

**Jacksonville University**  
**Hazardous Waste Management Plan**  
**(HWMP)**



**2800 UNIVERSITY BOULEVARD NORTH**  
**JACKSONVILLE, FLORIDA 32211**

**Prepared:**  
**July 2008**

**Revised:**  
**August 3, 2017**

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HRP #JAC3001.RC

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## LIST OF ACRONYMS

|       |  |
|-------|--|
| CESQG | Conditionally Exempt Small Quantity Generator      |
| CFR   | Code of Federal Regulations                        |
| CHO   | Chemical Hygiene Officer                           |
| CHP   | Chemical Hygiene Plan                              |
| DOT   | Department of Transportation                       |
| EPA   | Environmental Protection Agency                    |
| FAC   | Florida Administrative Code                        |
| FDEP  | Florida Department of Environmental Protection     |
| FIFRA | Federal Insecticide, Fungicide and Rodenticide Act |
| HWMP  | Hazardous Waste Management Plan                    |
| ICR   | Ignitable, Corrosive or Reactive                   |
| ICUF  | Independent Colleges and Universities of Florida   |
| JU    | Jacksonville University                            |
| LQHUW | Large Quantity Handler of Universal Waste          |
| PPM   | Parts Per Million                                  |
| RCRA  | Resource Conservation and Recovery Act             |
| SAA   | Satellite Accumulation Area                        |
| SQG   | Small Quantity Generator                           |
| SQHUU | Small Quantity Handler of Universal Waste          |
| TCLP  | Toxicity Characteristic Leaching Procedure         |
| TSDF  | Treatment, Storage or Disposal Facility            |

## GLOSSARY OF TERMS

**Abandoned** – Materials that are disposed of or thrown away; burned or incinerated; or accumulated, stored or treated (but not recycled) before or in lieu of being disposed of, burned or incinerated.

**Biomedical Waste** – See Medical Waste

**Corrosivity** – This characteristic identifies solid wastes that have either of the following properties:

- It is aqueous and has a pH  $\leq 2$  or  $\geq 12.5$ ; and
- It is a liquid and corrodes steel at a rate greater than 0.25 inches per year at a test temperature of 130°F (55°C).

**Hazardous Waste** – A waste, when not properly handled or disposed, may present an unreasonable or substantial risk to human health or the environment. A solid waste qualifies as a hazardous waste if it falls under any one of the four (4) categories listed below and does not qualify for any of the exemptions or exclusions listed under Federal and/or State regulations.

1. A waste or waste generation process which has been specifically identified by EPA to be "**listed**" as hazardous waste. Included under this category are products in their pure or off-specification form which are discarded and contain specific hazardous constituents.
2. Those solid waste and waste generation processes that have not been specifically listed by EPA, but exhibit one or more of the four **characteristics** of hazardous waste irrespective of the manufacturing produces from which it is generated. The four characteristics are: ignitability (I), corrosivity (C), reactivity (R), or toxicity (T).
3. It is a **mixture** of a listed hazardous waste and any other material, or is a **mixture** of a characteristic waste and any other material, provided the mixture still exhibits the characteristic (i.e., mixture rule).
4. A residue that is "**derived from**" the treatment, storage, or disposal of a listed waste.

**Ignitability** – This characteristic identifies solid wastes that are capable of causing a fire or exacerbating a fire once it has started during routine handling of material. These wastes include:

- **Liquids:** Other than an aqueous solution containing less than 24% alcohol by volume and has a flashpoint of less than 140°F (60°C);
- **Non-Liquids:** Capable under standard temperature and pressure of (1) causing fire through friction, absorption of moisture or spontaneous chemical changes and (2) when ignited burn so vigorously and persistent that it creates a hazard;
- **Ignitable Compressed Gases:** As defined under Title 49 CFR 173.300; and
- **Oxidizers:** As defined in Title 49 CFR 173.151.

**Inherently Waste-Like** – Materials that are inherently waste-like are materials that pose significant threats to human health and the environment if mismanaged (i.e., too hazardous to be unregulated). These materials have been designated with the EPA Hazardous Waste Codes F020 to F023 and F026 to F028 and secondary materials fed to a halogen acid furnace that exhibit a characteristic of a hazardous waste or are listed hazardous waste.

**Medical Waste** – "Medical waste" means any solid waste that is generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, in the production or testing of biologicals, or in-home self-care. The term does not include any hazardous waste identified or listed under Title 40 CFR. 261.

**Reactivity** – This characteristic identifies wastes that are unstable and may react violently or explode during stages of their management. Solid wastes that exhibit any of the following properties are classified as reactive wastes:

- Normally unstable and readily undergoes violent change without detonating;
- Reacts violently with water;
- Forms potentially explosive mixtures with water;
- Generates toxic gases, vapors or fumes in a sufficient quantity to pose a danger when mixed with water;
- Cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or environment;
- Capable of detonation or explosive reaction if it is subjected to a strong initiations source or if heated under confinement;
- Readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure; and
- Forbidden explosive as defined by DOT regulations or is a Class A explosive, or a Class B explosive as defined in DOT regulations.

**Recycled** – Reused or reclaimed according to the following Table.

| RECYCLED MATERIALS WHICH ARE SOLID WASTES  |   |  |                               |  |
|--|---|--|-------------------------------|--|
| Secondary Material Categories  | Use Constituting Disposal<br>[§261.2(c)(1)] | Energy Recovery/Fuel<br>[§261.2(c)(2)] | Reclamation<br>[§261.2(c)(3)] | Speculative Accumulation<br>[§261.2(c)(4)] |
| Spent Materials  | * <sup>1</sup>                              | *                                      | *                             | *  |
| Sludge (listed in Title 40 CFR 261.31 or 261.32)   | *   | *                                      | *                             | *  |
| Sludge exhibiting a characteristic of hazardous waste  | *   | *                                      | --- <sup>4</sup>              | *  |
| By-products (listed in Title 40 CFR 261.31 or 261.32)  | *   | *                                      | *                             | *  |
| By-products exhibiting a characteristic of hazardous waste   | *   | *                                      | --- <sup>4</sup>              | *  |
| Commercial chemical products <sup>2, 3</sup> listed in Title 40 CFR 261.33   | *   | *                                      | --- <sup>4</sup>              | --- <sup>4</sup>                           |
| Scrap metal other than excluded scrap metal (see 40 CFR 261.1(c)(9))   | *   | *                                      | *                             | *  |
| Notes:<br><sup>1</sup> Solid wastes are noted with an "**".<br><sup>2</sup> Commercial chemical products are not solid wastes if land disposal is their ordinary manner of use.<br><sup>3</sup> Commercial chemical products are not solid wastes if they are themselves fuels.<br><sup>4</sup> Materials noted with a "---" are not solid wastes. |   |  |                               |  |

**Solid Waste** – A solid waste, which can be a solid, liquid, semi-solid or gaseous material, is defined as any discarded material that is not specifically excluded. A "discarded material" is any material which is either:

- Abandoned (i.e. thrown away or disposed of);
- Inherently waste like;
- Military munitions; or
- Recycled in a manner constituting disposal, burning for energy recovery, reclaimed or over accumulated.

**Toxicity** – These characteristic measures the potential of a waste to leach toxic constituents into ground water when land disposed assuming mismanagement or co-disposal in an unlined, municipal solid waste landfill. Compounds which are analyzed under the current Toxicity Characteristic Leaching Procedure (TCLP) test and their regulatory levels are listed in Appendix B.



## 1.0 INTRODUCTION

From a programmatic perspective, this Hazardous Waste Management Plan (HWMP) governs the campus of Jacksonville University (JU). This is a living document, which serves as basis for compliance and training. It will be reviewed and updated annually as changes in curriculum, campus facilities, or campus operations occur. The general location of this campus is shown in Figure 1 in Appendix A.

Jacksonville University registered with the Environmental Protection Agency (EPA) as a Small Quantity Generator (SQG) of hazardous waste on April 2, 1991 and has maintained this designation since; its identification number is **FLD984194258**.

This HWMP addresses the total life cycle of hazardous waste generated at and disposed by Jacksonville University. Within this plan is guidance on classifying and analyzing waste, storing hazardous waste, inspecting hazardous waste storage areas, disposing hazardous waste, complying with a waste minimization program, training employees on hazardous waste, establishing contingency plans, and preparing any State or Federal required compliance reporting.

This plan is to be administered by employees of Jacksonville University and by contractors working on their behalf. Both the Academic as well as the Facilities sides of hazardous waste management are addressed by this HWMP, as well as requirements common to both. Some examples include:

### Academic

- How long can waste be stored in a laboratory satellite accumulation area (SAA)?
- What can and can't be put down the drain?

### Facilities

- Batteries and fluorescent lamps – hazardous or universal waste?
- Used lubricating and cooking oils – are they a hazardous waste?

### Both

- Preparing waste manifests for shipment
- Hazardous waste awareness and procedure training

This plan, when properly implemented and kept current, will not only help to keep JU in compliance with State and Federal hazardous waste requirements, but it will also contribute toward making JU a healthy, safe place to learn and work.

### **1.1 Regulatory Agency**

The State of Florida's Department of Environmental Protection (FDEP) has received authorization from the Environmental Protection Agency (EPA) to administer the Resource Conservation and Recovery Act (RCRA) or hazardous waste program. The Florida hazardous waste regulations are found at 62-730, Florida Administrative Code (FAC) which reference Title 40 CFR Part 262 of the Federal hazardous waste regulations with some exceptions and/or changes.

### **1.2 Limitations**

This plan is not intended to address the safe handling of chemicals in laboratories as required under Title 29 CFR Part 1910.1450. A JU-specific Chemical Hygiene Plan (CHP) addresses, under a separate cover, the safe handling, storage and usage of chemicals in laboratories.

### **1.3 Locations**

A copy of this document will be stored with the Physical Plant Director, Campus Security Dispatch Center, the Chemical Hygiene Officer (CHO) and/or their Designated Appointees, and the Department Chair's Offices that maintain SAAs.

## **2.0 JACKSONVILLE UNIVERSITY'S HAZARDOUS WASTE REGULATORY STATUS**

JU is a SQG of hazardous waste. To maintain the hazardous waste regulatory status of a SQG in the State of Florida, JU must comply with the three (3) factors listed below:

1. Generate more than 220 pounds but less than 2,200 pounds of non-acute hazardous waste and/or 2.2 pounds or less of acute hazardous waste in a calendar month;
2. Accumulate 13,200 pounds or less of non-acute hazardous waste and/or 2.2 pounds or less of acute hazardous waste on-site at any one time; and
3. Store hazardous waste for 180 days or less.

Note: A detailed description of what are acute and non-acute hazardous wastes is provided in Appendix B (What Wastes are Hazardous?) of the HWMP.

If JU accumulates more than 13,200 pounds of non-acute hazardous waste on-site or stores hazardous waste on-site for more than 180 days, it would be operating as an interim status storage facility and be subject to all applicable Title 40 CFR Part 265 hazardous waste regulations and Title 40 CFR Part 270 permit requirements, including corrective actions. If JU exceeds the generation rate of 2.2 pounds for acute hazardous waste, the acute hazardous waste must be managed in accordance with the applicable Large Quantity Generator (LQG) requirements:

1. Generate more than 2,200 pounds of non-acute hazardous waste and/or 2.2 pounds or more of acute hazardous waste in a calendar month; and
2. Store hazardous waste for ninety (90) days or less.

### 3.0 RESPONSIBILITIES

It is the responsibility of all employees, students, and contractors working on behalf of Jacksonville University to handle, store, and dispose of hazardous waste in a manner that is in compliance with all applicable State and Federal regulations. Presented in subsections 3.1 through 3.7 are the primary hazardous waste management responsibilities for full and part-time faculty and staff at JU.

#### 3.1 **Senior Vice President University & Academic Affairs and Chief Financial Officer**

Senior Vice President University & Academic Affairs and Chief Financial Officer have the ultimate responsibility for proper waste handling at Jacksonville University and provide, along with other officers and administrators, support for efforts to minimize waste generation and comply with all applicable waste regulations.

The **Senior Vice President University & Academic Affairs** supervises and authorizes the Chemical Hygiene Officer (CHO) and/or their designated appointees (see JU's Chemical Hygiene Plan (CHP)), faculty, and academic staff to take steps necessary to carry out the objectives of the HWMP including the following:

- a. Approving the HWMP;
- b. Monitoring the implementation of the HWMP at all applicable levels of administration;
- c. Reviewing and adopting any proposed changes to the HWMP; and
- d. Obtaining any required licensing, permits, or approval from local, state, and federal agencies to purchase, store, use, synthesize, administer, and/or dispose of any hazardous material, prescribed medication, or controlled substance.

