	Texas A&M University–Central Texas	
	Solid and Hazardous Waste Hazardous Waste Management Program	Program: Environmental Management
		Doc. No.: ENVM-24-L2-S6-CH01-001
	Level 2	Rev No: 000
		Date: 004/01/2025
Office: Facilities Services		

Hazardous Waste Management Program



**Texas A&M University–Central Texas
Office of Facilities Services**

April 1, 2025



Texas A&M University–Central Texas		
Solid and Hazardous Waste Hazardous Waste Management Program	Program:	Environmental Management
	Doc. No.:	ENVM-24-L2-S6-CH01-001
Level 2	Rev No:	002
	Date:	04/01/2025
	Office:	Facilities Services

Texas A&M University–Central Texas

Chemical Hygiene Plan

Submitted by: Director, Facilities Services
Approval Document

Original signed and on file

Laboratory Coordinator Date _____

Original signed and on file

Department Chair, College of Arts & Sciences Date _____

Original signed and on file

Director, Facilities Services Date _____

Original signed and on file

Vice President for Finance and Administration Date _____

Original signed and on file

Provost / Vice President for Academic & Student Affairs Date _____

Original signed and on file

President Date _____




Texas A&M University–Central Texas

Solid and Hazardous Waste
Hazardous Waste Management Program

Level 2

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001	04/19/2016	Added appendixes	Shawn Kelley
002	04/05/2022	Updated	Shawn Kelley
003	04/01/2025	Updated	Shawn Kelley

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Emergency Contact Information

Emergencies

A&M–Central Texas University Police Department

Dial: (254) 501-5805 or 5805 from any campus phone

If immediate medical attention is required dial 911 from any campus phone

Non-emergencies

Director, Facilities Services – Shawn Kelley

Dial: (254) 519-5771 or 5771 from any campus phone

Lab Coordinator – Gunisha Sagar, PhD

Dial: (254) 501-5843 or 5843 from any campus phone



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000		03/25/2016	Original	Gordon Evans
001		04/19/2016	Added appendixes	Shawn Kelley
002		04/01/2025	Updated plan	Shawn Kelley



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Foreword: Hazardous Waste Made Simple

Our Approach to Waste Generation and Management

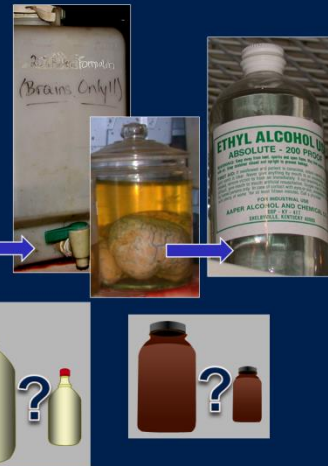
Avoid and/or Minimize Waste

The first priority should be to avoid generating waste, but if unavoidable consider how to reduce the amount of waste and how to reduce the hazards. Follow the guidance shown here.

When selecting and purchasing a chemical or chemical product, first be sure it is needed. This may include checking with others to see if it is already in stock and available on campus. Second, consider the safety of the product when used, as well as the cost of managing and disposing of process wastes or any unused chemical (e.g., Is it an EPA acute hazardous waste? Is it a high hazard chemical? Is it a carcinogen?). Finally, buy only what is needed and will be fully or mostly expended during your work. Unlike buying “economy size” laundry detergent for a lower unit price, excess chemicals that must be disposed of carries the additional cost of managing the inventory, special handling, and ultimate disposal at a hazardous waste treatment or disposal facility.

Before You Buy a Chemical or Product, Ask:

1. Do I need it?
2. Is there a safer product?
3. Will I use it ALL?



Think Before You Toss


In domestic households, most spent or unused items or chemical products can be simply, legally tossed in the trash. As a public entity, the problem of waste management is not so simple. A greater variety of unwanted materials is generated and many of these have legal restrictions governing their treatment or disposal. Once a chemical (or any product for that matter) is selected, purchased, and either used or leftover as surplus, the three questions shown in the accompanying inset box should be asked.

1. In the hazardous waste world, many materials are not waste (i.e., “discarded” in regulatory speak) until deemed so. If it is of use and has value, think before you toss.
2. Consider legal limitations on where and how a material may be discarded or sent for treatment and disposal. This hazardous waste management program (HWMP) covers many of these legal requirements or directs the user to applicable guidance.

In Waste Matters, Ask Three Questions (Before you simply toss it in the trash)

- Is it waste?
- Is it legal?
- Is it wise?

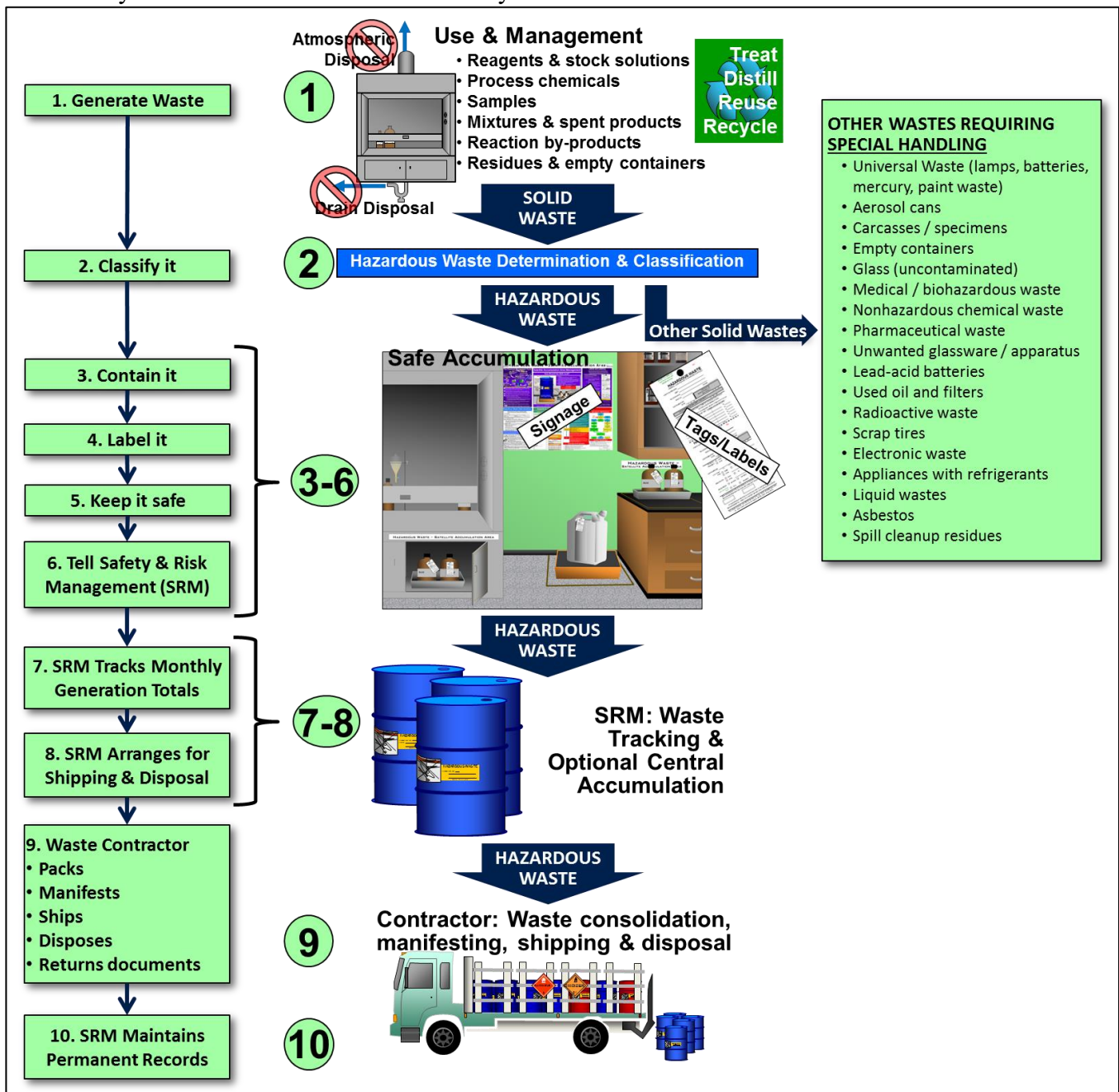


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- Finally, even if a material is deemed waste and can be legally disposed, consider whether it is wise to dispose of it. Might it be reused, recovered, or recycled?

Simplified Hazardous Waste Workflow

Setting aside the complexities covered in this HWMP, the hazardous waste management process may be summarized fairly simply. If you generate waste, Steps 1-6 apply to you. Waste classification is the most complex step and faculty, staff, and students are not expected to know most of the finer details. Help with those are available from the department of Facilities Services. After Step 6, the rest is handled by Facilities Services or the university’s waste contractors. Finance & Administration will





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cover hazardous waste disposal costs.

