longer be used for its intended purpose.
2. For Biohazardous Waste, refer to *Management and Disposal of Biohazardous Waste*.

3. Ensure that hazardous wastes are collected in appropriate containers, which are compatible with the waste and can be tightly capped.
4. Clearly label all hazardous waste with all known constituents. Include both the solvent(s) and solute(s). Include all listed and characteristic components.
5. Designate a satellite accumulation area for temporary storage until collected by EH&S.
6. Complete all sections of the Material Pick-up Request Form for each type of waste and submit it to EH&S.

Environmental Health & Safety

EH&S will package, label, manifest, and transport all hazardous waste as required by applicable EPA, DOT, and state DEP regulations.

Environmental Health and Safety will maintain all records including the chemical identity, quantity of material, date of collection, and hazardous waste manifests for a minimum of 3 years.

Do's and Don'ts:

1. ***Do*** use an appropriate size container for the waste generated. Under-filled containers cost the same to dispose as those filled.
2. ***Don't*** overfill containers. Leave approximately a one to two inch air space at the top of the container. Over filled containers of volatile organics pressurize and leak in storage. Leaking containers are a violation of hazardous waste regulations and also eradicate the ink on labels.
3. ***Do*** write legibly on the label with permanent ink. Write out chemical name(s) of the components. Avoid using chemical formulas. Please do not use water based felt tip markers.
4. ***Don't*** mix metallic mercury (Hg) with any other chemicals.
5. Keep all organic and inorganic mercury compounds separate from other materials. Contact EH&S if a procedure uses mercuric compounds or generates a hazardous waste containing mercuric compounds.
6. ***Don't*** mix radioactive materials with any hazardous waste.
7. ***Don't*** mix biohazardous materials with any hazardous waste.
8. ***Don't*** mix incompatible materials together. If unsure of any particular combinations, use a separate container.
9. ***Do*** call Environmental Health and Safety if you have any questions or are not sure how to manage a particular substance.

Waste Minimization:

Waste minimization is federally mandated for hazardous waste generators. Minimize Waste through techniques including:

- Recycling solvents thru EH&S

- Eliminating the waste generating process - Change or modify a process so that a hazardous waste is not produced. (i.e. use a computer program or model demonstration.)
- Substituting a non- or less hazardous material, for example:
    - Use non-formaldehyde-based fixatives in place of formalin
    - Purchase formaldehyde-free preserved specimens
    - Use non-hazardous scintillation fluids in place of toluene
    - Use water-based latex paints and stains in place of oil based paints, stains, and solvents, etc.
- Using less material - Reduce the scale of procedures or process.
- Checking with other labs or stockrooms to see if they may have what is needed.
- Reusing and recycling materials where-ever practical.
- ***Do not purchase large quantities of materials because they are less expensive per unit volume.***
- **Purchasing small quantities/only purchase what you need - Remember that the cost of disposal often exceeds the purchase price. Recognizing the financial impacts related to the disposal of hazardous wastes also helps minimize the volumes that are generated.**
- Practice “Eco-Purchasing”: consider attributes such as: recycled contents, toxicity, reusability, durability, and reparability, before you buy a product.

Training:

EHS provides training to all faculty, staff, and students performing any activities, which could generate a hazardous waste.

Training topics to be covered will include, at a minimum, the following:

1. Standard operating procedures and safety evaluations
2. Hazardous waste identification and classification
3. Proper labeling
4. Proper containers, segregation, and storage within generating areas
5. Emergency procedures and spill response
6. Penalties for non-compliance

Routine Contacts for Hazardous Waste Collection or Information:

Environmental Health and Safety

Phone: 239-590-1414

Email: ehs@fgcu.edu

Additional Information: Additional information may be obtained from the following sources

- United States Environmental Protection Agency 40 CFR 260~279
- Florida Department of Environmental Protection FAC 62-710 & 62-730
- Summary of Hazardous Waste Regulations; Florida Department of Environmental Protection; (2006)
- Laboratory Waste Management: A Guidebook, ACS Taskforce on Laboratory Waste Management; American Chemical Society, Washington, D.C. (1994).
- Less is Better: Laboratory Chemical Management for Waste Reduction, 2nd Ed.; ACS Taskforce on Laboratory Waste Management; American Chemical Society, Washington, D.C. (1993).
- Prudent Practices in the Laboratory: Handling and Disposal of Chemicals: National Research Council; National Academy Press; Washington, D.C. (1995).
- Pollution Prevention and Waste Minimization in Laboratories; Reinhardt, Peter, et al; CRC Press Lewis Publishers; Boca Raton, FL; (1996)