The **Chief Financial Officer** supervises and authorizes the non-academic staff and facilities personnel to take steps necessary to carry out the objectives of the HWMP including the following:

- e. Approving the HWMP;
- f. Monitoring the implementation of the HWMP at all applicable levels of administration;
- g. Reviewing and adopting any proposed changes to the HWMP; and

- h. Obtaining any required licensing, permits, or approval from local, state, and federal agencies to purchase, store, use, synthesize, administer, and/or dispose of any hazardous material, prescribed medication, or controlled substance.

### **3.2 Physical Plant Director**

The **Physical Plant Director** of JU is responsible for the day-to-day activities associated with hazardous waste management including, but not limited to:

- a. Working with the appropriate personnel to evaluate, implement, and update the HWMP on a routine basis;
- b. Providing or arranging for technical expertise and administrative support for hazardous waste disposal and management;
- c. By addressing inquiries for appropriate hazardous waste disposal and management;
- d. Aiding in hazardous waste stream determinations;
- e. Assisting academic departments in appropriately labeling, handling, storing, and managing hazardous waste containers;
- f. Arranging for off-site shipments of hazardous waste;
- g. Maintaining records and making them available to employees, administrative personnel, and state or federal officials;
- h. Assisting the Chemical Hygiene Officer (CHO) and/or their designated appointees, Laboratory Managers & Technicians, and Division & Department Chairs in monitoring the use and disposal of laboratory chemicals as requested;
- i. Training, or coordinate the training of personnel who may handle, generate, or prepare hazardous waste for shipment. This includes both RCRA Hazardous Waste Management Training and DOT Hazardous Materials Training as applicable;
- j. In conjunction with the Chemical Hygiene Officer (CHO) and/or their designated appointees, coordinating waste pickups for departments, and with off-site vendors;
- k. Completing and/or verifying the manifest contents, signing the manifests and maintaining copies of the hazardous waste manifests;
- l. Posting, or designating the posting, of the contingency information next to the telephones;

- m. Ensuring universal wastes are managed in accordance with the applicable universal waste regulations;
- n. Ensuring the used oil is managed in accordance with the applicable used oil regulations; and
- o. Acting as a liaison between campus hazardous waste operations and the Senior Vice President University & Academic Affairs and Chief Financial Officer. Bringing unresolved and potentially serious waste related issues to the attention of the Senior Vice President University & Academic Affairs and Chief Financial Officer.

### **3.3 Chemical Hygiene Officer and/or their Designated Appointees**

- a. Working with the appropriate laboratory personnel to evaluate, implement, and apply the HWMP to the CHP;
- b. Providing or arranging for technical expertise and administrative support for hazardous laboratory waste disposal and management;
- c. By addressing inquiries for appropriate hazardous laboratory waste disposal and management;
- d. Conducting or assisting the Physical Plant Director in completing hazardous waste determinations for generated laboratory waste;
- e. Managing or coordinating the management of the hazardous waste generated within laboratory Satellite Accumulation Areas (SAAs);
- f. Ensuring that all hazardous laboratory waste containers are appropriately labeled, handled, stored, and managed;
- g. Arranging for off-site shipments of hazardous laboratory waste;
- h. Completing and/or verifying the manifest contents, signing the manifests and maintaining copies of hazardous laboratory waste manifests;
- i. Training, or coordinate the training of personnel who may handle, generate or prepare hazardous laboratory waste for shipment. This includes both RCRA Hazardous Waste Management Training and DOT Hazardous Materials Training as applicable;
- j. Maintaining records and making them available to employees, administrative personnel, and state or federal officials; and
- k. Acting as a liaison between campus hazardous laboratory waste operations and the Senior Vice President University & Academic Affairs and Chief Financial Officer. Bringing unresolved and potentially serious laboratory waste related issues to the attention of the Senior Vice President University & Academic Affairs and Chief Financial Officer.

### **3.4 Department and Division Chairs/Managers and Administrators**

- a. Conducting or assisting the Physical Plant Director or CHO in completing hazardous waste determinations on the wastes generated; and
- b. Managing or coordinating the management of the hazardous waste generated in the Satellite Accumulation Areas (SAAs).

### **3.5 Faculty and Staff**

Faculty and staff, who have the responsibility of instruction of students at JU, participate in the implementation of this HWMP and overall proper waste practice by:

- a. Informing and training students and workers on waste procedures as it applies to activities in their areas;
- b. Aiding in waste stream determinations for waste generated by their activities;
- c. Ensuring student and lab worker compliance with the HWMP;
- d. Ensuring that all containers of hazardous waste are properly labeled, closed, and stored; and
- e. Requesting assistance, if needed, from the Chemical Hygiene Officer and/or Physical Plant Director.

### **3.6 Student and Lab Workers**

Students and lab workers participate in the implementation of this HWMP and overall proper waste disposal by:

- a. Following all rules and procedures established in the HWMP as communicated by staff and faculty;
- b. Requesting information and training if unsure about proper waste procedures.

### **3.7 Public Safety**

JU Public Safety personnel are responsible for assisting the Emergency Coordinator and/or the Alternate Emergency Coordinator in determining the emergency response actions for any hazardous waste spills, fires, or explosions.

- a. Working with the appropriate personnel to evaluate, implement, and update the HWMP on a routine basis.



## 4.0 HAZARDOUS WASTE REGULATORY REQUIREMENTS FOR JU

As discussed in Sections 1.0 and 2.0, JU currently operates as a SQG of hazardous waste. Summarized under sub-sections 4.1 through 4.12 are the hazardous waste regulatory requirements for a SQG in the State of Florida. Included in each sub-section is a description of the procedures/methods followed by JU to comply with each regulatory requirement.

A site plan for Jacksonville University is provided as Figure 2 in Appendix A.

### 4.1 EPA Notification of Hazardous Waste Activity

*Title 40 CFR Part 262.12 – A SQG must not treat, store, dispose of, transport, or offer for transportation, hazardous waste without having received an EPA identification number from the EPA.*

The EPA Identification Number assigned to this site is **FLD984194258**. JU notified the EPA of their hazardous waste activities on April 2, 1991. This identification number is unique to Jacksonville University.

### 4.2 Hazardous Waste Determinations

*Title 40 CFR Part 262.11 – Regulations under Title 40 CFR Part 262.11 require all generators of solid waste to determine if the waste is a hazardous waste by:*

- a. Determining if the waste is excluded from regulation as a hazardous waste under Title 40 CFR Part 261.4; or
- b. Determining if the waste is a listed hazardous waste in Subpart D of Title 40 CFR Part 261; or
- c. Determining if the waste exhibits the characteristics of being hazardous through either;
  - Testing the waste according to the methods set forth in Subpart C of Title 40 CFR Part 261; or
  - Applying knowledge of the hazardous characteristics of the waste in light of the materials or the processes used testing or applying generator knowledge.

Note: A detailed description on what makes a solid waste a hazardous waste is provided in Appendix B of this HWMP. Once a solid waste is identified as a hazardous waste by the Physical Plant Director or Chemical Hygiene Officer, it must be handled in accordance with the HWMP. Hazardous waste must not be: disposed or recycled with other forms of trash or waste, burned or allowed to evaporate into the air, disposed or diluted in water (i.e., down the drain), disposed on or buried in the land.

The following is a list of the hazardous wastes that are currently generated at JU and the method used to complete their hazardous waste determinations.

| <b>Waste Stream:</b>       | <b>Determination by Knowledge</b> | <b>Determination by Testing</b> |
|----------------------------|-----------------------------------|---------------------------------|
| Laboratory Waste           | X                                 | NA                              |
| Paint-Related Waste Solids | X                                 | NA                              |
| Photographic Waste         | X                                 | NA                              |
| Solvent Waste              | X                                 | NA                              |
| Universal Waste            | X                                 | NA                              |
| Used Oil                   | X                                 | NA                              |

The hazardous waste determinations records are updated (when necessary) and maintained by the Physical Plant Director.

#### **4.3 Manifesting of Waste Shipments**

***Title 40 CFR Part 262.20, 262.21, 262.22, and 262.23*** – Prior to any off-site shipment of hazardous waste from JU (unless waste is reclaimed per Title 40 CFR Part 262.20(e)(1)), a hazardous waste manifest is completed and accompanies the off-site shipments.

The hazardous waste manifest is presented on 8½" x 11" paper and contains six (6) copies. Once the waste is loaded on the truck for shipment, the designated appointee from JU prints his/her name, signs his/her name and dates the manifest. At that time, the truck driver transporting the waste prints his/her name, signs his/her name and dates the manifest. JU maintains one copy of the manifest (Copy 6). The other five (5) copies are distributed as follows:

- Copy 1: When the manifest is completed by the Treatment, Storage and Disposal Facility (TSDf), it mails this copy to the state where the TSDf is located.
- Copy 2: When the TSDf has completed this section of the manifest, it mails this copy to the state where the waste was generated (Note: Florida does not require the receipt of this copy).
- Copy 3: When the TSDf has completed this section of the manifest, it mails this copy back to JU for their records.
- Copy 4: When the TSDf has completed this section of the manifest, it keeps this copy for his records.
- Copy 5: When the Transporter has completed its section, and transfers the waste to the TSDf, he keeps this copy for his records.

Note: Copy 3 of each manifest must be retained on-site by JU for a minimum of three (3) years.

***Title 40 CFR Part 262.42(b)*** – *If Copy 3 of each manifest is not received by JU with the handwritten signature of the owner or operator of the designated facility within sixty (60) days of the date the waste was accepted by the initial transporter, JU must submit a legible copy of the manifest, with some indication that the generator has not received confirmation of delivery, to the EPA Regional Administrator for the Region in which the generator is located.*

The Physical Plant Director or Chemical Hygiene Officer (CHO) and/or their Designated Appointee is responsible for: completing the manifest and/or verifying its contents; signing the manifest after the hazardous waste containers are transferred to the waste transporter's vehicle; ensuring a copy of the manifest, which is signed by the receiving TSDf, is returned to JU within sixty (60) days of its delivery; and maintaining copies of the signed manifests at the JU for at least three (3) years. In the event a signed manifest copy is not obtained from the receiving TSDf within sixty (60) days, the Physical Plant Director is responsible for submitting a legible copy of the manifest, with some indication that the generator has not received confirmation of delivery, to the EPA Regional Administrator to EPA Region 4.

#### 4.4 Satellite Accumulation Areas – Container Management

JU currently operates twenty (20) SAAs as listed below. These SAAs are shown on Figure 2 in Appendix A:

| Location  | Waste Stream   | Storage Container  |
|---|--|--|
| Nelms Science Building – Room 8A                      | Laboratory Wastes (Dissected Animal Waste and Alcohol)                     | Reagent and solvent bottles of variable size and type are used to store waste as needed. Total accumulated waste will not exceed fifty-five (55) gallons of non-acute hazardous waste or one (1) quart of acute hazardous waste. |
| Nelms Science Building – Room 24                      | Laboratory Wastes (Potassium Chromate and Silver Nitrate Aqueous Solution) | Reagent and solvent bottles of variable size and type are used to store waste as needed. Total accumulated waste will not exceed fifty-five (55) gallons of non-acute hazardous waste or one (1) quart of acute hazardous waste. |
| Nelms Science Building – Room 27                      | Laboratory Wastes (Dissected Animal Waste and Alcohol)                     | Reagent and solvent bottles of variable size and type are used to store waste as needed. Total accumulated waste will not exceed fifty-five (55) gallons of non-acute hazardous waste or one (1) quart of acute hazardous waste. |
| Reid Medical Center – Rooms 101 and 103               | Laboratory Wastes (Organics, Acids, and Ethidium Bromide)                  | Reagent and solvent bottles of variable size and type are used to store waste as needed. Total accumulated waste will not exceed fifty-five (55) gallons of non-acute hazardous waste or one (1) quart of acute hazardous waste. |
| Reid Medical Center – Rooms 107 and 107(C)            | Laboratory Wastes (Bio-medical Waste)                                      | Two (2) 5-gallon lidded plastic containers and one (1) fifty-five (55) gallon box of non-acute hazardous waste.  |
| Reid Medical Center – Rooms 207                       | Laboratory Wastes (Dissected Animal Waste and Alcohol)                     | Reagent and solvent bottles of variable size and type are used to store waste as needed. Total accumulated waste will not exceed fifty-five (55) gallons of non-acute hazardous waste or one (1) quart of acute hazardous waste. |
| Swisher Science Chemical Storage Building             | Laboratory Wastes (Organic Solvents, Inorganic Solvents and Oils)          | Reagent and solvent bottles of variable size and type are used to store waste as needed. Total accumulated waste will not exceed fifty-five (55) gallons of non-acute hazardous waste or one (1) quart of acute hazardous waste. |
| Swisher Science Building – Room 21, 22, 23, 24, and 4 | Laboratory Wastes (Organic Solvents, Inorganic Solvents and Oils)          | Reagent and solvent bottles of variable size and type are used to store waste as needed. Total accumulated waste will not exceed fifty-five (55) gallons of non-acute hazardous waste or one (1) quart of acute hazardous waste. |

|  |   |  |
|--|---|--|
| MSRI – Room 235                            | Laboratory Wastes (Organic Solvents, Inorganic Solvents and Oils) | Reagent and solvent bottles of variable size and type are used to store waste as needed. Total accumulated waste will not exceed fifty-five (55) gallons of non-acute hazardous waste or one (1) quart of acute hazardous waste. |
| MSRI – Room 238 (Millar Wilson Laboratory) | Laboratory Wastes (Organic Solvents, Inorganic Solvents and Oils) | Reagent and solvent bottles of variable size and type are used to store waste as needed. Total accumulated waste will not exceed fifty-five (55) gallons of non-acute hazardous waste or one (1) quart of acute hazardous waste. |
| MSRI – Room 243                            | Laboratory Wastes (Dissected Animal Waste and Alcohol)            | Reagent and solvent bottles of variable size and type are used to store waste as needed. Total accumulated waste will not exceed fifty-five (55) gallons of non-acute hazardous waste or one (1) quart of acute hazardous waste. |
| Phillips Fine Arts Building – Room 223     | Photographic Wastes (Fixer)                                       | Reagent and solvent bottles of variable size and type are used to store waste as needed. Total accumulated waste will not exceed fifty-five (55) gallons of non-acute hazardous waste or one (1) quart of acute hazardous waste. |
| Studio Arts – Studio 61                    | Paint Solvent   | Reagent and solvent bottles of variable size and type are used to store waste as needed. Total accumulated waste will not exceed fifty-five (55) gallons of non-acute hazardous waste or one (1) quart of acute hazardous waste. |
| Physical Plant – Warehouse                 | Waste Aerosol Contents  | One (1) 55-gallon metal drum   |

JU must comply with the following management requirements for containers holding hazardous waste at SAAs.