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Section 1. Introduction & Scope

For an institution of higher education, solid and hazardous waste management is one of the most complex technical, regulatory, and administrative challenges in the environmental arena. There are many topics and subtopics that alone require special attention. However, given the relative newness and modest size of Texas A&M University–Central Texas (A&M–Central Texas), this waste management plan condenses key program requirements and good management practices into a single document.

What are some examples of hazardous waste?

Hazardous waste comes in many forms, including liquids, solids, sludges and gases. At the university, the majority of hazardous waste is generated through academic laboratory experiments and facility operations. However, no workplace is immune from generating hazardous waste. Even light bulbs, rechargeable batteries, cell phones and computers are hazardous waste when they are no longer usable and are of no further value. Examples of common types of hazardous waste include:

- | | | |
|-----------------------------------|--------------------------------------|--|
| ➤ Spent laboratory chemicals | ➤ Leftover samples & stock solutions | ➤ Wastes containing solvents, acids, bases, or other chemicals |
| ➤ Used oil | ➤ Aerosol products | ➤ Unwanted, off-spec laboratory chemicals |
| ➤ Spent fluorescent & other lamps | ➤ Electronics wastes (E-waste) | ➤ Leftover oil-based or alkyd paint and used thinners |
| ➤ Mercury-containing equipment | ➤ Rechargeable batteries | ➤ Unused or off-specification pesticides |
| ➤ Used/expired UV lamps and | ➤ hollow cathode lamps | ➤ Contaminated metals and Inorganic wastes. |

Objectives

The objectives of the procedures and protocols in this HWMP are to meet regulatory requirements and to protect faculty, staff, students, and the environment from risks associated with hazardous waste generation and management. This program summarizes and references applicable federal and state hazardous waste regulations and defines the necessary procedures to work safely and in compliance.

Scope

This HWMP applies to all A&M–Central Texas facilities. It pertains to hazardous (chemical) waste but does not include procedures for the management of radioactive, medical (biohazardous) or other special wastes as defined by the Texas Commission on Environmental Quality (TCEQ). The department of Facilities Services administers the Hazardous Waste Management Program. Compliance with the program is mandatory and requires full cooperation by all campus entities.

The Texas A&M University System has instituted a comprehensive environmental management system (EMS) to ensure compliance, achieve continuing improvement, prevent pollution, and encourage good stewardship of the environment by the A&M System communities. Part of that EMS is an outline for a growing *environmental manual*. Section 6 of the A&M System Environmental Manual, ***Solid and Hazardous Waste (Resource Conservation and Recovery Act [RCRA])***, covers both hazardous and other solid wastes governed by the Texas Commission on Environmental Quality (TCEQ), as shown in Table 1. The table also provides a cross-reference to the chapters of this HWMP. For the present, A&M–Central Texas can operate using a streamlined hazardous waste management program, but as the institution grows, it can be revised and segmented as needed to reflect the broadening solid waste management requirements of this dynamic, changing campus.



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Table 1. The A&M System Waste Management Program and Cross-References to This HWMP

Section 6	Solid and Hazardous Waste (Resource Conservation and Recovery Act)	A&M-Central Texas HWMP Contents
Chapter 1	Waste Program Administration	Chap. 1 Introduction & Scope
Chapter 2	Waste Recognition / Hazardous Waste Determination	Chap. 2 Waste Classification & the Hazardous Waste Determination
Chapter 3	On-Going Determination of Hazardous Waste Generator Status	Chap. 3 Generator Status
Chapter 4	Hazardous Waste Registration	N/A
Chapter 5	Pollution Prevention (P2) Plan and Waste Avoidance	Chap. 15 Source Reduction and Waste Minimization
Chapter 6	Municipal Solid Waste (Trash)	Chap. 4 Municipal Solid Waste
Chapter 7	Disposal Prohibitions	Chap. 5 Disposal Prohibitions
Chapter 8	Waste Treatment	Chap. 6 Waste Treatment
Chapter 9	Hazardous Waste Management at the Point of Generation (Satellite Accumulation)	Chap. 7 Satellite Accumulation
Chapter 10	Hazardous Waste Intra-Campus Transportation	Chap. 8 Self-Transportation of Waste
Chapter 11	Hazardous Waste Management at Central Accumulation Areas	(Chap. 9 RESERVED)
Chapter 12	Hazardous Waste Manifests	Chap. 10 Hazardous Waste Shipping and Disposal
Chapter 13	Pre-Transport Requirements (Packaging, Labeling, Marking, Placarding)	
Chapter 14	Contractors: Waste Transportation, Disposal, Recycling, and Emergency Response	
Chapter 15	Training and Required Certifications	Chap. 11 Training
Chapter 16	Required Monitoring, Records and Reporting	Chap. 12 Records
Chapter 17	Preparedness and Prevention	N/A
Chapter 18	Contingency Plan and Emergency Procedures (SPCCP)	Chap. 13 Spill Cleanup
Chapter 19	Release Reporting	Chap. 14 Release Reporting
Chapter 20	Universal Waste (Batteries, Pesticides, Mercury-Containing Equipment, Lamps, and Paint and Paint-related Waste)	See Universal Waste Management Program
Chapter 21	Special Wastes: Aerosol Cans	See Aerosol Can protocol
Chapter 22	Special Wastes: Animal Carcasses and Specimens	N/A
Chapter 23	Special Wastes: Construction & Demolition Debris	N/A
Chapter 24	Special Wastes: Empty Containers	N/A
Chapter 25	Special Wastes: Ethidium Bromide	N/A
Chapter 26	Special Wastes: Food Waste	N/A
Chapter 27	Special Wastes: Formalin	N/A
Chapter 28	Special Wastes: Grease and Grit Trap Wastes	N/A
Chapter 29	Special Wastes: Laboratory Glass (Uncontaminated)	See Broken Glassware Guide
Chapter 30	Special Wastes: Light Ballasts and Capacitors (PCB-Free)	N/A
Chapter 31	Special Wastes: Medical and Biohazard Waste	See Medical Waste Management Program
Chapter 32	Special Wastes: Nonhazardous Chemical Waste	N/A
Chapter 33	Special Wastes: Pharmaceuticals, Controlled Substances, Precursor Chemicals and Apparatus	See Precursor Chemicals and Apparatus Program
Chapter 34	Special Wastes: Sewage Sludge	N/A
Chapter 35	Special Wastes: Treated Wood	N/A
Chapter 36	Special Wastes: Oil Cleanup Debris	N/A
Chapter 37	Special Wastes: Solvent-Contaminated Wipes	See Solvent-Contaminated Wipes Guide

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Section 2. Waste Classification & the Hazardous Waste Determination

Persons on a property owned or operated by any member of The Texas A&M University System who generate waste of any type are responsible for understanding the general principles of waste classification and the “dos and don’ts” of waste handling and disposal. All waste, especially chemical wastes, must “run the gauntlet” of the hazardous waste determination and classification process. Deans, Department chairs and supervisors must ensure that their employees and student(s) (where needed) are trained in identifying and classifying wastes that they generate and what may be done with each class of waste.

Hazardous Waste Determination

What is a hazardous waste? According to the EPA, a *hazardous waste* is simply defined “as a waste with properties that make it dangerous or capable of having a harmful effect on human health or the environment.” Unfortunately, in order to develop a regulatory framework capable of ensuring adequate protection, this simple narrative definition is not enough. Given the vast array of known chemicals of widely varied properties, the complexity of the wastes that contain those chemicals, the breadth of activities that generate wastes, and the variety of practices used to accumulate, store, treat and dispose of wastes, the EPA had to develop a precise and detailed way to characterize a hazardous waste. As a result, the EPA's definition, as found in the most recent print version of Title 40 of the Code of Federal Regulations Part 261 (abbreviated 40 CFR §261), takes up 157 pages of two-column fine print.

Can this complex definition be made simple? You need not become an expert in federal and state regulations. The process provided in this document, while not exactly simple, helps by providing straightforward procedures for performing the first, required step whenever you generate any type of waste in your workplace - the *Hazardous Waste Determination*. Table 2 is a step-by-step guide, providing enough awareness to meet the basic requirements for most faculty, staff and students.

Table 2. Hazardous Waste Determination and Waste Classification Process

Who determines if a material is a "hazardous waste?" Faculty & Staff with help from Facilities Services

1. Is it a waste?


Even if you no longer desire to keep a material, it may **NOT** be a waste if it is still usable and has value. If you have usable chemicals or commercial products that you no longer want, such as:

- Reagents
- Stock solutions
- Compressed gases (lecture bottles)
- Products in aerosol cans
- Paints and paint related products

Contact the department of Facilities Services. They will attempt to find a user for the product.

In general, an unwanted or unneeded material is considered a waste if:

- It has been used or has gone through a process causing it to be contaminated / impure and is no longer needed,
- It is an unused commercial chemical product that is no longer wanted or has exceeded its expiration

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date, or

- It is a cleanup material from a chemical spill.

2. Is it a hazardous waste?

For a material to be a hazardous waste, it must first be what is termed a **solid waste**. Solid is a regulatory term that does not refer to a physical state of matter; thus, many solid wastes are actually liquids, sludges or gases. The regulations define what exactly is a solid waste and what is excluded from the definition. A material that meets the definition of a solid waste must then be assessed by the person generating the waste to determine if it is also a hazardous waste (*Note that the EPA also provides exemptions or reduced compliance requirements for certain wastes in order to promote recycling and to provide practical alternatives for managing many common, low-risk hazardous wastes*).

There are Two Ways a Waste May be Hazardous – waste is either (1) **listed** or (2) **characteristic**. Universal waste is a special subset.

If a given solid waste is one of an extensive list of wastes that EPA has categorically determined to be hazardous to human health or the environment if mismanaged, then it is automatically a listed hazardous waste. To make this determination, you basically compare your solid waste and its constituents to the EPA lists and make a yes-or-no determination. Whether or not a solid waste is listed, it may also be a characteristic hazardous waste.

Listed – Common wastes, hazardous by definition. Four lists include > 400 chemicals or mixtures:

F - waste from non-specific sources (e.g., spent halogenated & non-halogenated solvents such as methylene chloride & acetone)

K - waste from specific sources, such as wood preserving waste or pharmacy wastes (*rare at colleges/universities*)

P - **acutely hazardous** (i.e., toxic or reactive in small amounts) **unused or off-specification** (e.g., shelf-life exceeded) chemicals such as many poisons, pesticides, arsenicals and cyanides

U - **unused or off-specification** (e.g., shelf-life exceeded) chemicals that are **not acutely hazardous** (e.g., acetone, formaldehyde, alcohols and many solvents)

Characteristic – if a waste is not listed, it may still be a hazardous waste because it exhibits one or more hazardous properties. A **characteristic hazardous waste** exhibits one or more properties (characteristics), such as ignitability or toxicity that make it a potential hazard. There are **two methods** that can be used to determine if a solid waste is a characteristic hazardous waste. The first method is **measurement** using available standardized test methods (laboratory analysis), which is an expensive, time consuming and yet sometimes necessary approach. The second method applies the **generator's knowledge** of the waste and the process by which it was generated. This method is far less expensive than a laboratory analysis; however, the generator must be able to document the chemicals used in the process and maintain supporting documents, such as safety data sheets (SDSs), process controls or written procedures. If the Hazardous Waste Determination is made by using generator's knowledge, supporting documentation must accompany the Hazardous Waste Determination Form and Worksheet (*see Appendix A, Hazardous Waste Determination Form and Appendix B, Hazardous Waste Determination Worksheet*).

Ignitability (40 CFR §261.21) – liquids with flash point <140°F (e.g., most non-halogenated solvents; some paint wastes, solids that can spontaneously ignite, ignitable compressed gases, oxidizers) (EPA Hazardous Waste Number D001)

Corrosivity (40 CFR §261.22) – aqueous liquids with pH ≤ 2 or pH ≥ 12.5 or liquids that rapidly corrode steel (EPA Hazardous Waste Number **D002**)

Reactivity (40 CFR §261.23) – unstable chemicals; chemicals that, when mixed with water, react violently, form explosive mixtures, or generate toxic gases, vapors or fumes; cyanides or sulfides that can generate toxic gases, vapors or fumes at normal pHs (between 2 and 12.5); are capable of detonation or explosion. Examples: some bleaches and peroxides (EPA Hazardous Waste Number **D003**)

Toxicity (40 CFR §261.24) – Extract from EPA's test method ("TCLP") ≥ threshold value(s) for one or more of 40 chemicals, mostly toxic metals and common organic chemicals. The threshold values represent chemical leachability in a landfill environment. (EPA Hazardous Waste Numbers D004 - D043)



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- As a general rule, the Office of Facilities Services will handle the disposal of hazardous waste generated at A&M–Central Texas; however, all costs associated with the determination of “Unknown” chemicals, and disposal may be charged back to the department submitting the unidentified chemical.
- The Laboratory Coordinator will maintain a list of wastes commonly generated in each locale and accumulated in satellite accumulation areas (SAAs) along with their respective EPA hazardous waste codes. If you do not know which codes apply, ask for assistance from the department of Facilities Services.
- For wastes not previously generated at a locale, use the department of Facilities Services "Hazardous Waste Determination" worksheet to determine hazard(s) and EPA waste codes, if applicable, or ask SRM to make the determination for you.

3. Is it a special subclass of "hazardous waste"?

Universal Waste – 5 types of wastes are classed as “universal” (i.e., common). Universal waste (**UW**) is hazardous, but the generator can manage it separately and with fewer regulatory restrictions (*see Appendix C, Universal Waste Management Program*).

If you generate one of the following "universal wastes," place each type into its own container, labeled "Universal Waste - ***," and store the waste container (keep closed when not in use) in a location apart from the Satellite Accumulations Area (SAA). Contact SRM for pickup.**

EPA universal wastes - EPA has designated four classes of universal wastes, as follow:

Batteries - Includes **most rechargeable batteries** (i.e., Ni-Cd, Li-ion, and Small Sealed Lead (Pb) batteries commonly found in cordless tools, cellular phones, laptops, cameras, and 2-way radios). Large Pb-acid batteries (e.g., auto) **must be recycled** separately and are not UW. Common dry-cell batteries (i.e., AA, AAA, C & D) are not hazardous and may be thrown in the trash.

Pesticides - This is a very limited category and should seldom be a concern. It primarily applies to recalled, banned, damaged or obsolete pesticides subject to a pesticide collection program.

Mercury-containing Equipment - Other than fluorescent lighting, A&M–Central Texas is a mercury-free campus, so little to none of this waste should ever occur. Spilled mercury is a health hazard, so try to avoid all uses of mercury. Find Hg-free alternatives. If you have Hg to be disposed, contact the department of Facilities Services to arrange collection and recycling. If you spill mercury, immediately contact the department of Facilities Services for assistance.

Lamps - **Most lamps** (e.g., fluorescent, halogen, sodium, metal halide, mercury vapor, incandescent) are hazardous because of toxic elements, commonly mercury or lead. **NEVER THROW A LAMP IN THE TRASH. DO NOT BREAK.**


Paint & paint-related waste (PPW) - In Texas, ignitable oil-based paint, spent solvents and contaminated supplies are universal wastes. (*NOTE: Latex paints are not ignitable and are thus non-hazardous, but they must be dried before disposing in the regular trash.*)

4. If not a "hazardous waste," does it require special management?

Waste Prohibited in the Regular Trash - University wastes are classed as **municipal solid wastes** (i.e., *nonindustrial*). Nevertheless, certain nonhazardous solid wastes are prohibited from municipal landfills:

- Lead-acid batteries (car type),
- Used oil and oil filters,
- Scrap tires,
- Appliances with CFCs (refrigerants),
- PCBs (e.g., pre-1979 lighting ballasts, there are none on the A&M–Central Texas campus),
- Radioactive material,
- Liquid wastes other than household-sized containers, and any other waste that may threaten water quality, create a nuisance, or endanger humans or the environment (e.g., ethidium bromide waste and spent formalin).

Special Wastes –Certain "Special Wastes" having their own disposal requirements include **medical and biohazardous wastes, animal carcasses, mixed radioactive wastes, scrap tires, and asbestos materials**. Contact the Department of Facilities Services for proper handling and disposal.

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Hazardous Waste Determination Form/Worksheet

While it might seem sensible to document hazardous waste determinations, current regulations ***do not*** require the smallest waste generators, called ***Conditionally-Exempt Small Quantity Generators (CESQG)***, to generate or retain documentation. Nevertheless, chemical waste that is known or suspected to be hazardous, especially waste that is generated repeatedly or in relatively large amounts, should be documented using the A&M–Central Texas Hazardous Waste Determination form and spreadsheet (*see Appendix A, Hazardous Waste Determination Form and Appendix B, Hazardous Waste Determination Worksheet*). This Excel tool makes the process of making the determination and documenting it relatively straightforward and consistent. A waste generator may attempt to self-determine waste or obtain assistance from the Department of Facilities Services.



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Section 3. Generator Status

Regulatory requirements for management of hazardous waste vary depending on the rate at which hazardous waste is generated. As common sense would dictate, the largest generators have the most requirements, moderate generators have a lessened set of requirements, and the smallest generators have very few duties. Table 3 shows the three generator categories and the compliance requirements for each. Note that generator category is, by regulation, to be determined ***monthly***.