#### 4.4.1 Storage Amount

**Title 40 CFR Part 262.34(c)(1)** – Generators can accumulate as much as fifty-five (55) gallons of hazardous waste, or one (1) quart of acutely hazardous waste at a single SAA. As indicated in EPA document number 9453.1989(08) (see Appendix B), EPA did not specify the size of the containers to be used for accumulation (i.e. containers of  $\leq 55$  gallons can be used for non-acute hazardous waste) nor did they limit the number of containers that can be placed at a satellite accumulation area (as long as the total volume is  $\leq 55$  gallons).

Based on this information, JU will evaluate its SAAs for compliance with the following requirements:

- Volume =  $\leq 55$  gallons of non-acute hazardous waste or  
 $\leq 1$  quart of acute hazardous waste
- Number of Containers = No specific limit

When the storage volume is nearing the SAA storage limits, the Physical Plant Director in conjunction with the Chemical Hygiene Officer (CHO) and/or their Designated Appointees will arrange for a hazardous waste pick-up.

#### 4.4.2 At or Near the Point of Generation

**Title 40 CFR Part 262.34(c)(1)** – The term “at or near the point of generation” is not defined in the federal or State hazardous waste regulations. In addition, no EPA interpretations could be located to provide further guidance on this regulatory requirement.

As a result, JU considers an SAA to be located “at or near the point of generation” if it is located within seventy-five (75) feet of and on the same floor where the waste is generated. The twenty (20) existing SAAs at JU are located within seventy-five (75) feet of and on the same floor where the hazardous waste is generated.

#### **4.4.3 Under the Control of the Operator**

*Title 40 CFR Part 262.34(c)(1) – The term “under the control of the operator” is also not defined in the federal or State hazardous waste regulations. In addition, no EPA interpretations could be located to provide further guidance on this regulatory requirement.*

As a result, the JU considers an SAA to be under the control of the operator if the following condition was met:

- a. Satellite accumulation container is visible to the operator generating the waste (i.e. not obstructive from view by equipment or building walls), or
- b. Waste is stored in a secured enclosure or room.

#### **4.4.4 Condition of Containers**

*Title 40 CFR Part 262.34(c)(1)(i) and 265.171 – The container(s) used to store the hazardous waste must be in good condition (e.g. no severe rusting, apparent structural defects). If the container is not in good condition or begins to leak, the hazardous waste must be transferred to a container that is in good condition.*

It is the responsibility of the generator to ensure only sound containers are used to store hazardous waste.

#### **4.4.5 Compatibility of Waste with Container**

*Title 40 CFR Part 262.34(c)(1)(i) and 265.172 – The storage container must be made of or lined with materials which will not react with the hazardous waste to be stored (i.e. otherwise compatible).*

It is the responsibility of the generator to ensure the hazardous waste is compatible with the container's material of construction.

#### 4.4.6 Closed Containers

*Title 40 CFR Part 262.34(c)(1)(i) and 265.173(a) – Satellite accumulation containers must be kept closed at all times except when adding or removing hazardous waste.*

It is the responsibility of the generator to ensure the containers are kept closed except when adding or removing hazardous waste. Weekly compliance checks must be performed to ensure that all hazardous waste containers are kept closed.

#### 4.4.7 Container Labeling

*Title 40 CFR Part 262.34(c)(1)(ii) – Satellite accumulation containers must be marked with the words “Hazardous Waste” or “with other words that identify the contents of the containers” when the first drop of hazardous waste is added to the container. This is referred to as the “First Drop Rule”.*

It is the responsibility of the generator to ensure all hazardous waste containers at JU are labeled with the words “Hazardous Waste” and/or “with other words that identify the contents of the containers” when the first drop is added to the container. The label shown below or similar label will be used by JU.

**HAZARDOUS WASTE**

**FEDERAL LAW PROHIBITS IMPROPER DISPOSAL.**  
IF FOUND, CONTACT THE NEAREST POLICE OR PUBLIC SAFETY  
AUTHORITY OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY.

GENERATOR INFORMATION:  
NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_ PHONE \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_  
EPA ID NO. / MANIFEST DOCUMENT NO. \_\_\_\_\_ / \_\_\_\_\_  
ACCUMULATION START DATE \_\_\_\_\_ EPA WASTE NO. \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
D.O.T. PROPER SHIPPING NAME AND UN OR NA NO. WITH PREFIX

**HANDLE WITH CARE!**

HW1 ©MBC

The generator should contact the Physical Plant Director if storage container(s) and/or hazardous waste label(s) are needed.



#### **4.4.8 Excess Waste**

*Title 40 CFR Part 262.34(c)(2) – A SQG has three (2) days after the fifty-five (55) gallon limit for non- acutely hazardous waste or one (1) quart limit for acutely hazardous waste has been exceeded to transfer the hazardous satellite storage area to the university’s ≤180-day container storage area or the hazardous waste transporter’s vehicle.*

When the volumes listed under Title 40 CFR Part 262.34(c)(2) are reached, the Physical Plant Director in conjunction with the Chemical Hygiene Officer (CHO) and/or their Designated Appointees will have the hazardous waste containers transferred to the hazardous waste transporter’s vehicle for off-site disposal within seventy-two (72) hours.

#### **4.5 180-Day or Less Hazardous Waste Container Storage Area**

At JU, the hazardous wastes generated on-site are stored in SAAs. Prior to the storage limit(s) of an SAA being reached (see Section 4.4.1), the hazardous waste storage container(s) are transferred directly to a licensed hazardous waste transporter vehicle for off-site shipment. No Central Hazardous Waste Storage Area exists at the campus.

#### **4.6 Off-Site Shipment of Hazardous Waste Requirements**

Before the hazardous waste containers at JU are offered for off-site transportation, the requirements described in subsections 4.6.1 through 4.6.3 must be met. JU contracts the packaging and shipment for disposal of all hazardous materials with a licensed hazardous waste transporter. The role of the Physical Plant Director or Chemical Hygiene Officer (CHO) are to verify that the approved hazardous waste transporter is appropriately licensed and meets the requirements stated in Title 40 CFR Part 262.30, 262.31, 262.32 & 262.33.

##### **4.6.1 Packaging**

*Title 40 CFR Part 262.30 – Before offering hazardous waste for off-site shipment, the Physical Plant Director will verify that the licensed hazardous waste transporter has packaged the hazardous waste is packaged in accordance with the applicable Department of Transportation (DOT) regulations under Title 49 CFR Parts 173, 178, and 179.*

#### 4.6.2 Labeling and Marking

**Title 40 CFR Part 262.31 and 262.32** – Before offering hazardous waste for off-site transportation, the Physical Plant Director or Chemical Hygiene Officer (CHO) will verify that the licensed hazardous waste transporter has labeled each hazardous waste container with all applicable DOT labels. In addition, the Physical Plant Director will verify that the licensed hazardous waste transporter marks each hazardous waste container as follows before offering for off-site transportation:

- **HAZARDOUS WASTE** – Federal Law Prohibits Improper Disposal. If found, contact the nearest Police or Public Safety Authority or the U.S. Environmental Protection Agency or the Florida Department of Environmental Protection.”
- Jacksonville University – 2800 University Blvd North, Jacksonville, Florida 32211
- Manifest Document Number
- Accumulation Start Date
- Chemical Name

#### 4.6.3 Placarding

**Title 40 CFR Part 262.33** – Before offering hazardous waste for off-site transportation, the Physical Plant Director or Warehouse Manager will verify the transporter’s vehicle is placarded in accordance with the DOT regulations under 49 CFR Part 172, Subpart F.

At least once every three (3) years, the Physical Plant Director or Chemical Hygiene Officer (CHO) will attend a DOT Hazardous Materials Training Seminar that meets the DOT training requirements defined under Title 40 CFR Part 172, Subpart H.

## 4.7 Preparedness and Prevention

### 4.7.1 Required Equipment

***Title 40 CFR Part 262.34(a)(4) and 265.32*** – All facilities must be equipped with the following equipment:

- *Internal communication or alarm system capable of providing immediate emergency instruction;*
- *Device such as a telephone or a hand-held two-way radio capable of summoning emergency assistance from local police department, fire departments or state or local emergency response teams;*
- *Portable fire extinguishers, fire control equipment, spill control equipment, and decontamination equipment; and*
- *Water at adequate volume and pressure to supply water hose systems, or foam providing equipment, or automatic sprinklers, or water spray systems.*

The primary method used to summon emergency assistance at JU is by voice and/or telephone.

If assistance from local emergency response teams are required, the applicable emergency response teams will be contacted by via Campus Security at 904-256-7585 or fire alarm.

The safety and emergency equipment listed below are located at or in close vicinity of the SAAs:

- Fire Extinguisher
- Chemical Spill Pack
- Eye Wash and/or Shower
- First Aid Kit

#### 4.7.2 Testing and Maintenance of Equipment

**Title 40 CFR Part 262.34(a)(4) and 265.33** – *The university's communication or alarm systems, fire protection equipment, spill control equipment and decontamination equipment, where required, must be tested and maintained as necessary to assure its proper operation in times of emergency.*

The equipment/systems listed below are regularly inspected and maintained by JU personnel.

- Fire Extinguishers – Inspected monthly by JU Public Safety and Area Personnel; and re-certified annually by Licensed Professional.
- Emergency Eyewashes/Showers – Inspected monthly by Laboratory Managers and annually servicing is completed by Physical Plant personnel.
- Alarm Systems – Inspected annually by JU Public Safety.
- Telephones - Tested regularly during normal activities by IT.
- Chemical Spill Kits – Inspected monthly by Area Personnel.
- First Aid Kits – Inspected annually by Area Personnel.

#### 4.7.3 Access to Communications or Alarm System

**Title 40 CFR Part 262.34(a)(4) and 265.34** – *Wherever hazardous waste is being poured, mixed, spread, or otherwise handled, all personnel involved in the operation must have immediate access to an internal alarm or communication device, either directly or through visual or voice contact with another employee.*

The Physical Plant Director or Chemical Hygiene Officer (CHO) is present during all hazardous waste shipments from JU. Telephones are located in each JU Building with easy access to SAAs.

#### **4.7.4 Maintenance of University**

***Title 40 CFR Part 262.34(a)(4) and 265.31*** – A SQG is required to maintain and operate the university in a clean and safe manner.

It is the responsibility of the Physical Plant Director to ensure that the university is maintained and operated in a clean and safe manner at all times.

#### **4.7.5 Arrangement with Local Authorities**

***Title 40 CFR Part 265.37*** – A SQG is required to attempt to make arrangements, as appropriate for the type of waste handled at his facility and the potential need for the services of these organizations:

- *Police, fire departments, and emergency response teams with the layout of the university, properties of hazardous waste handled at the university and associated hazards, places where university personnel would normally be working, entrance to roads inside the university, and possible evacuation routes;*
- *State emergency response teams, emergency response contractors, and equipment suppliers; and*
- *Local hospitals with the properties of hazardous waste handled at the university and the types of injuries or illnesses which could result from fires, explosions, or releases at the university.*
- *If a State or local authority decline to enter into such arrangements, the SQG must document the refusal in the operating record.*

The Physical Plant Director and Emergency Response Coordinator is responsible for contacting the appropriate state and local emergency response teams and informing them of the type, volume, hazard properties, and storage location of the hazardous wastes managed at JU.

#### 4.8 **Contingency Requirements**

**Title 40 CFR Part 262.34(d)(5)(ii)** – All SQGs must post the following information next to the telephone:

- *Names and telephone number of the emergency coordinator;*
- *Location of the emergency equipment; and*
- *Telephone number of the fire department, unless the university has a direct alarm.*

It is the responsibility of the Physical Plant Director and Emergency Response Coordinator to ensure the above information is posted at telephones listed below, at a minimum:

- Nelms Science Building – Rooms 8A, 24, and 27
- Phillips Fine Arts Building – Rooms 223
- Physical Plant – Warehouse and Maintenance Shop
- Reid Medical Science Center – Rooms 101, 103, 107, and 207
- Swisher Science Building – Room 4, 21, 22, 23, and 24
- Swisher Science Chemical Storage Building
- Studio Arts Annex – Studio 61

#### 4.9 **Hazardous Waste Training**

*Title 40 CFR Part 262.34(d)(5)(iii) – As a SQG, JU is required to conduct annual training, which at minimum, must be designed to ensure that university personnel are familiar with proper waste (including universal hazardous wastes) handling and emergency procedures that are relevant to their responsibilities during normal university operations and emergencies.*

*University personnel must successfully complete the program within six (6) months after the date of their employment or assignment to the university, or to a new position at the university, whichever is later. New employees must not work in unsupervised positions until they have completed the training requirements.*

The Physical Plant Director and Chemical Hygiene Officer (CHO) will either conduct or retain the services of an outside consultant to conduct the annual hazardous waste training program for JU personnel.

#### 4.10 **Record Keeping and Reporting**

*Title 40 CFR Part 262.44 – In accordance with State and Federal regulations, a SQG of hazardous waste must maintain the following records (except training records) on-site for a period of three (3) years:*

- *Manifests;*
- *Waste Analysis Records; and*
- *Inspection Records.*

*Hazardous waste training records must be retained for former employees at least three (3) years from the date the employee last worked. For current personnel, training records must be kept until closure of the university.*

The Physical Plant Director and Chemical Hygiene Officer (CHO) is responsible for maintaining the hazardous waste records listed above for JU.

#### 4.11 Land Disposal Restrictions

**Title 40 CFR Part 262.34(d)(4) and 268.7(a)(4)** – Under State and Federal regulations, SQGs that manage a waste, which is restricted from land disposal (see 40 CFR Part 268.7(a)(4)), must comply with the following:

1. *If a waste is subject to Land Disposal Restrictions (“LDR”) and does not meet applicable treatment standards, SQG must submit a one-time written notice to each TSDf, which receives the initial shipment of waste. This one-time notice accompanies the manifest and must include the information listed below. No additional notices are required unless the waste or receiving facility changes.*
  - *EPA hazardous waste code(s)*
  - *Identification of the waste as a wastewater or non-wastewater*
  - *Manifest number associated with the waste shipment*
  - *Waste analysis data (if available)*
  - *For certain wastes, any additional hazardous constituents present*
  - *Where hazardous debris is to be treated by an alternative technology under Section 268.45, a statement to that effect and the contaminants subject to treatment.*
2. *If the waste meets the applicable treatment standards, the SQG must submit a notice one-time and signed certification stating that the waste meets the required treatment standards to each TSDf, which receives the initial shipment of waste. The notice must include the items listed above and the certification, which must be signed by an authorized representative.*

All the hazardous waste generated at JU has been assumed to not meet the applicable LDR treatment standards. As a result, the Physical Plant Director is responsible for submitting the one-time written notice (listed under item 1 above) to the receiving TSDf and maintaining a copy of the one-time notice on file at JU.



#### 4.12 Emergency Coordinator

**Title 40 CFR Part 262.34(d)(5)(i) and (iv)** – Under State and Federal regulations, a SQG of hazardous waste must have at least one employee (at all times) on the premises or on call (i.e. available to respond to an emergency by reaching the university within a short period of time) with the responsibility for coordinating the following emergency response measures:

- In the event of a fire, call the fire department or attempt to extinguish it using a fire extinguisher;
- In the event of a spill, contain the flow of hazardous waste to the extent possible, and as soon as is practicable, clean up the hazardous waste and any contaminated materials or soil; and
- In the event of a fire, explosion, or other release which could threaten human health outside the university or when the generator has knowledge that a spill has reached surface water, the generator must immediately notify the National Response Center (using their 24-hour toll free number 800-424-8802). The report must include the following information:
  1. The name, address, and U.S. EPA Identification Number of the generator;
  2. Date, time, and type of incident (e.g., spill or fire);
  3. Quantity and type of hazardous waste involved in the incident;
  4. Extent of injuries, if any; and
  5. Estimated quantity and disposition of recovered materials, if any.

*This employee is the Emergency Coordinator.*

The Emergency Coordinator and Alternate Emergency Coordinator at JU are the University Public Safety Director, Kevin Bennett, and the Physical Plant Director, Keri Zeigler, respectively. Both of these employees are able to respond within a short time period if not on premises and have the authority to coordinate the emergency response measures listed above.

## 5.0 UNIVERSAL WASTE MANAGEMENT

### ***Title 40 CFR Part 273; and Rule 62-730.185, 62-730.186, and 62-737 FAC***

Under Federal and FDEP hazardous waste regulations, the following hazardous wastes can be managed as “universal wastes”:

- Hazardous waste batteries;
- Certain hazardous waste pesticides;
- Thermostats;
- Mercury containing lamps;
- Mercury containing devices; and
- Hazardous Waste Pharmaceuticals.

These universal wastes, which meet the properties of a characteristic hazardous waste, can be managed in accordance with the streamline regulatory requirements listed under Title 40 CFR Part 273 in lieu of the more stringent hazardous waste regulations listed under Title 40 CR Parts 262 through 272.

JU will manage the universal waste(s) generated at its campus in accordance with the Universal Waste Management Regulations described in subsections 5.1 through 5.7.

### 5.1 **Universal Waste Description**

#### 5.1.1 **Thermostats**

*A **thermostat** is defined as "a temperature control device that contains metallic mercury in an ampoule attached to a bi-metal sensing element, and mercury-containing ampoules that have been removed from these temperature control devices in compliance with Title 40 CFR Part 273.13(c)(2).*

Thermostat waste generated at JU will be managed in accordance with the Universal Waste Management Regulations.

### 5.1.2 Batteries

A **battery** is defined as "a device consisting of one more electrically connected electrochemical cells which is designed to receive, store, and deliver electrical energy". An electrochemical cell is a system consisting of an anode, cathode and an electrolyte, plus such connections as may be needed to allow the cell to deliver or receive electrical energy. This term also includes intact, unbroken batteries from which electrolytes have been removed. Gas-powered or electric generators are not included in this definition since they cannot "store" electrical energy. Facilities currently covered under Title 40 CFR Part 266, Subpart G (i.e., lead-acid batteries) have the option of continuing to be regulated under Subpart G or be regulated under the Universal Waste Rule (Title 40 CFR 273).

Universal battery waste generated at JU may include:

- Lithium-Ion;
- Nickel Metal Hydride batteries;
- Silver Oxide batteries;
- Nickel Cadmium batteries; and
- Lead-Acid batteries.

Universal battery waste generated at JU will be managed in accordance with the Universal Waste Management Regulations.

### 5.1.3 Lamps

A "**Universal waste lamp**" or "lamp" means any mercury-containing lamp that is also characteristically hazardous for mercury under 40 CFR 261.24 and is being managed in accordance with this chapter, i.e. mercury-containing lamps. A "**Mercury-containing lamp**" means any type of high or low pressure lighting device that is unprocessed such as being crushed by a generator per paragraph 62-737.400(6)(b), contains mercury, and that generates light through the discharge of electricity either directly or indirectly through a fluorescing coating. This term includes fluorescent lamps, mercury vapor lamps, metal halide lamps, high-pressure sodium lamps and neon lamps containing mercury.

Universal waste lamps generated at JU may include:

- Fluorescent lamps;
- HID lamps;
- Exit sign lamps; and
- Street Lamps.

Universal waste generated at JU will be managed in accordance with the Universal Waste Management Regulations.

#### 5.1.4 Mercury-Containing Devices

*Mercury-containing devices* are regulated by the State of Florida. A mercury-containing device is defined as any electrical product, or other devices, excluding a battery or a mercury-containing lamp, that is unprocessed and has been determined by the Department as proven to release mercury into the environment. The Department has determined that the following items are included in this definition: mercury thermostats, electric mercury switches and relays, thermometers, manometers, ampoules removed from lamps or these devices in accordance with the Title 40 CFR 273.13 or 273.33 thermostat ampoule removal standards as adopted by reference under Rule 62-730.185, F.A.C., and other devices which contain liquid mercury as a component necessary for their operation.

Mercury-containing device waste generated at JU will be managed in accordance with the Universal Waste Management Regulations.

#### 5.1.5 Pesticides

The **universal waste pesticides** covered under this rule making are limited to:

- *Suspended and cancelled pesticide that is part of a voluntary or mandatory recall under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA);*
- *Suspended or cancelled pesticide or a pesticide that is not in compliance with FIFRA and are part of a voluntary recall by the registrant; and*
- *Unused pesticide products that are collected and managed as part of a waste pesticide collection program.*

The JU Physical Plant personnel apply pesticides at all of the campuses and thus, it is possible that universal waste pesticides will be generated and will be managed in accordance with the Universal Waste Management Regulations.

### 5.1.6 Pharmaceuticals

**“Hazardous waste pharmaceutical”** means a “non-viable” “pharmaceutical” [as defined in paragraphs 62-730.186(4)(i) and 62-730.186(4)(h), F.A.C., respectively] that exhibits a characteristic as described in Title 40 CFR Part 261, Subpart C or is listed hazardous waste pursuant to Title 40 CFR Part 261, Subpart D. If the waste formulation includes a commercial chemical product listed in Subpart D as the sole active ingredient, then the entire formulation is considered a hazardous waste pharmaceutical, unless excluded by Title 40 CFR 261.3(g). A pharmaceutical becomes a waste when it is no longer “viable” (as defined in paragraph 62-730.186(4)(n), F.A.C.); when a decision is made to discard the pharmaceutical; or when the pharmaceutical is abandoned as described in Title 40 CFR 261.2(b). A pharmaceutical does not meet the definition of a “solid waste” under Title 40 CFR 261.2 and is considered product as long as it is viable, a decision to discard it has not been made, and it is not abandoned as described in Title 40 CFR 261.2(b). Pharmaceuticals that are produced by a pharmaceutical manufacturer without reasonable expectation of sale, returned or delivered without a reasonable expectation of credit to a manufacturer, wholesaler, reverse distributor or any type of waste broker, are non-viable and are discarded. Once a decision has been made to discard a viable pharmaceutical, it becomes non-viable. Non-viable pharmaceuticals that are hazardous waste may be handled as universal waste under this rule. 40 CFR Part 261 and all sections thereof as cited in this paragraph have been adopted by reference as state regulations in subsection 62-730.030(1), F.A.C.

JU will, at times, generate hazardous waste pharmaceuticals from its athletics training department and they are managed in accordance with the State Universal Waste Management Regulations.

## 5.2 Covered Facilities

The types of persons or facilities, which are covered by the Universal Waste Rule, are as follows:

- (1) **Small Quantity Handlers of Universal Waste (SQHUW)** are persons that generate or create Universal Wastes. SQHUWs use batteries, pesticides, thermostats, lamps, mercury-containing devices, oil-based finishes or consumer electronics until they are spent and then have them shipped off-site for reclaim. No treatment, recycling or disposal is performed on-site and amount of all Universal Wastes accumulated on-site is less than 5,000 kilograms.
- (2) **Large Quantity Handlers of Universal Waste (LQHUWs)** like SQHUWs use the batteries, pesticides, thermostats, lamps, mercury-containing devices, oil-based finishes or consumer electronics until they are spent and accumulate them on-site until shipped off-site for reclaim. LQHUWs can accumulate on-site 5,000 kilograms or more of all Universal Wastes.

**NOTE: The designation of a LQHUW is retained through the end of the calendar year when 5,000 kilograms or more of Universal Waste (total) is accumulated.**

- (3) **Universal Waste Transporters** are persons who transport Universal Waste from generators of Universal Waste to destination facilities or foreign destinations. A transporter may be an independent shipper contracted to transport waste or a generator who self-transport his waste.
- (4) **Destination Facility** is a facility that treats, disposes of, or recycles a particular category of Universal Waste. A facility which only accumulates a particular category of Universal Waste, is not a destination facility.

JU will operate as an **SQHUW**. It will be the responsibility of the Physical Plant Director to ensure the storage limit of 5,000 kilograms is not exceeded at JU.