Table 3. Comparison of EPA hazardous waste generator categories and associated compliance requirements

(Yellow highlighted cells identify minimum responsibilities for CESQGs; green highlights indicate SQG practices adopted by A&M–Central Texas as good management practices [GMPs])

Requirement	Generator Category		
	Conditionally Exempt Small Quantity Generators (CESQG)*	Small Quantity Generators (SQG)	Large Quantity Generators (LQG)
Hazardous Waste Determination For each solid waste generated, determine if it is a hazardous waste.	Required §262.11	Required §262.11	Required §262.11
Quantity Limits The amount of hazardous waste generated <i>per month</i> determines how a generator is categorized and what regulations must be complied with.	≤100 kg/month ≤1 kg/month of acute hazardous waste ≤100 kg/month of acute spill residue or soil §§261.5(a) and (e)	>100 <1,000 kg/month §262.34(d)	≥1,000 kg/month >1 kg/month of acute hazardous waste >100 kg/month of acute spill residue or soil §262.34(a)
EPA ID Number Acquire a unique EPA identification number that identifies generators by site.	Not required	Required §262.12	Required §262.12
On-Site Accumulation Quantity Determine amount of hazardous waste generators are allowed to "accumulate" on site without a permit.	≤1,000 kg ≤1 kg acute ≤100 kg of acute spill residue or soil §§261.5(f)(2) and (g)(2)	≤6,000 kg §262.34(d)(1)	No limit
Accumulation Time Limits Determine amount of time hazardous waste is allowed to accumulate on site.	None	≤180 days or ≤270 days (if transporting greater than 200 miles) §§262.34(d)(2) and (3)	≤90 days §262.34(b)
Accumulation Requirements Manage hazardous waste in compliance with certain technical standards.	None	Basic requirements with technical standards for tanks or containers §§262.34(d)(2) and (3)	Full compliance for management of tanks, containers, drip pads, or containment buildings §262.34(a)
Personnel Training Ensure appropriate personnel complete classroom or on-the-job training to become familiar with proper hazardous waste management and emergency procedures for the wastes handled at the facility.	Not required	Basic training required §262.34(d)(5)(iii)	Required §265.16 from §262.34(a)(4)
Contingency Plan and Emergency Procedures Develop procedures to follow during an unplanned major event.	Not required	Basic plan required §262.34(d)(5)(i-iv)	Full plan required Part 265 subpart D from §262.34(a)(4)




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Requirement	Generator Category		
	Conditionally Exempt Small Quantity Generators (CESQG)*	Small Quantity Generators (SQG)	Large Quantity Generators (LQG)
Preparedness and Prevention Develop procedures to follow in the event of an emergency.	Not required	Required Part 265 subpart C from §262.34(d)(4) <i>(Applies to “facilities” only [i.e., waste management units, such as CAAs], not the entire generator site.)</i>	Full plan required Part 265 subpart C from §262.34(a)(4)
Air Emissions Control hazardous air emissions from tanks and containers	Not required	Not required	Required Part 265 subparts AA, BB and CC from §262.34(a)(1)(i)
Land Disposal Restrictions Meet standards for placing on the land and associated requirements for certifications, notifications, and waste analysis plans	Not required	Required Part 268 from §262.34(d)(4)	Required Part 268 from §262.34(a)(4)
Manifest Tracking hazardous waste shipments using the multiple-copy manifest (required by DOT and EPA)	Not required	Required Part 262 subpart B (Note: Done when an A&M System member employs a waste contractor to pack, ship, and treat or dispose of hazardous waste)	Required Part 262 subpart B
Waste Minimization Certify steps taken to reduce or eliminate the generation of hazardous waste	None	Good faith effort required §262.27	Program in place required §262.27
Pre-Transport Requirements Package and label hazardous waste for shipment off site to a RCRA facility for treatment, storage, or disposal	Yes (if required by DOT)	Required §§262.30-262.33	Required §§262.30-262.33
Biennial Report Report data from off-site shipments of waste during the previous calendar year	Not required	Not required	Required §262.41
Exception and Additional Reporting Report if any required copies of signed manifests are not received back Provide information on quantities and disposition of wastes upon request	Not required	Required §§262.42(b) and 262.43	Required §§262.42 and 262.43
Recordkeeping Maintain records of manifests , biennial reports , exception reports and waste testing	Not required	Required §262.40(a), (c), and (d)	Required §262.40
Facility Type Send off-site shipments to appropriate facilities for management	Facilities noted in §§261.5(f)(3) and (g)(3)	RCRA permitted/interim status facility Parts 264/265, 266/267 and 270 (Note: Done when an A&M System member employs a waste contractor to pack, ship, and treat or dispose of hazardous waste)	RCRA permitted/interim status facility Parts 264/265, 266/267 and 270
Closure Close equipment, structures, soils and units by meeting specified performance standards and disposal and decontamination requirements	Not required	Required - tanks only §265.201(f)	Required •General §§265.111(a) and 265.114 from §262.34(a)(1)(iv)

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Requirement	Generator Category		
	Conditionally Exempt Small Quantity Generators (CESQG)*	Small Quantity Generators (SQG)	Large Quantity Generators (LQG)
			<ul style="list-style-type: none"> •Unit specific Part 265, subparts I, J, W, and DD

* **Note:** Because even the smallest businesses, governmental entities, and public institutions generate common, potentially hazardous wastes (e.g., lamps, batteries, electronic waste, aerosol cans, oil-based paints and consumer products), ***almost every “person” (or entity) in the U.S. is at least a CESQG, if not more.***


A&M–Central Texas is and should remain for quite some time a CESQG, allowing the least restrictive and most flexible setting for managing hazardous wastes. Nevertheless, as a good management practice for the safety of the campus community, this HWMP has adopted several requirements and procedures that go beyond the minimum regulatory requirements, as highlighted in green in Table 3. In essence, this HWMP treats the campus *as if* it were a small quantity generator.

CAUTION WITH P-LISTED CHEMICALS (40 CFR §261.33)

Because they are highly hazardous, ***acute hazardous wastes*** (designated by the EPA waste code prefix “P”) can be problematic. If monthly generation exceeds a mere 1 kg (2.2 lb) or total on-campus accumulation exceeds that amount, A&M Central Texas would be instantly launched into the large quantity generator (LQG) classification, subject to the most restrictive management requirements.

Campus chemical inventory management should track all [P-listed chemicals](#) in inventory, prevent or restrict their purchase to very small amounts, and encourage that the chemicals be used for their intended purpose rather than disposed, unused, as waste. Before deeming a P-listed chemical as waste, ensure that the total amount of one or a combination of P-listed wastes is less than 1 kg (2.2 lb) in a given month.

Contact the Department of Facilities Services as soon as possible if you anticipate purchasing, using, or disposing of a P-listed chemical.

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Section 4. Municipal Solid Waste

As stated in Table 2 of Chapter 2, university wastes are classified by TCEQ as nonindustrial *municipal solid waste* (MSW). Therefore, once a solid waste has been determined to be nonhazardous, it should be amenable to disposal with the regular trash, *with a number of important exceptions*, some regulatory and some based on good management practices. Prohibitions are listed in Chapter 5.

Campus MSW and recyclable materials picked up from offices, labs and other locales on campus are placed in dumpsters or recycling located at each building. Dumpsters and recyclables are serviced by the City of Killeen Solid Waste Division. Aside from typical trash, laboratories and other campus workplaces may produce other waste that under certain conditions may be disposed as regular trash, including but not limited to:

- **Treated biohazardous / medical waste** – May be disposed with regular trash after verifiable treatment. The “Biohazard” word and symbol on autoclave bags must be marked out or taped-over and the autoclave bag placed inside of a black plastic bag and tied shut. Do not place it in trash cans but personally place the black bag of treated waste into the dumpster for the building. (Note: It is advisable that the landfill operator be told that bags of treated medical/biohazard waste will occasionally be sent for disposal so that there is no cause for alarm should a black bag tear open and expose the inner autoclave bag.
- **Solvent-Contaminated Wipes** – Disposable wipes that are contaminated with solvents may be accumulated in leak-proof, marked containers. Provided that there are no free liquids in the container, the sealed container may be disposed of with regular trash. EPA rules regarding used wipes disposal are explicit. Refer to the *Solvent-Contaminated Wipes Guide* for specifics (*see Appendix D, Solvent-Contaminated Wipes Guide*).
- **Noninfectious biological waste** – Used biological supplies that are not infectious and are not hazardous or sharp may be discarded in the regular trash, provided that they are not odorous or a hazard to custodial staff.
- **Empty chemical containers** – Provided that they are carefully emptied of their contents so that no hazards remain, empty chemical containers may be disposed in the regular trash after labels have been removed or defaced and lids taken off. To prevent injury to someone scavenging in trash bins, avoid disposing of large numbers at once and mixing the empty containers with other wastes so that they are not readily visible in the dumpster. (Note: EPA has an important exception for containers that held P-Listed chemicals. Those are not “RCRA empty” unless they have first been triple-rinsed, with the rinsate collected and disposed as hazardous waste. Thus, it is advisable to treat P-Listed empty containers as hazardous waste and have the department of Facilities Services manage them through the waste contractor).
- **Broken glassware (uncontaminated)** – Glass and other uncontaminated sharps (not hypodermic needles, syringes or other medical sharps) should be placed in leak-proof, lidded containers marked for waste glass only. Full, sealed containers may be placed in trash dumpsters. (See the *Broken Glassware Guide*). (Note: **DO NOT** discard unbroken laboratory glassware. It is controlled to prevent possible use for making illicit drugs) (*see Appendix E, Broken Glassware Guide*).
- **Spent alkaline batteries** – Most common, single-use batteries do not contain lead, mercury,



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cadmium or lithium and are thus not hazardous. These, such as alkaline AA, AAA, C and D cells, may be discarded in the trash (campus recycles these as scrap metal at the City of Killeen Recycle Center).

- **Empty aerosol cans at atmospheric pressure** – If all of the product in an aerosol can is used and it has no remaining pressurized propellant, it may be discarded in the trash. When in doubt, collect aerosol cans for pickup and disposal by the department of Facilities Services (*see Appendix F, Aerosol Can Guide*).

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Section 5. Disposal Prohibitions

Hazardous Waste Disposal Prohibitions

Dilution Prior to Land Disposal

It is the policy of The Texas A&M University System that

— *except as allowed after consultation with the department of Facilities Services, hazardous waste generators are prohibited from diluting wastes to render them less or nonhazardous.* —

Unwanted materials that are determined to be hazardous waste should be accumulated in appropriate waste containers and managed for disposal along with other campus hazardous wastes.

Regulatory basis – Historically, the most common way to dispose of hazardous waste was to dispose of it on land (e.g., in landfills, surface impoundments, or land treatment units). After the EPA developed RCRA regulations governing hazardous waste in 1980, Congress amended RCRA (Hazardous and Solid Waste Amendments of 1984 [HSWA]) to further restrict or prohibit land disposal of inadequately treated or untreated hazardous waste. EPA developed its *land disposal restrictions (LDR) program* to address HSWA. In the LDR program, EPA set technology-based concentration limits on hazardous waste that must be met before the treated waste residuals may be land disposed. Any method of treatment can be used to bring concentrations to the appropriate level *except dilution*, unless the waste is treated using a technology required under the LDR.

Therefore, with the exception of dilution to eliminate a hazardous characteristic (i.e., ignitability, corrosivity or reactivity), the LDR regulations prohibit a generator from in any way diluting a land disposal-restricted waste to circumvent an LDR imposed by RCRA Section 3004 ([40 CFR §268.3](#)). Because of the complexity of the LDR program, an individual generator of hazardous waste is unlikely to know which waste is governed by LDR and what technology or performance standards are applicable.

Intentional evaporation for the purpose of disposal


Irrespective of state and federal regulations, it is the policy of The Texas A&M University System that

— *waste chemicals shall not be intentionally disposed via evaporation unless evaporation is incidental to a process.* —

Unwanted volatile materials that are determined to be hazardous wastes should be accumulated in appropriate waste containers and managed for disposal along with other campus hazardous wastes.

Regulatory Basis – Solid and hazardous waste laws and regulations assume that air emissions, intentional or otherwise, are governed under Clean Air Act-derived emissions authorizations or restrictions. Thus, there is no explicit TCEQ waste-related rule prohibiting evaporation disposal. Under the TCEQ Office of Air program, evaporation of chemicals requires an air emissions authorization, and, for academic laboratories (e.g., fume hoods), those emissions are authorized as *de minimis* sources with no restrictions, agency notification or documentation of any kind. However, TCEQ views these *de minimis* releases as *incidental* to normal laboratory activities and does not anticipate that a laboratory will intentionally dispose of volatile chemicals via evaporation.

From an EPA perspective, there is no explicit RCRA rule prohibiting evaporation disposal by a waste

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generator. A single EPA regulatory opinion (RO 11840, Michael J. Peska, June 2, 1994, Chief Regulatory Development Branch, EPA Office of Solid Waste) appears to authorize evaporation for a specific circumstance as part of a treatment process under the RCRA wastewater treatment exemption. More broadly, however, for wastes restricted from land disposal (see previous discussion of dilution), EPA policy does prohibit the use of surface impoundments for waste treatment where evaporation of hazardous constituents is the principal method of treatment (EPA. 2001. Land Disposal Restrictions: Summary of Requirements. Offices of Solid Waste and Emergency Response & Enforcement and Compliance Assurance. EPA530-R-01-007). While a laboratory fume hood or open waste container is not a surface impoundment, the principle of this EPA policy does apply.

Discharge to sanitary or storm sewer

Irrespective of state and federal regulations, it is the policy of The Texas A&M University System that — **Chemical wastes shall not be intentionally discharged via sink or drain unless the discharge meets requirements of the A&M–Central Texas Drain Disposal Guide** — Unwanted materials that are determined to be hazardous waste should be accumulated in appropriate waste containers and managed for disposal along with other campus hazardous wastes (*see Appendix G, Drain/Sink Discharge of Chemicals*).


Regulatory basis – Based on the RCRA exclusion (see inset box below) for wastes mixed with sewage destined for a publicly-owned treatment works (POTW), hazardous waste *may* be legally disposed via **sanitary wastewater**. However, this exclusion presumes that the POTW issues permits or restrictions to its customers under its TPDES discharge permit. Therefore, before discharging any chemicals or wastes via sink or sanitary drain disposal, consult the guidelines developed for A&M–Central Texas.

With respect to **storm water** discharges, the Texas Water Code (TWC Sec. 26.121) prohibits unauthorized waste discharges to any water in the state. Thus, waste disposal either directly to surface water or via storm water drains, inlets, or outfalls is **illegal** without a permit.

40 CFR §261.4 Exclusions.
 (a) *Materials which are not solid wastes.* The following materials are not solid wastes for the purpose of this part:
 (1)(i) Domestic sewage; and
 (ii) Any mixture of domestic sewage and other wastes that passes through a sewer system to a publicly-owned treatment works for treatment. “Domestic sewage” means untreated sanitary wastes that pass through a sewer system.

Land disposal of hazardous waste

As covered in the above section on dilution prior to land disposal, the EPA has promulgated technology-based pretreatment standards for hazardous wastes before they may be disposed on land (e.g. in landfills). All hazardous waste collected and manifested for shipment and treatment, storage or disposal must be accompanied by documentation showing which wastes are restricted by LDR to ensure that they receive proper treatment before the residues (e.g., incinerator ash) may be land disposed. ***These documents are prepared by the contractor hired by A&M–Central Texas to lab pack, transport, sort and dispose of hazardous waste.***

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Solid Wastes Prohibited in the Regular Trash

Certain hazardous and nonhazardous solid waste *from any source* is prohibited from municipal landfills, as shown in the figures below.




In higher education, the same prohibitions apply, plus:

- Liquid wastes (other than household-sized containers);
- Hazardous wastes (except for landfills authorized to accept waste from CESQGs); and
- Any other wastes that may threaten water quality, create a nuisance, or endanger humans or the environment.


Finally, certain other "Special Wastes" having their own disposal requirements include:

- Untreated medical and biohazardous wastes;
- Animal carcasses (may be landfilled under some circumstances);
- Mixed radioactive wastes;
- Asbestos containing materials (may be landfilled only at licensed facilities under proper handling procedures).

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- Grease and grit trap wastes; and
- Light ballasts and capacitors that are not PCB-free.

Contact the department of Facilities Services for proper handling and disposal (all light ballasts are PCB free at A&M–Central Texas).

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Section 6. Waste Treatment

Hazardous chemicals can be treated to reduce the hazard or the quantity of waste in the laboratory, preferably if the treatment procedure is included in the experimental protocol.

Practically, however, treatment is mostly limited to:

- Elementary neutralization of acids and bases not containing other underlying hazardous constituents (e.g., hazardous elements such as lead or mercury); and
- Distillation and recovery of spent solvents.

Other forms of treatment are allowed but should be reviewed and approved by the department of Facilities Services.


Regulatory basis – The EPA has consistently interpreted its regulations to allow any generator (i.e., CESQG, SQG or LQG) to treat their own hazardous waste in containers without a permit. Of course, all generators are allowed to treat only the hazardous waste that is generated on-site. A permit would be required to store and/or treat hazardous waste that is consolidated from off-site locations. Examples of treatment that may be conducted include precipitating heavy metals from solutions, and oxidation/reduction reactions.