### 5.3 Waste Management

**Title 40 CFR Part 273.13;**

**Rule 62-730.185(1), 62-730.186(7)(a), and 62-737.400(5)(a) FAC**

*A SQHUW must manage its universal waste batteries, thermostats and pharmaceuticals in a manner that prevents releases of any universal waste or component of a universal waste to the environment.*

*A SQHUW must manage its universal waste devices and lamps in a way that prevents breakage, releases of their components to the environment, and their exposure to moisture.*

*Any universal waste battery, thermostat or pharmaceutical container that shows evidence of leakage, spillage or damage must be placed in a container that is kept closed, structurally sound, and compatible with the contents of the universal waste.*

*Universal waste lamps and devices shall be placed in closed containers that are structurally sound, compatible with the universal waste lamp, device or pharmaceutical and that lack evidence of leakage, spillage or damage that could allow leakage.*

The Physical Plant Director or Physical Plant Manager is responsible for ensuring that any damaged universal waste batteries, thermostat, mercury-containing device, pesticide, and pharmaceutical containers and universal waste lamps are stored in structurally sound containers provided by the universal waste destination facility and keeping the containers closed. The universal waste destination facility is responsible for ensuring that the supplied containers are compatible with the stored universal wastes.

### 5.4 Labeling/Marking

**Title 40 CFR Part 273.14;**

**Rule 62-730.185(1) FAC and 62-730.186(7)(b), and 62-737.400(b) FAC**

*Each container of universal waste must be labeled as follows:*

#### Thermostats

- *“Universal Waste - Mercury-Thermostat(s)”;*
- *“Waste Mercury-Thermostat(s)”;* or
- *“Used Mercury-Thermostat(s)”.*

### Universal Waste Batteries

- “Universal Waste-Battery(ies)”;
- “Waste Battery(ies); or
- “Used Battery(ies)”.

### Mercury Containing Lamps

- “Spent Mercury-Containing Lamps for Recycling”;
- “Universal Waste Mercury Lamps”;
- “Waste Mercury Lamps”;
- “Used Mercury Lamps”; or
- Lamps that are crushed per Rule 62-737.400(6)(b) shall be labeled “Crushed Mercury Lamps”.

### Mercury-Containing Device

- “Spent Mercury-Containing Devices for Recycling”;
- “Universal Waste Mercury Devices”;
- “Waste Mercury Devices”; or
- “Used Mercury Devices”.

### Pesticides

- “Universal Waste Pesticide(s)”;
- “Waste Pesticide(s)”.

### Pharmaceuticals

- “Universal Pharmaceutical Waste”;
- “Universal Waste Pharmaceuticals”.
- Specific hazardous waste codes applicable to the universal pharmaceutical waste that is or may be placed in the container must also be included on the label.

It is the responsibility of the Physical Plant Director or Physical Plant Manager to ensure that each container of universal waste is labeled as listed above. The Physical Plant Director or Physical Plant Manager inspects the universal waste containers for labels at least monthly.



## 5.5 Accumulation Time Limits

**Title 40 CFR Part 273.15;**

**Rule 62-730.185(1), 62-730.186(8)(a), and 62-737.400(7) FAC**

*Universal wastes can be stored at a SQHUW for a maximum of one (1) year from the date universal waste is generated. The SQHUW must be able to demonstrate the length of time that the universal wastes have been accumulated on-site. This demonstration can be made by dating the container; dating the individual item of universal waste (e.g. each battery), or maintaining an inventory system.*

It is the responsibility of the Physical Plant Director or Physical Plant Manager to ensure universal wastes are not stored on-site for more than one (1) year. The Physical Plant Director or Physical Plant Manager dates the universal waste containers and inspects the universal waste containers at least monthly to ensure the one (1) year storage time limit is not exceeded.

## 5.6 Employee Training

**Title 40 CFR Part 273.16** – *Employees who handle or have the responsibility for managing universal wastes must be informed of the proper handling and emergency procedures for the universal waste.*

The training requirement for universal wastes at JU is covered during the annual hazardous waste training seminars (see Section 4.9).

## 5.7 Response to Releases

**Title 40 CFR Part 273.17** – *A SQHUW must immediately contain all releases of universal wastes and other residues from universal wastes. In addition, the SQHUW must determine whether any material resulting from the release is a hazardous waste and must be managed in accordance with all applicable requirements of Title 40 CFR Parts 260 through 272.*

In an event of a release of universal waste at JU, the Physical Plant Director or Emergency Response Coordinator will determine if the release can be cleaned-up without any potential health or safety risks to the JU campus body.

If a potential health or safety risk is determined, the Physical Plant Director or Emergency Response Coordinator will contact an emergency response spill contractor. Any cleaned-up material will be managed as a hazardous waste. The hazardous waste requirements for JU are described in Section 4.0.

## 6.0 STANDARDS FOR MANAGEMENT OF USED OIL

**Title 62-710 FAC** – Presented under 62-710 FAC are the regulatory requirements for identifying, storing, recycling, transporting and burning "Used Oil". These regulations apply to:

- Generators
- Transporters
- Mobile Lube Operators
- Transfer facilities
- Private and public used oil collection centers and aggregation points
- Processors
- Burners
- Marketers

According to EPA's recycling presumption, all used oil is recyclable until "a person disposes of the used oil, or sends it for disposal". Therefore, generators, transporters, processors, etc., of used oil are subject to Rule 62-710 FAC requirements, unless one of them decides to dispose of the used oil. The recycling presumption, however, applies only to "as-generated" used oil (i.e., used oil that has not been mixed with any others material).

Any person involved in used oil handling needs to determine which regulations are applicable to them.

JU will manage the 'used oil' generated at their campus in accordance with the "generator" requirements. JU will not process, burn, market, or transport their used oil.

**6.1 What is Used Oil?**

*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 contaminated and unsuitable for its original purpose due to the presence of physical (water, metal shavings, dirt) or chemical (lead, solvents) impurities or loss of original properties.” Listed below are examples of materials that do and do not classify as used oils.*

| <b>Used Oil</b>   | <b>Not Used Oil</b>  |
|---|--|
| <i>Lubricating Oil<br/>Hydraulic Fluid<br/>Compressor Oil<br/>Mineral Oil<br/>Coolants<br/>Cutting Oils<br/>Metal Working Fluid</i> | <i>Antifreeze<br/>Kerosene<br/>Vegetable Oil<br/>Animal Oil<br/>Petroleum Distillates<br/>(used as Solvents)</i> |

At JU, “used oil” may be generated from minor engine maintenance at the Physical Plant Warehouse.

**6.2 When is Used Oil a Hazardous Waste?**

*When the decision has been made to dispose of the used oil, the used oil in the State of Florida is a hazardous waste if:*

- It is mixed with or commingled with hazardous substances that make it unsuitable for recycling or beneficial use; or*
- Contains greater than 1,000 parts per million (“ppm”) of total halogens and the presumption of being mixed with a listed waste cannot be rebutted.*

**6.2.1 Used Oil that Contains Greater than 1,000ppm of Total Halogens**

*The EPA determined from their research that used oil was often contained with halogenated solvents. Since the EPA found it difficult to determine when halogenated solvents were being mixed with used oil, they established the rebuttable presumption.*

*Under the rebuttable presumption, it is presumed that used oil has been mixed with a halogenated solvent if it contains more than 1,000 ppm of total halogens (i.e., F001 or F002 listed hazardous waste). Used oil, which contains more than 1,000 ppm of total halogens, must be managed as a hazardous waste, unless the presumption can be rebutted. This rebuttable presumption applies to all used oil regardless of its being recycled or disposed. In addition, the lowering of the total halogen content below 1,000 ppm by blending will not make the used oil a non-hazardous waste.*

*Since used oil in some cases can contain more than 1,000 ppm of total halogens through normal use (i.e., without being mixed with a hazardous waste), the hazardous waste mixing presumption can be rebutted by:*

- 1. Using knowledge of the halogen content of the used oil in light of the materials or processes used; or*
- 2. Analyzing the used oil using SW-846 methods 8021 and 8260B to demonstrate the used oil/halogen mixture does not contain significant concentrations of halogenated hazardous constituents.*

*A used oil that contains halogenated hazardous constituents at concentrations of  $\leq 100$  ppm (each constituent), would typically rebut the mixing presumption. Examples of halogenated hazardous constituents are listed below:*

- Tetrachloroethylene*
- Chlorobenzene*
- Trichloroethylene*
- 1,2,2-trichloro-1,2,2-trifluoroethane*
- Methylene chloride*
- 1,1,1-trichloroethane*
- Ortho-dichlorobenzene*
- Carbon tetrachloride*
- Trichlorofluoromethane*
- Chlorinated fluorocarbons*
- 1,1,2-trichloroethane*

*Used oil containing  $> 1,000$  ppm of total halogens must be managed as a hazardous waste until the presumption of mixing with a listed hazardous waste has been rebutted.*

The Physical Plant Director or Physical Plant Manager is responsible for coordinating the sampling and analysis of used oil generated at JU. The used oil generated at JU will be analyzed prior to each disposal for total halogens. If a total halogen concentration of greater than 1,000 ppm is detected, the used oil will be analyzed for the volatile organics using EPA Method 8260B. Used oil that exhibits a total halogen concentration of greater than 1,000 ppm and one or more halogenated waste constituents greater than 100 ppm will be managed as a hazardous waste. All other used oils will be managed in accordance with the requirements listed under this section.

The Physical Plant Director will be responsible for maintaining the analytical testing results for the used oil and coordinating annual sampling of used oil in addition to the halogen screenings conducted prior to disposal.

### **6.3 Generator Requirements**

#### **6.3.1 Used Oil Storage**

**Rule 62-710.401(6) FAC** – Under FDEP’s Used Oil Regulations, the used oil must be:

- *Stored in containers or tanks;*
- *Containers and above-ground tanks must be in good condition (no severe rusting, apparent structural defects or deterioration) and with no visible oil leakage;*
- *Containers and aboveground tanks must be stored inside or closed, covered or otherwise protected from the weather;*
- *If the containers and aboveground tanks are not double-walled, they shall be stored on an oil-impermeable surface such as sealed concrete or asphalt, and must have secondary containment which has the capacity to hold 110% of the volume of the largest tank or container within the containment area; and*
- *Containers and above-ground tanks must be labeled clearly with the words “Used Oil”.*

At JU, used oil will be stored on-site in an above ground storage tank that is less than fifty-five (55) gallons. It is the responsibility of the Physical Plant Director or Physical Plant Manager to ensure the used oil containers are in good condition, are stored correctly, and are labeled with the words “Used Oil”.

In the event of a spill, the Physical Plant Director will direct all clean-up activities.

### **6.3.2 Off-Site Shipments**

#### **62-710.300(1)(a) FAC**

*Generators must have their used oil managed only by a used oil handler, which is registered with the FDEP, except with respect to the transportation of used oil in shipments of fifty five (55) gallons or less.*

The used oil generated at JU will only be transported off-site by a transporter that is registered with the FDEP.