There are three reasons for the EPA’s interpretation:

1. In the January 12, 1981, Federal Register (46 FR 2806-2808), the EPA noted that treatment can occur at a permitted disposal or storage facility without affecting that facility’s regulatory status. Since the regulations do not impose additional standards for treatment at a permit-required storage facility, there is no basis for regulating treatment more strictly at a generator facility that does not require a permit.
2. Treatment often renders waste less hazardous or more amenable for further treatment, recycling, shipment off site, etc. A requirement for generators to obtain a permit for any on-site treatment would very likely discourage such practices.
3. With regard to who may treat a hazardous waste, a generator is defined as “any person, by site, whose act or process produces hazardous waste...” (40 CFR §261.10). Therefore, any individual who is part of the “person,” as defined, is allowed to conduct treatment. Additionally, nothing in 40 CFR §262.34 precludes generators from transferring waste between tanks or containers to facilitate storage or treatment.

It should be noted, however, that some forms of treatment by generators are not allowed without a permit. For example, incineration is regulated by specific standards for incinerators (Part 264/265 Subpart O), and burning waste in boilers and industrial furnaces is regulated under the specific standards for those units (Part 266 Subpart H).

If the waste is being treated on-site and the treatment residue is destined to be land disposed, the generator still has responsibilities under the land disposal restrictions (LDR) program. The LDRs require that hazardous waste must be treated by a specified method or to a specified constituent concentration


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level before it (or its residue) may be placed in the land. The generator must know the treatment standard applicable to his/her waste and either treat to meet the treatment standard or send it to a treater to do so.

Generators who treat waste on-site to remove a hazardous characteristic must prepare a waste analysis plan if treatment occurs in units that do not require an RCRA permit (see 40 CFR §262.34(a)(4) for LQGs, and 40 CFR §262.34(d)(4) for SQGs). In addition, there are some generator paperwork requirements associated with the LDRs (40 CFR §268.7(a)). More information about the LDR program may be found in “[Land Disposal Restrictions: Summary of Requirements.](#)”

Some treatment units have been and continue to be specifically excluded from permitting. For example, owners and operators of elementary neutralization units are not required to obtain a RCRA permit (40 CFR §270.1(c)(2)(v)). Similarly, many forms of on-site recycling of hazardous waste can be performed without a permit, since EPA generally does not regulate the recycling process itself. However, any accumulation of hazardous waste prior to placement in an exempt unit or prior to recycling would be regulated under 40 CFR §262.34 Accumulation Time.

(Reference: [Memorandum from Elizabeth Cotsworth](#), Director, EPA Office of Solid Waste. August 16, 2002. To RCRA Senior Policy Advisors, EPA Regions I-X)

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Section 7. Waste Management at the Point of Generation (Satellite Accumulation)

General Information

- Non-hazardous waste may be disposed of using the sanitary sewer or regular trash.
- Hazardous chemicals can be treated to reduce the hazard or the quantity of waste in the laboratory if the treatment procedure is included in the experimental protocol.
- Gas cylinders should be returned to the manufacturer or distributor whenever possible. If you have non-returnable cylinders, please notify the department of Facilities Services for evaluation and proper waste classification.
- Photographic wastes may be considered hazardous. If you have photographic lab waste, please notify the department of Facilities Services for evaluation and proper waste classification.
- "Mixed Waste" (includes both radioactive material and hazardous chemicals) should be treated as radiological waste and handled separately. Notify the department of Facilities Services.
- Chemical waste that is "unknown" must be labeled as such in order to be picked up for disposal. Apply a waste disposal label to the container and write "unknown" under chemical description. Departments may be charged for the cost of analysis necessary to determine the chemical identity for proper disposal.
- Lab clean-outs require advance notice to the department of Facilities Services. It is recommended to plan for at least three weeks from the time all paperwork is received to the actual time of removal. Once the Lab Cleanout Form is finalized, a representative from the department of Facilities Services will contact you to schedule a hazardous waste disposal pick-up date and time. Additional costs for a pickup that is not regularly scheduled with waste disposal may be charged to the department.


Classification and Segregation of Hazardous waste

Classification for Treatment, Storage or Disposal

In addition to the EPA waste codes assigned through the hazardous waste determination process (see Section 2), the person generating hazardous waste should categorize the wastes into the following hazard classes, corresponding to the TCEQ Texas Waste Codes typical of hazardous wastes generated by higher education and found on their TCEQ Notices of Registration (NOR):

- Halogenated solvents
- Non-halogenated solvents
- Acids (inorganic or organic)
- Bases (inorganic or organic)
- Heavy metals (silver, cadmium, lead, mercury, etc.)
- Poisons (inorganic or organic)
- Reactives (cyanides, sulfides, water reactive chemicals, peroxides, etc.)

Since most higher education hazardous wastes are small amounts of a wide variety of chemicals, many

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of these hazard classes are “lab packed” in drums and manifested accordingly by the waste contractor prior to off-site shipment.

Segregation of Hazardous Wastes

The following are some basic guidelines for waste segregation:

- Do not mix or commingle different classes of hazardous waste in the same container (e.g., Do not combine inorganic heavy metal compounds and organic waste solvents. Do not mix halogenated with non-halogenated solvents).
- Do not combine non-hazardous waste (e.g., mixture of water, dilute acetic acid, and sodium bicarbonate) with hazardous waste.
- Dry materials (paper, rags, towels, gloves, or Kim Wipes, etc.) contaminated with extremely toxic chemicals must be double-bagged in heavy-duty plastic bags and must be treated as hazardous waste.
- Solvent-contaminated wipes (no free liquids) may be disposed in the regular trash provided that they do not present a fire hazard. (See Section 4 for more detail)
- Sharps are categorized as Biohazardous Waste, NOT hazardous waste. Refer to the A&M–Central Texas Bloodborne Pathogens Program for disposal instructions.

Contact the department of Facilities Services if you have any questions regarding hazardous waste classification and segregation.

Satellite Accumulation of Hazardous wastes

The EPA and TCEQ regulations allow individuals who generate wastes at a SQG or LQG to accumulate hazardous wastes 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 *without a permit* and without complying with the more stringent accumulation time (central accumulation) restrictions ([30 TAC §335.69](#); [40 CFR §262.34\(c\)](#)). The term for such a point of generation is Satellite Accumulation Area (SAA), although the term does not appear in the regulations. SAAs do not apply to CEQSGs, but designation and use of SAAs is a good management practice enforced by the A&M System Office of Environment, Safety & Security.

In addition to hazardous waste determinations (see Section 2), hazardous waste generators must follow the following guidelines for hazardous waste accumulation. (*Note: These guidelines are condensed from the A&M Central Texas SAA Poster, Haz Waste Tag, and SAA Training. See these sources for more details.*)

Generators must ensure that SAAs have the following:

- Area is secure from “Unauthorized Entry” and emergency contacts are posted.
- Waste is accumulated in a designated area with visible SAA signage.
- Areas must be accessible to the department of Facilities Services.
- Waste that is hazardous must be separated from non-waste chemicals.



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- Waste accumulated in the SAA must be less than 55 gallons of hazard waste or less than one quart of acute hazardous waste.
- Spill control supplies are available.



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How Should the SAA Look?

According to regulatory requirements, containers must be:

- **Compatible with contents** (e.g., no metal containers for corrosives or certain plastics for organic solvents)
- **In good condition**, with no leaks and a means of **secure closure** (e.g., screw caps)

The maximum quantities of waste that may accumulate in a single SAA are:

- **Hazardous waste** – Up to 55-gal in any combination of containers (Note: Ordinarily, waste should be picked up and removed to central accumulation or shipped off-site before quantities approach 55-gallons.)
- **Acute hazardous waste** – Up to one (1) quart in any combination **campus-wide!**

✓ Containers

- Compatible with contents (e.g., no metal containers for corrosives or plastic for organic solvent)
- Good condition / no leaks / secure closure (e.g., screw caps)
- Use empty product containers or contact SRM for reusable carboys or large (>10 gal) containers.
- NOTE: Large containers (≥10 gal) on spill pallets require a drum jack to lift full drums.
- **Never overfill**, as expansion and excess weight can lead to spills, explosions, and chemical exposures.

✓ Maximum Quantities

- Hazardous – 55-gal in any combination of containers
- Acutely hazardous – 1 quart in any combination

Head space

- ≥4" large drums
- ≥2" closed head cans ≤5 gallon
- Shoulder height for jugs or bottles

Lids on Except when Filling

Remove or Completely Deface Original Label

Secondary Containment (100% of largest container)

Hazardous Waste Tags

CAUTION
Check chemical compatibility before adding a different waste to a container


Lids on Except when Filling

Separate Incompatibles

No Floor Drains

– KEEP OUT OF SAA – All Other Products & Nonhazardous Wastes

LOCATION – same room or suite where waste is generated.
Ideally in proper storage cabinets or, if on the floor, in an isolated, low-traffic area. Tape off the area.

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What Containers Are Acceptable?



For high-production volume wastes, larger containers such as 55-gallon drums may be acceptable, but if spill containment requires a spill pallet, a drum jack will be needed to lift and move the drum.

Where Should an SAA be Located?