**APPENDIX A**  
**FIGURES**

**Figure 1:** Site Location – Jacksonville University

**Figure 2:** Site Plan – Jacksonville University: Location of Satellite Accumulation Areas

Figure 1: Site Location – Jacksonville University

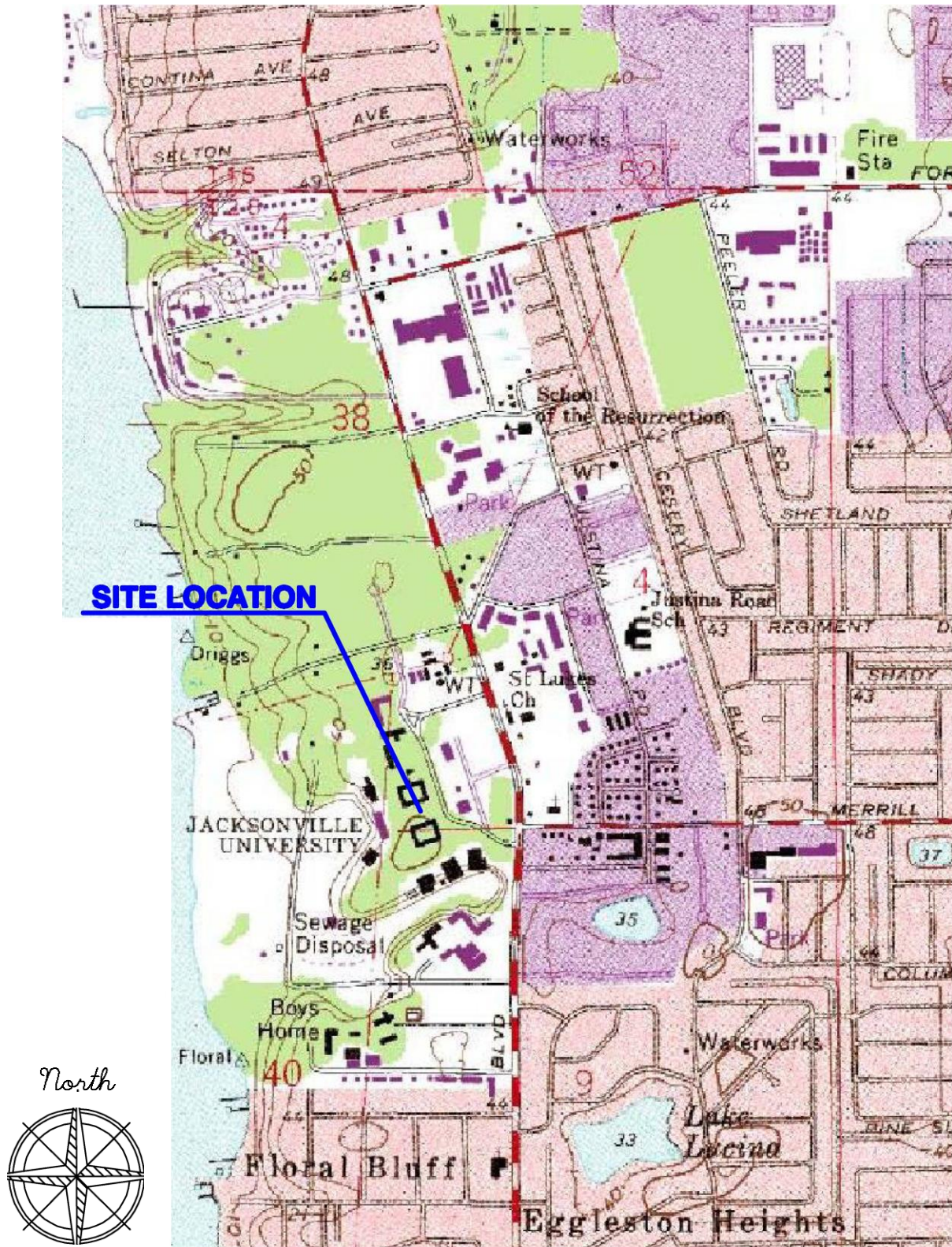
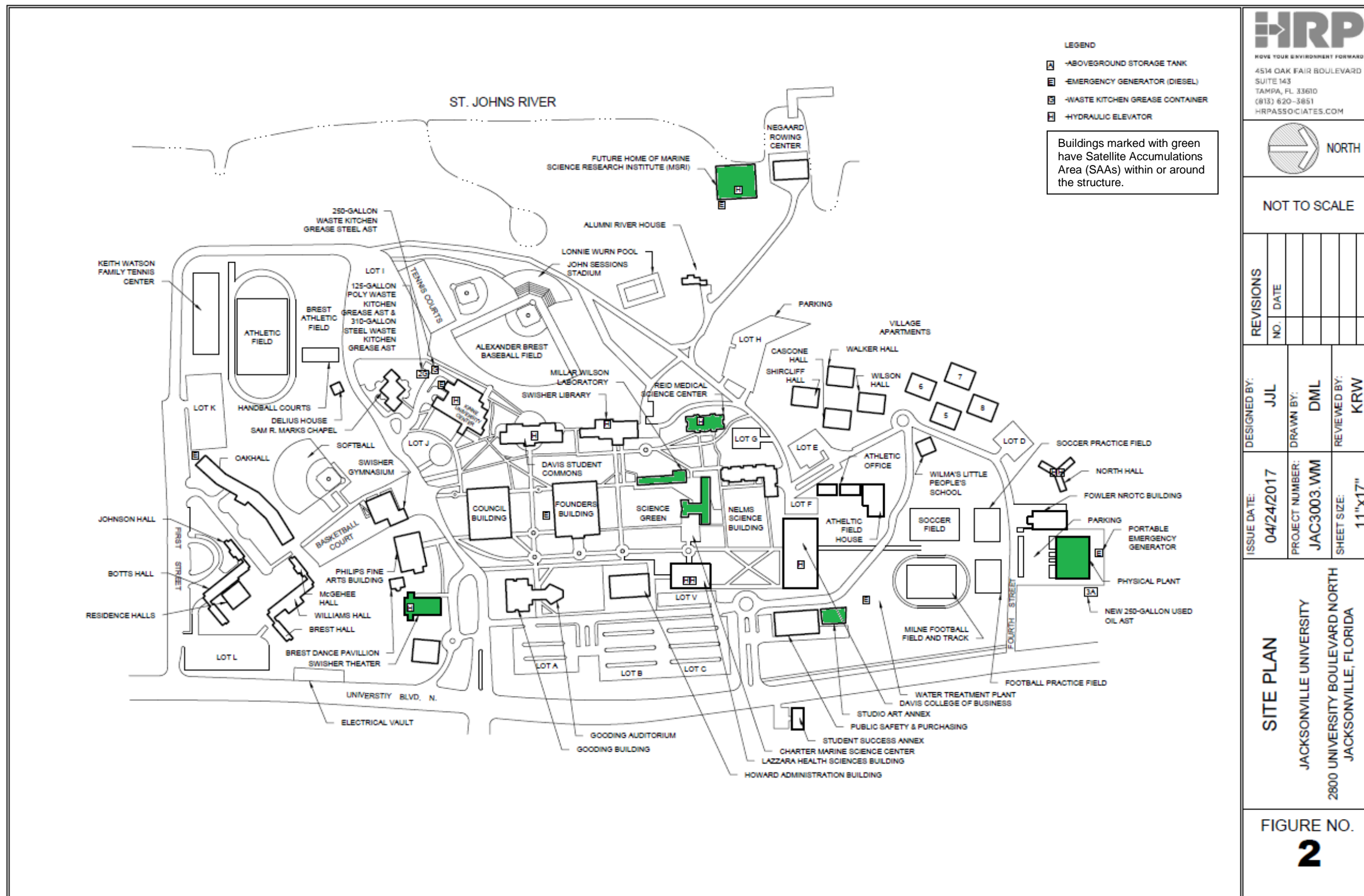




Figure 2: Site Plan – Jacksonville University: Location of Satellite Accumulation Area



**APPENDIX B**  
**WHAT WASTES ARE HAZARDOUS?**

# WHAT WASTES ARE HAZARDOUS?

One of the most complicated and confusing aspects of RCRA is determining if one is managing a hazardous waste. To make this determination, one must first ask: "**Is the material being handled a solid waste?**" If the answer to this question is yes, one must ask: "**Is this solid waste excluded from regulation?**"

Once it has been determined that a solid waste is being managed, and does not meet one of the exclusions, one must ask: "**Is this solid waste a hazardous waste?**"

A summary of the solid waste definitions, exclusions, and hazardous waste definition are provided in subsections 1 through 3, respectively.

## 1.0 SOLID WASTES

A solid waste, which can be a solid, liquid, semi-solid or gaseous material, is defined as any discarded material that is not specifically excluded. A "discarded material" is any material which is either:

- abandoned (i.e. thrown away or disposed of);
- inherently waste like;
- military munition; or
- recycled in a manner constituting disposal, burning for energy recovery, reclaimed or over accumulated.

### 1.1 Abandoned Materials

Materials are abandoned when they are:

- Disposed of or thrown away;
- Burned or incinerated; or
- Accumulated, stored or treated (but not recycled) before or in lieu of being disposed of, burned or incinerated.

### 1.2 Inherently Waste-Like

Materials that are inherently waste-like are materials that pose significant threats to human health and the environment if mismanaged (i.e., too hazardous to be unregulated). These materials have been designated with the EPA Hazardous Waste Codes F020 to F023 and F026 to F028, and secondary materials fed to a halogen acid furnace that exhibit a characteristic of a hazardous waste or are listed hazardous waste.

### 1.3 **Military Munitions**

Ammunition products and components produced or used by or for the U.S. Department of Defense or the U.S. Armed Services for national defense and security. The term military munitions includes: chemical munitions, rockets, guided and ballistic missiles, bombs, warheads, mortar rounds, artillery ammunition, small arms ammunition, grenades, and others.

### 1.4 **Recycled Materials**

A material is defined as being **recycled** if it is used or reused or reclaimed. Some recycled materials, as explained below, are not solid wastes (note: therefore cannot be hazardous waste). Other recycled materials are solid and hazardous wastes, but they are subject to less stringent regulatory controls.

As indicated in Table 1, the level of regulation that applies to a recycled material depends on (1) the type of secondary material it is and (2) how the secondary material is being handled.

As shown in Table 1, the only recyclable materials not defined as solid waste include:

- Sludges exhibiting a characteristic of hazardous waste and being reclaimed;
- By-products exhibiting a characteristic of hazardous and being reclaimed;
- Commercial chemical products listed in 40 CFR 261.33 and being reclaimed; and
- Commercial chemical products listed in 40 CFR 261.33 and being accumulated speculatively.

## 1.5 **Materials Which Are Not Solid Waste When Recycled**

Section Title 40 CFR 261.2(e)(1) also states that materials which can be recycled by one of the methods listed below are also not defined as solid wastes.

- a. Used or reused as ingredients in an industrial process to make a product, provided the materials are not being reclaimed.
- b. Used for reused as effective substitutes for commercial products.
- c. Returned to the original process from which they are generated without first being reclaimed. The material must be returned as a substitute for raw material feedstock, and the process must use raw materials as principal feed stocks.

**TABLE 1**  
**RECYCLED MATERIALS WHICH ARE SOLID WASTES**

| Secondary Material Categories   | Use Constituting Disposal<br>[§261.2(c)(1)] | Energy Recovery/Fuel<br>[§261.2(c)(2)] | Reclamation<br>[§261.2(c)(3)] | Speculative Accumulation<br>[§261.2(c)(4)] |
|---|---|--|-------------------------------|--|
| Spent Materials   | * <sup>1</sup>                              | *                                      | *                             | *  |
| Sludge (listed in 40 CFR Part 261.31 or 261.32)                                     | *   | *                                      | *                             | *  |
| Sludge exhibiting a characteristic of hazardous waste                               | *   | *                                      | --- <sup>4</sup>              | *  |
| By-products (listed in 40 CFR Part 261.31 or 261.32)                                | *   | *                                      | *                             | *  |
| By-products exhibiting a characteristic of hazardous waste                          | *   | *                                      | --- <sup>4</sup>              | *  |
| Commercial chemical products <sup>2</sup> ,<br><sup>3</sup> listed in 40 CFR 261.33 | *   | *                                      | --- <sup>4</sup>              | --- <sup>4</sup>                           |
| Scrap metal other than excluded scrap metal (see 40 CFR 261.1(c)(9))                | *   | *                                      | *                             | *  |

Notes:

<sup>1</sup>Solid wastes are noted with an "\*".

<sup>2</sup>Commercial chemical products are not solid wastes if land disposal is their ordinary manner of use.

<sup>3</sup>Commercial chemical products are not solid wastes if they are themselves fuels.

<sup>4</sup>Materials noted with a "---" are not solid wastes.

## 2.0 EXCLUSIONS

As with any State or Federal environmental regulation, there are always exclusions. The **majority** of the materials, which are **not** defined as solid wastes, are listed under 40 CFR 261.4 and 261.6. Listed below are a few examples.

- Domestic sewage
- Excluded scrap metal (processed scrap metal, unprocessed home scrap metal and unprocessed prompt scrap metal) being recycled
- Household wastes
- Petroleum-contaminated media and debris that fail the test for toxicity of D018-D043 only and are subject to corrective action regulations under 40 CFR Part 280
- Non-terne plated used oil filters that have not been mixed with listed wastes
- Scrap metals that are recycled

## 3.0 HAZARDOUS WASTES

A solid waste qualifies as a hazardous waste if it falls under any one of the four (4) categories listed below and does not qualify for any of the exemptions or exclusions listed under Federal and/or State regulations.

**NOTE: If the material is not a "solid waste", it cannot be a "hazardous waste."**

- 1) A waste or waste generation process which has been specifically identified by EPA to be "**listed**" hazardous waste. Included under this category are products in their pure or off-specification form which are discarded and contain specific hazardous constituents.
- 2) Those solid waste and waste generation processes that have not been specifically listed by EPA but exhibit one or more of the four **characteristics** of hazardous waste irrespective of the manufacturing produces from which it is generated. The four characteristics are: ignitability (I), corrosivity (C), reactivity (R), or toxicity (T).
- 3) It is a **mixture** of a listed hazardous waste and any other material, or is a **mixture** of a characteristic waste and any other material, provided the mixture still exhibits the characteristic (i.e., mixture rule).

- 4) A residue is "**derived from**" the treatment, storage, or disposal of a listed waste.

Provided below is a description of each of these waste categories.

### 3.1 Listed Hazardous Wastes

#### A. "F" Wastes

The "F" listed wastes are generated from common industrial and manufacturing processes (i.e., non-specific sources), which are not unique to a specific industry. These wastes can be divided into the seven (7) groups listed below.

1. Spent Solvent Wastes: F001-F005 (see examples below)

a. F003 (Hazard Code: I): The following spent non-halogenated solvents: xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, only the above spent non-halogenated solvents; and all spent solvent mixtures/blends containing, before use, one or more of the above non-halogenated solvents, and, a total of ten percent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

b. F005 (Hazard Code: I, T): The following spent non-halogenated solvents: Toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

2. Electroplating/Metal Finishing Wastes: F006 – F012 & F019

3. Dioxin Bearing Wastes: F020 – F023, F026 & F028

4. Chlorinated Aliphatic Hydrocarbon Production Wastes: F024 –& F025

5. Wood Preserving Wastes: F032, F034 & F035



6. Petroleum Refining Wastewater Treatment Sludges: F037 & F038
7. Multi-Source Leachate: F039

**B. “K” Wastes**

The “K” wastes are generated from specific industry sectors. "K" wastes are primarily sludges and by-products generated by a single industrial sector. Examples of these listed wastes are:

- **K005** (*Hazard Code: T*): Wastewater treatment sludge from the production of chrome green pigments.
- **K007** (*Hazard Code: T*): Wastewater treatment sludge from the production of iron blue pigments.
- **K086** (*Hazard Code: T*): Solvent washes and sludges, caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead.

**C. “P” Wastes**

The “P” listed wastes are discarded commercial chemical products, off-specifications species, containers, and spill residues, which are **acutely** toxic.

Examples of these listed **acute hazardous wastes**, which are listed in Title 40 CFR 261.33(e), are:

| Hazardous Waste No. | Chemical Abstracts No. | Substance              |
|---------------------|------------------------|------------------------|
| P028                | 100-44-7               | Benzene (chloromethyl) |
| P105                | 26628-22-8             | Sodium Azide           |
| P112                | 509-14-8               | Tetranitromethane (R)  |

**NOTE:** The “F” listed hazardous wastes F020, F021, F022, F023, F026, and F027 are also defined as **acute hazardous wastes**.

#### D. "U" Wastes

The "U" listed wastes are discarded commercial chemical products, off-specification species, container residues, and spill residues, which are too toxic or meet other hazardous characteristics. Examples of these wastes, which are found at Title 40 CFR 261.33(f), are:

| Hazardous Waste No. | Chemical Abstracts No. | Substance        |
|---------------------|------------------------|------------------|
| U002                | 67-64-1                | Acetone (l)      |
| U012                | 62-53-3                | Aniline (l, T)   |
| U117                | 60-29-7                | Ethyl Ether (l)  |
| U135                | 7783-06-4              | Hydrogen Sulfide |
| U151                | 7439-97-6              | Mercury          |
| U328                | 95-53-4                | O-Toluidine      |

It is important to note that the terms "**commercial chemical products**" or "**manufacturing chemical intermediate**" listed under the "P" and "U" waste definitions are limited to:

- a chemical substance that is manufactured or formulated for commercial or manufacturing use;
- the chemical substance consists of the commercially pure grade (i.e. 100%) of the chemical, any technical grade (i.e. almost 100% with minor impurities) of the chemical that are produced or marketed;
- the chemical substance is the **sole active ingredient**. The active ingredient is the compound that performs the primary function (e.g., in a pesticide, the active ingredient kills the bugs); and
- the chemical substance is unused.

**NOTE:** Unused laboratory chemicals that are no longer needed or have past their expiration date are typically classified as "P" or "U" listed hazardous wastes.

### 3.2 Characteristic Hazardous Wastes

A waste that is not listed may nevertheless be a hazardous waste if it exhibits any one of the following **four characteristics** of a hazardous waste: Ignitability, Corrosivity, Reactivity, or Toxicity.

**A. Ignitability (D001):** This characteristic identifies solid wastes that are capable of causing a fire or exacerbating a fire once it has started during routine handling of material. These wastes include:

- *Liquids:* Other than an aqueous solution containing less than 24% alcohol by volume and has a flashpoint of less than 140°F (60°C);
- *Non-Liquids:* Capable under standard temperature and pressure of (1) causing fire through friction, absorption of moisture or spontaneous chemical changes **and** (2) when ignited burn so vigorously and persistent that it creates a hazard;
- *Ignitable Compressed Gases:* As defined under Title 49 CFR 173.300; and
- *Oxidizers:* As defined in Title 49 CFR 173.151.

**B. Corrosivity (D002):** This characteristic identifies solid wastes that have either of the following properties:

- it is aqueous and has a pH  $\leq 2$  or  $\geq 12.5$ ; and
- it is a liquid and corrodes steel at a rate greater than 0.25 inches per year at a test temperature of 130°F (55°C).

**C. Reactivity (D003):** This characteristic identifies wastes that are unstable and may react violently or explode during stages of their management. Solid wastes that exhibit any of the following properties are classified as reactive wastes:

- normally unstable and readily undergoes violent change without detonating;
- reacts violently with water;
- forms potentially explosive mixtures with water;
- generates toxic gases, vapors or fumes in a sufficient quantity to pose a danger when mixed with water;

- cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or environment;
- capable of detonation or explosive reaction if it is subjected to a strong initiations source or if heated under confinement;
- readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure; and
- forbidden explosive as defined by DOT regulations or is a Class A explosive, or a Class B explosive as defined in DOT regulations.

**D. Toxicity (D004-D043):** This characteristic measures the potential of a waste to leach toxic constituents into ground water when land disposed assuming mismanagement or co-disposal in an unlined, municipal solid waste landfill. Compounds which are analyzed under the current Toxicity Characteristic Leaching Procedure (TCLP) test and their regulatory levels are listed on Table 2.

**TABLE 2**  
**TOXICITY CHARACTERISTIC CONSTITUENTS AND REGULATORY LEVELS**

| Waste Code | Contaminants                 | Concentration (mg/l) |
|------------|------------------------------|----------------------|
| D004       | Arsenic                      | 5.0                  |
| D005       | Barium                       | 100.0                |
| D018       | Benzene                      | 0.5                  |
| D006       | Cadmium                      | 1.0                  |
| D019       | Carbon Tetrachloride         | 0.5                  |
| D020       | Chlordane                    | 0.03                 |
| D021       | Chlorobenzene                | 100.0                |
| D022       | Chloroform                   | 6.0                  |
| D007       | Chromium                     | 5.0                  |
| D023       | o-Cresol*                    | 200.0                |
| D024       | m-Cresol*                    | 200.0                |
| D025       | p-Cresol*                    | 200.0                |
| D026       | Total Cresols*               | 200.0                |
| D016       | 2,3-D                        | 10.0                 |
| D027       | 1,4-Dichlorobenzene          | 7.5                  |
| D028       | 1,2-Dichloroethane           | 0.5                  |
| D029       | 1,1-Dichloroethylene         | 0.7                  |
| D030       | 2,4-Dinitrotoluene           | 0.13                 |
| D012       | Endrin                       | 0.02                 |
| D031       | Heptachlor (and its epoxide) | 0.008                |
| D032       | Hexachlorobenzene            | 0.13                 |
| D033       | Hexachlorobutadiene          | 0.5                  |
| D034       | Hexachloroethane             | 3.0                  |
| D008       | Lead                         | 5.0                  |
| D013       | Lindane                      | 0.4                  |
| D009       | Mercury                      | 0.2                  |
| D014       | Methoxychlor                 | 10.0                 |
| D035       | Methyl Ethyl Ketone          | 200.0                |
| D036       | Nitrobenzene                 | 2.0                  |
| D037       | Pentachlorophenol            | 100.0                |
| D038       | Pyridine                     | 5.0                  |
| D010       | Selenium                     | 1.0                  |
| D011       | Silver                       | 5.0                  |
| D039       | Tetrachloroethylene          | 0.7                  |
| D015       | Toxaphene                    | 0.5                  |
| D040       | Trichloroethylene            | 0.5                  |
| D041       | 2,4,5-Trichlorophenol        | 400.0                |
| D042       | 2,4,6-Trichlorophenol        | 2.0                  |
| D017       | 2,4,5-TP (Silvex)            | 1.0                  |
| D043       | Vinyl Chloride               | 0.2                  |

\*If o-, m-, and p-cresols cannot be individually measured, the regulatory level for total cresols is used.

### 3.3 Mixture Rule

The third way a solid waste can become a hazardous waste is if the solid waste is mixed with a hazardous waste (i.e., mixture rule). The three elements of the mixture rule are as follows:

**A. Mixed with a Characteristic Hazardous Waste [Title 40 CFR 261.3(b)(3)]**

A mixture of a **solid waste** and a **characteristic hazardous waste** continues to be managed as a hazardous waste unless the resultant mixture no longer exhibits the characteristic.

The mixing of solid and hazardous waste for the purpose of rendering the hazardous waste non-hazardous meets the definition of “**treatment**”. Treatment of a hazardous waste will generally require a RCRA Subtitle C Permit (i.e., Part B or Final Hazardous Waste Operating Permit).

**B. Mixed with an Ignitable, Corrosive, or Reactive (ICR) Only Listed Waste [40 CFR 261.3(g)(2)(ii)]**

A mixture of a solid waste and an ICR-only listed hazardous waste continues to be managed as a hazardous waste unless the resultant mixture no longer exhibits a characteristic. Listed in Table 3 are the F, K, U, and P listed hazardous wastes, which are listed solely because they exhibit a characteristic of ignitability, corrosivity, or reactivity.

**C. Mixed with a Listed Hazardous Waste – Other Than an ICR Only Listed Waste [Title 40 CFR 261.3(a)(2)(iv) and (b)(2)]**

Under Title 40 CFR 261.3(a)(2)(iv) and (b)(2), a mixture of a **solid waste** and one or more **listed hazardous waste** (including a waste derived from listed hazardous waste) is regulated as a hazardous waste, regardless of the concentration of the listed waste in the mixture, unless the mixture meets an exemption.

**Conclusion: Do not mix hazardous wastes and non-hazardous waste together at the Florida Institute of Technology Main and Applied Research Laboratory Campuses.**

**TABLE 3****ICR-Only Listed Hazardous Wastes**

| <b>Waste Code</b> | <b>Description</b>                              | <b>Hazardous Characteristic</b>   |
|-------------------|---|-----------------------------------|
| F003              | Spent non-halogenated solvents                  | Ignitability (I)                  |
| K044              | Wastewater treatment sludges from explosives    | Reactivity (R)                    |
| K045              | Spent carbon from treating explosive wastewater | Reactivity (R)                    |
| K047              | Pink/red water from TNT operations              | Reactivity (R)                    |
| P009              | Ammonium picrate                                | Reactivity (R)                    |
| P081              | Nitroglycerine                                  | Reactivity (R)                    |
| P112              | Tetranitromethane                               | Reactivity (R)                    |
| U001              | Acetaldehyde                                    | Ignitability (I)                  |
| U002              | Acetone   | Ignitability (I)                  |
| U008              | Acrylic acid                                    | Ignitability (I)                  |
| U020              | Benzenesulfonyl chloride                        | Corrosivity (C)<br>Reactivity (R) |
| U031              | n-Butyl alcohol                                 | Ignitability (I)                  |
| U055              | Cumene  | Ignitability (I)                  |
| U056              | Cyclohexane                                     | Ignitability (I)                  |
| U057              | Cyclohexanone                                   | Ignitability (I)                  |
| U092              | Dimethylamine                                   | Ignitability (I)                  |
| U096              | Cumene hydroperoxide                            | Reactivity (R)                    |
| U110              | Di-n-propylamine                                | Ignitability (I)                  |
| U112              | Ethyl acetate                                   | Ignitability (I)                  |
| U113              | Ethyl acrylate                                  | Ignitability (I)                  |
| U117              | Ethyl ether                                     | Ignitability (I)                  |
| U124              | Furan   | Ignitability (I)                  |
| U125              | Furfural  | Ignitability (I)                  |
| U154              | Methanol  | Ignitability (I)                  |
| U161              | Methyl isobutyl ketone                          | Ignitability (I)                  |
| U186              | 1,3-Pentadiene                                  | Ignitability (I)                  |
| U189              | Sulfur phosphide                                | Reactivity (R)                    |
| U213              | Tetrahydrofuran                                 | Ignitability (I)                  |
| U239              | Xylene  | Ignitability (I)                  |

### 3.4 Derived From Rule

The "derived from" rule states that any solid waste generated from the treatment, storage, or disposal of a hazardous waste, including any sludge, spill residue, ash, emission control dust, or leachate is a hazardous waste unless:

- It is specifically excluded by a separate regulatory action and does not exhibit a hazardous waste characteristic [see Title 40 CFR 261.3 (c)(2)(i)];
- The solid waste is not a listed waste nor derived from a listed waste and does not exhibit any of the four characteristics [see Title 40 CFR 261.3(d)(1)]; or
- The solid waste is generated from treating, storing, or disposing of a hazardous listed in subpart D of this part solely because it exhibits one or more characteristics of ignitability as defined under §261.21, corrosivity as defined under §261.22, or reactivity as defined under §261.23 is not a hazardous waste, if the waste no longer exhibits any of the four characteristics [see Title 40 CFR 261.3(g)(2)(ii)]



**APPENDIX C**

**EPA DOCKET NUMBER 9453.1989 (08)**

Faxback 11452

9453.1989(08)

OFFICE OF SOLID WASTE AND EMERGENCY RESPONSE AUG 2 1989

T.R. Kirk, Environmental Scientist Fehr-Graham & Associates  
660 W. Stephenson St. Freeport, Illinois 61032

Dear Mr. Kirk:

This is in response to your letter of July 6, 1989, requesting a clarification of 40 CFR Section 262.34(c), the "satellite accumulation" provision. Section 262.34(c)(1) states that, provided certain requirements are met, "a generator may accumulate as much as 55 gallons of hazardous waste or one quart of acutely hazardous waste listed in Section 261.33(e) in containers at or near any point of generation where wastes initially accumulate, which is under the control of the operator of the process generating the waste ..." Your question concerns whether the 55 gallon limit on hazardous waste applies to the total quantity of hazardous waste accumulated at the satellite location, or it is applies to each waste stream accumulated at the satellite location.