Within the Room

Satellite accumulation areas should be marked with signage and safely located, such as:

- Vented storage cabinets (e.g., under fume hoods, flammables storage cabinets, corrosives storage cabinets)
- Countertops back from the edge and away from valuable or sensitive equipment or supplies, or
- If necessary, on the floor in an out-of-the-way area and away from floor drains.

The SAA poster should be used as a sign to mark the vicinity of the SAA and to provide guidance to hazardous waste generators. The poster is formatted in different size configurations to accommodate available wall space.

A second type of SAA, sometimes called a “process SAA,” may be connected to an analytical instrument or laboratory process, collecting waste as the instrument or process is operated (e.g., an eluate tube connected to a waste collection bottle). Containers are closed at the end of the process operation or at the close of day and full containers are moved to a nearby SAA within the control of the same operator who generated the waste.

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The figure below illustrates various SAA location and signage options within a room.





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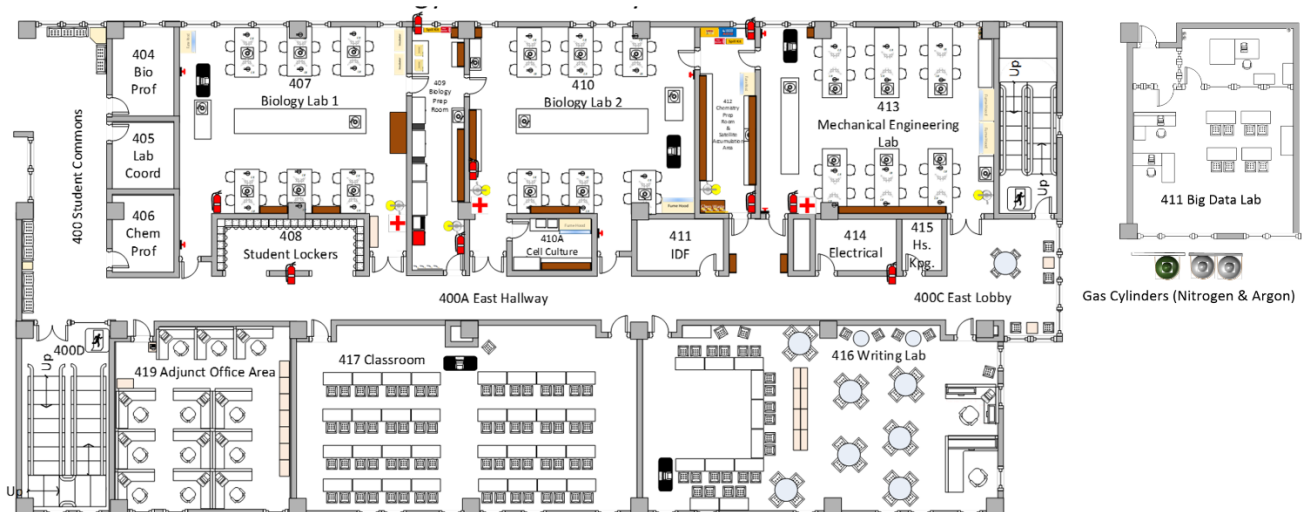
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SAAs Located Among Rooms Based on the Operator in Control

Based on the regulatory language, SAAs must be within one room, suite of rooms, process area, or locale controlled by one person (e.g., PI; laboratory supervisor; process operator). The intent of the rule is to allow flexibility (e.g., no time limits on waste containers) in managing waste at the point of generation while maintaining workplace and environmental safety. The rule assumes that the operator having control over the process(es) generating the waste(s) and those persons in the workplace under his/her supervision are knowledgeable about the chemicals involved and the hazards of the wastes that are generated.

CAUTION. Exercise extra caution when multiple independent researchers occupy a common laboratory space, as one cannot assume that each knows what wastes are being produced by the others. A common cause of hazardous waste incidents in SAAs is a container receiving an incompatible mixture of wastes, resulting in an overpressure explosion and/or fire.

4th Warrior Hall floor Biology & Mechanical Engineering Labs
4th floor Founders Hall Big Data Lab (Scanning Electron Microscope)



Emergency Shutoff Valve	Fume Hood	Propane Gas Valves	Flammable/Acid Storage	Fire Blanket
Fire Extinguisher	Eye Wash/Deluge Shower	110 Volt GFCI Outlet	Spill Kit	Spill Cleanup Kit
Sink	Extreme cold Freezer	Refrigerator (No food storage)	Refrigerator (No food storage)	First Aid Kit
Ice Machine (not for human consumption)	Flammable Storage Refrigerator (No food storage)			
Gas Cylinders (Helium, Filtered Air, Acetylene)	Propane Gas Line Shutoff Valves	CO ₂ Gas Line Shutoff Valves		



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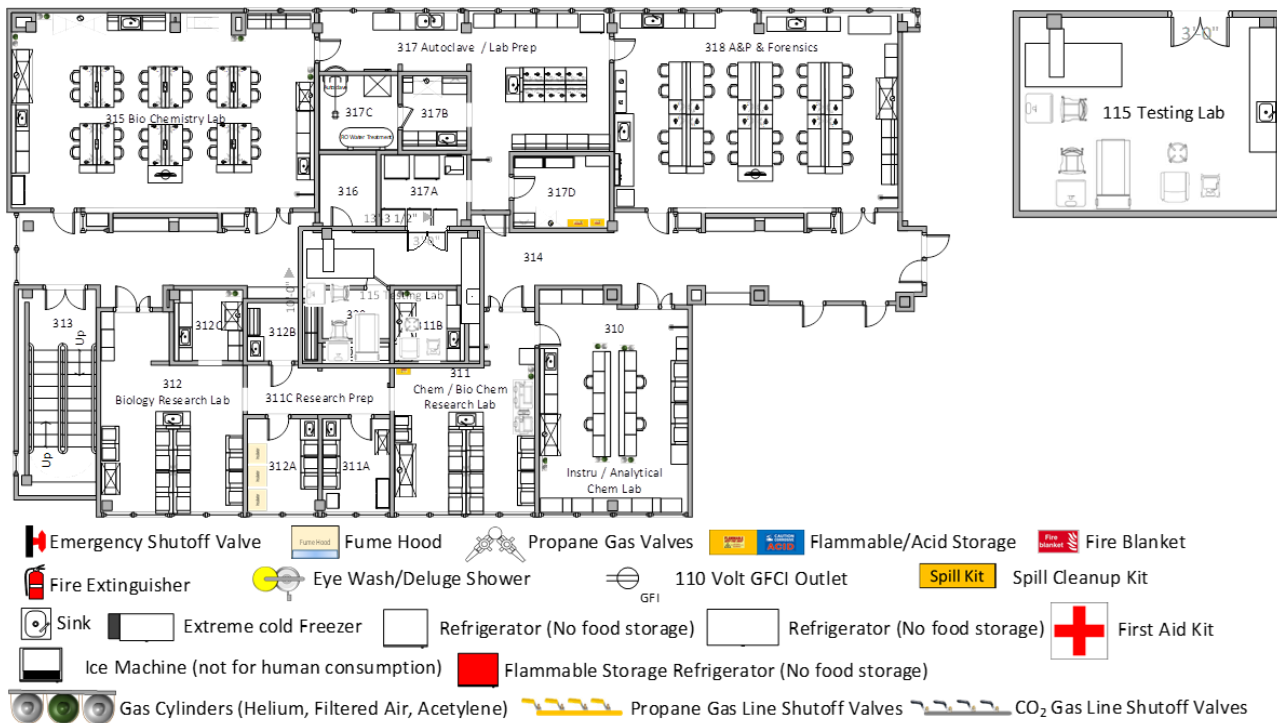
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1st Floor Heritage Hall Human performance Testing Lab

3rd Floor Heritage Hall Biology, A&P, Forensics, Chemistry, & Biochemistry Labs



How Should Wastes be Moved in and Among SAAs, and by Whom?

Within Control Areas

Any authorized person, if properly supervised, may move waste within a control area to or among SAAs in the area. The person may also add waste to a container or consolidate like, compatible wastes with which he/she is familiar. Mixing wastes, especially by persons unfamiliar with the container contents can be dangerous, presenting a fire, explosion or toxic hazard. Regulations do not require that such persons be formally trained in RCRA waste management. However, *untrained persons may NOT move hazardous waste outside of their own control areas* for which they or their supervisor are responsible.


From Control Areas to Locations Not under Operator Control

Only RCRA-trained waste management personnel may collect hazardous waste from SAAs and move it to a centralized accumulation room not under their full control or to an outside building. Such locations are deemed “central accumulations areas” (CAAs) and carry with them significant compliance requirements. A&M–Central Texas does not currently have a CAA.

Waste Container Labels and Labeling

General Labeling Requirements for ALL Chemical Containers

The Hazard Communication standard and the Globally Harmonized System of Classification and Labeling of Chemicals (GHS), as adopted by the Texas Department of State Health Services (DSHS),

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require that all chemical containers in a laboratory or workplace, whether unused reagents or wastes, should be labeled with at least:

- Name (as on SDS or MSDS);
- Hazard warnings; and
- Name and address of manufacturer (if appropriate).