The 55 gallon limit applies to the total of all the non-acutely hazardous waste accumulated at a satellite accumulation area. In the enclosed Federal Register notice of December 20, 1984 (49 FR 49568) EPA explicitly states that the 55 gallon limit on non-acutely hazardous waste applies to each satellite accumulation area.

Although the total amount of hazardous waste that may be accumulated at any one satellite area is limited to 55 gallons, EPA intentionally did not limit the total number of satellite areas at a generator's facility nor specify the size of the containers to be used for accumulation. A case-by-case analysis is necessary to determine whether a generator is accumulating more than 55 gallons of waste at one satellite area, or whether a generator has more than one satellite area. An example of a situation that would not be in compliance with the regulations is given in the enclosed Federal Register notice on page 49569, column 3. The appropriate State or EPA Regional office would make these case-by-case determinations.

If you have any further questions regarding this letter, you may contact Emily Roth of my staff at (202) 382-4777.

Sincerely,

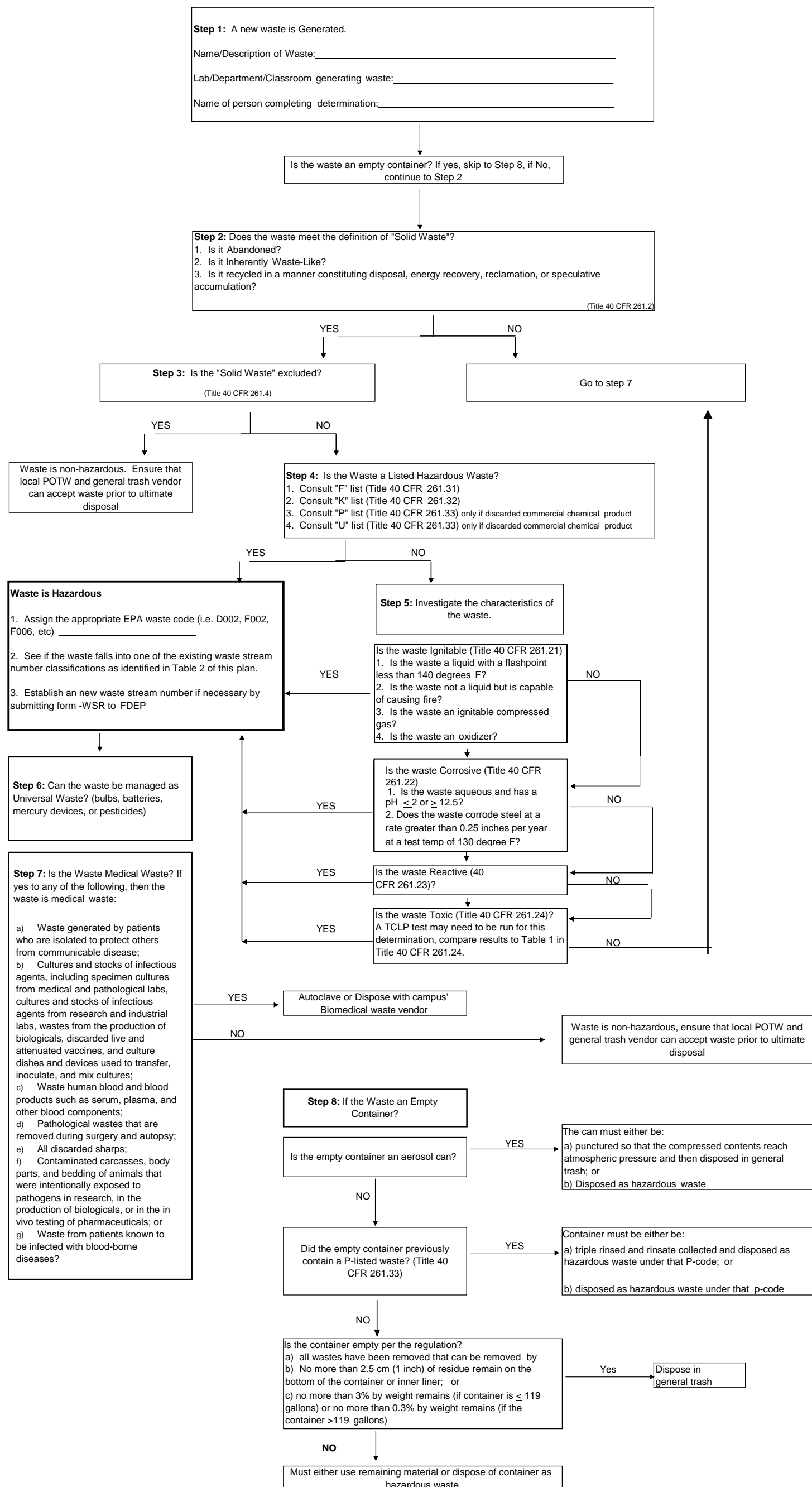
Original Document signed

Syliva K. Lowrance Director  
Office of Solid Waste Enclosure

**APPENDIX D**  
**WASTE DETERMINATION FLOWCHART**

**Jacksonville University  
Waste Determination and Analysis Flow Chart**

Instructions: Complete form by entering information and circling the appropriate response. Refer to the back of this form for additional instructions and guidance.



**Jacksonville University**  
**Waste Determination and Analysis Flow Chart**

**Additional Instructions and Guidance**

**Step 1:** Enter the name or description of the waste generated.  
Enter the name of the lab/ department/ or the classroom generating the waste.  
Enter the name of the person completing this form.

**Step 2:** Does the waste meet the definition of "solid waste?" (Refer to Title 40 CFR 261.2)

- The term "**solid waste**" does not define the physical state of waste (i.e. solid, liquid, gas). A solid waste can be a solid, liquid or gas and is defined as any **discarded material** that is not specifically excluded.
- Discarded material** is any material that is either **abandoned** (i.e. thrown away or disposed), **inherently waste like**, military munitions, or recycled in a manner constituting disposal, burning for energy recovery, reclaimed or over accumulated
- Abandoned** is defined as material that is thrown away, disposed, burned or incinerated, or accumulated, stored or treated (but not recycled) before or in lieu of being disposed of, burned or incinerated. Abandoned material is destined for disposal.
- Inherently waste like** refers to materials that pose significant treats to human health and the environment if mismanaged. These wastes are too hazardous to be mismanaged. These materials include dioxin waste with the following waste codes F020, F021, F022, F023, F026, and F028 (waste codes defined in Title 40 CFR 261.31) and to halogen acid furnace feedstock.
- Recycled** materials that are solid waste are indicated in the table below by an asterisk "\*\*\*".

|  | Use Constituting Disposal [§261.2(c)(1)] | Energy Recovery/Fuel [§261.2(c)(2)] | Reclamation [§261.2(c)(3)] | Speculative Accumulation [§261.2(c)(4)] |
|--|--|-------------------------------------|----------------------------|---|
| Spent Materials  | * <sup>1</sup>                           | *                                   | *                          | *                                       |
| Sludge (listed in 40 CFR Part 261.31 or 261.32)                      | *  | *                                   | *                          | *                                       |
| Sludge exhibiting a characteristic of hazardous waste                | *  | *                                   | --- <sup>4</sup>           | *                                       |
| By-products (listed in 40 CFR Part 261.31 or 261.32)                 | *  | *                                   | *                          | *                                       |
| By-products exhibiting a characteristic of hazardous waste           | *  | *                                   | ---                        | *                                       |
| Commercial chemical products <sup>2,3</sup> listed in 40 CFR 261.33  | *  | *                                   | ---                        | ---                                     |
| Scrap metal other than excluded scrap metal (see 40 CFR 261.1(c)(9)) | *  | *                                   | *                          | *                                       |

Notes:  
<sup>1</sup>Solid wastes are noted with an "\*\*\*".  
<sup>2</sup>Commercial chemical products are not solid wastes if land disposal is their ordinary manner of use.  
<sup>3</sup>Commercial chemical products are not solid wastes if they are themselves fuels.  
<sup>4</sup>Materials noted with a "---" are not solid wastes.

**Step 3:** Is the solid waste excluded? (Refer to Title 40 CFR 261.4)

As with any state or federal environmental regulation, there are always exclusions. The list of exclusions is quite long so refer to the regulations for a complete listing. The list includes the following exemptions that may be common on your campus: domestic sewage, scrap metals being recycled, household wastes (including dorm wastes), shredded circuit boards being recycled, and agricultural waste from growing and harvesting of agricultural crops and the raising of animals including manure, so long as these agricultural wastes are returned to the soils as fertilizers.

Note: If the waste is not a solid waste, then it can not be a hazardous waste.

**Step 4:** Is the waste a listed as hazardous waste?

A waste may be hazardous if it is "listed", mixed with a "listed" waste or derived from the treatment, storage or disposal of a "listed waste". The EPA has established four lists (P, U, F, and K lists)

**P-List:** discarded commercial chemical products, off specifications species, containers, and spill residues, which are **acutely** toxic. This list is available in Title 40 CFR 261.33 (e).

**U-List:** discarded commercial chemical products, off specifications species, containers, and spill residues, which are too toxic or meet other hazardous characteristics. This list is available in Title 40 CFR 261.33 (f).

Note: Unused laboratory chemicals that are no longer needed or have past their expiration date are typically classified as "P" or "U" listed hazardous wastes.

**F-List:** wastes that are generated from common industrial and manufacturing process which are not unique to a specific industry. Colleges may still trigger these listed wastes by the use of solvents in laboratories and generation of dioxine wastes. This list is available in Title 40 CFR 261.31 (a).

**K-List:** wastes that are generated from specific industrial sectors such as the production or organic chemicals. This list is available in Title 40 CFR 261.32 (a).

**Step 5:** What are the characteristics of the waste? Enter the information as prompted.

What is the flashpoint of the waste? \_\_\_\_\_ °F hazardous because of ignitability if <140°F (D001) Is the waste not a liquid but capable of causing fire? An example would be an

Absorbent material saturated in an ignitable liquid. \_\_\_\_\_ If yes, then hazardous due to ignitability (D001)

Is the waste an ignitable compressed gas? \_\_\_\_\_ If yes, then hazardous due to ignitability (D001)

Is the waste an oxidizer? \_\_\_\_\_ If yes, then hazardous due to ignitability (D001)

What is the pH of the waste? \_\_\_\_\_ hazardous due to corrosivity if 2 ≤ pH ≤ 12.5 (D002)

Is the waste normally unstable and readily undergoes violent change without detonating? \_\_\_\_\_ If yes, then hazardous due to reactivity (D003)

Does the waste react violently with water? \_\_\_\_\_ If yes, then hazardous due to reactivity (D003)

Does the waste form potentially explosive mixtures with water? \_\_\_\_\_ If yes, then hazardous due to reactivity (D003)

When mixed with water, it generates toxic gases, vapors or fumes in quantity sufficient to present a danger to human health and the environment? \_\_\_\_\_ If yes, then hazardous due to reactivity (D003)

Is the waste a cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment? \_\_\_\_\_ If yes, then hazardous due to reactivity (D003)

Is the waste capable of detonation or explosive reaction if it is subject to a strong initiating source or if heated under confinement? \_\_\_\_\_ If yes, then hazardous due to reactivity (D003)

Is the waste readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure? \_\_\_\_\_ If yes, then hazardous due to reactivity (D003)

Is the waste a forbidden explosive as defined in 49 CFR 173.51, or a Class A explosive as defined 49 CFR 173.53 or a Class B explosive as defined in 49 CFR 173.88? \_\_\_\_\_ If yes, then hazardous due to reactivity (D003)

Is the waste toxic? Refer to Table 1 in 40 CFR 261.24(b) for list and regulatory level. \_\_\_\_\_ If yes, then hazardous due to toxicity (D004-D043 as listed in Table 1 of the regulation)

**Step 6:** Can the waste be managed as Universal Waste?

The following wastes can be managed as Universal Waste in the state of Florida:  
Waste or recalled pesticides, hazardous waste batteries, mercury containing devices, hazardous waste lamps, waste pharmaceuticals