Temporary use containers must also be labeled.

BEFORE using a secondary container to receive a transferred chemical, chemical product or waste:

- Select a clean and **chemically compatible** container.
- Remove or completely deface any label that incorrectly identifies the new contents.
- Correctly label the secondary container with the following information:
 - Name (as on SDS/MSDS)
 - As a safe practice, also include hazard warnings and identifying information (e.g., Chemical Abstracts Service [CAS] numbers and manufacturer) on secondary containers.

Note that many containers end up being disposed as waste, even if not originally considered waste. Examples include:

- | | | |
|------------------------------|------------------------|-------------------------------|
| ➤ Reagents & stock solutions | ➤ Process chemicals | ➤ Samples |
| ➤ Mixtures & spent products | ➤ Reaction by-products | ➤ Residues & empty containers |

This may occur for a number of reasons, such as when a laboratory is closed or cleaned out, a faculty member leaves or retires, or a graduate student or post-doc completes research and leaves. Unlabeled or insufficiently labeled containers must be treated as unknowns and tested at additional expense for waste disposal. Therefore, always label containers directly or leave sufficient documentation that container contents can be identified and hazardous waste determinations conducted.

(Note: See the university Hazard Communication Program and/or the A&M System Hazard Communication Training for more guidance on general labeling)

Specific Labeling Requirements for Hazardous Waste Containers

In addition to the general container-labeling requirements, hazardous waste regulations require that waste containers in SAAs be labeled with “*either with the words “Hazardous Waste” or with other words that identify the contents of the containers*” (30 TAC §335.69(d)(2) ; 40 CFR §262.34(c)(1)(ii)).

As a practical matter, simply labeling a container with “Hazardous Waste” is not sufficient due to the vast array of waste types generated in a higher education setting. Therefore, the each waste generator must adhere to the following methods.



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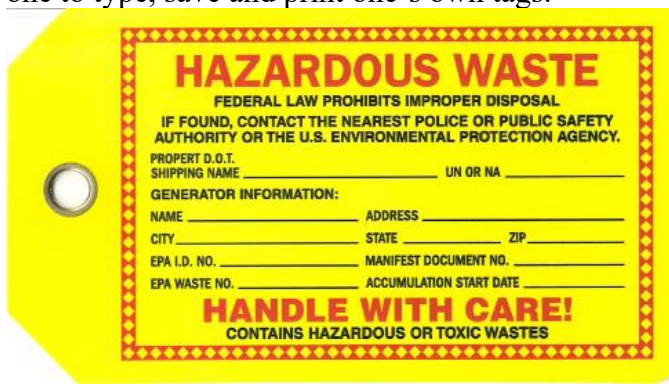
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Starting a New Waste Container

- You **MUST** destroy or deface any original label(s) on containers used for waste.
- You **MUST** label each new container when waste is first added with:
 - A tag (*preferred*) or label in one of two accepted formats (see illustration),
 - The specific waste contents,
 - *Optionally* the words "Hazardous Waste," and
 - The "Container Start Date" (i.e., the 1st day on which waste is added to the container).
- You **MUST PRINT LEGIBLY**.
- **DO NOT** fill in the "Accumulation Start Date," a regulatory term for the day that a specific container causes an SAA to exceed its allowable capacity.

The reverse side of the tag has space for additional waste constituents and helpful instructions and reminders.

Hazardous waste tags and labels are available from the Office of Facilities, Safety, & Support Services. Alternatively, an Excel file may be obtained from the office of Facilities, Safety, & Support Services, allowing one to type, save and print one's own tags.



REFER TO LABELING INSTRUCTIONS ON REVERSE SIDE

No. _____

HAZARDOUS WASTE

FEDERAL LAW PROHIBITS IMPROPER DISPOSAL

MGR/PI/SUPERVISOR: _____

DEPT: _____

BUILDING NAME: _____

ROOM NO: _____ PHONE: _____

CONTAINER START DATE: _____

ACCUMULATION START DATE **(ONLY IF SAA IS FULL)** : _____

CAA START DATE (E.H.S DEPT. USE ONLY) : _____

CONTENTS PROVIDE FULL CHEMICAL NAME (and CAS# if known) NO FORMULAS OR ABBREVIATIONS

Separately list % of each component (including water / solvent) in a solution or mixture (total must equal 100%. If <0.1% label as "trace." *(If needed, continue list on back.)*)

		%
		%
		%
		%
		%
		%

Proper Chemical Name _____ CAS# _____

HAZARDOUS WASTE No. _____

MGR/PI/SUPERVISOR: _____

DEPT: _____

BUILDING NAME: _____

ROOM NO: _____ PHONE: _____

CONTAINER START DATE: _____

ACCUMULATION START DATE **(ONLY IF SAA IS FULL)** : _____

PHYSICAL PROPERTY: Liquid Solid Gas
 Other _____

CONTAINER SIZE: _____ WASTE QUANTITY: _____

CONTAINER TYPE: Glass Metal Plastic
 Other _____


REACTS WITH: None Air Water
 Other _____

HAZARDS: Ignitable Corrosive Reactive
(SEE REVERSE SIDE) Toxic Explosive Other _____

EPA HAZARDOUS WASTE CODE(S) IF KNOWN FROM HAZARDOUS WASTE DETERMINATION AND/OR TCEQ NOTICE OF REGISTRATION

IF HAZARDOUS WASTE CLASSIFICATION IS UNKNOWN, CALL SAFETY, RISK & EMERGENCY MGMT @ 519-5771 FOR ASSISTANCE


For waste pickup, call SRM @ 254-519-5771 or e-mail s.kelley@tamuct.edu

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Completing **HAZARDOUS WASTE** Tags

1. Attach an individual HAZARDOUS WASTE tag (or label) to each container.
2. Secure the top part of the tag with a string that encircles the top of the container - rubber bands, tape, and wire are not acceptable. Alternatively, for large containers, slide the tag into a clear plastic pouch (such as those used for courier packages) that has been affixed to the container.
3. Fill in both upper and lower sections of the tag completely and legibly *except* for "ACCUMULATION START DATE." (This information is essential for record keeping)
 - **CONTENTS:** Provide proper chemical name(s). Chemical formulas or abbreviations are not acceptable. For brand-name products, list active ingredients, if available. List all chemical components in a waste container (including water). Lists may be continued on the back of the tag. Tags for containers of potentially explosive materials such as picric acid, silanes, nitro compounds, and ethers must indicate the percent concentration of these chemicals.
 - **ACCUMULATION START DATE:** Fill in **ONLY IF** the waste container causes the SAA to exceed its 55-gallon hazardous (or 1 quart of acute hazardous) waste limit.
 - **PI / LAB COORDINATOR:** The Principal Investigator or person in charge of the lab/location that generated the waste.
 - **EPA WASTE CODE(S):** Conduct a hazardous waste determination or refer to the department of Facilities Services list of wastes registered with the TCEQ. Become familiar with codes for wastes frequently generated at your location. For wastes not previously or commonly generated, contact Facilities Services for guidance.

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Waste Pickup for Disposal

Full waste containers ready for disposal

- A. **For Tagged Containers.** Fill in the accumulation start date (if applicable - see above) and call (254-519-5771), e-mail a copy of the tag (s.kelley@tamuct.edu), or mail the bottom part of the tag to Facilities Services in Campus Mail to schedule a pickup. (*NOTE: At present, because of the relatively small size of the university and the low waste generation rate, the university’s hazardous waste contractor will pack, manifest and ship hazardous wastes directly from the SAA locations.*)
- B. **For Labeled Containers.** Fill in the accumulation start date (if applicable - see above), and contact SRM via one of the methods listed in A. above to schedule a pickup.

Facilities Services will not pick up leaking, improperly capped or labeled, or contaminated containers.

Remember, intentionally disposing of hazardous chemicals through sanitary (sink) drains, evaporation in a fume hood, or in the regular trash is prohibited.

Disposal of Empty Chemical and Waste Containers


A container that has held hazardous waste or hazardous chemicals can in certain cases also be a hazardous waste, even when seemingly empty. Before an empty chemical or waste container may be considered nonhazardous municipal solid waste, it must be Resource Conservation and Recovery Act (RCRA) empty.” (See **40 CFR §261.7 Residues of hazardous waste in empty containers at: <https://www.gpo.gov/fdsys/granule/CFR-2011-title40-vol26/CFR-2011-title40-vol26-sec261-7>**). The regulation is explicit but generally practical, with the exception of containers that held a P-listed chemical (see Section 2 and Appendix E: Aerosol Can Guide).

In practice, place empty containers in regular trash after: 1. EMPTYING liquids or solids, 2. defacing/REMOVING LABELS, 3. REMOVING CAPS/lids, and 4. PUNCHING HOLES in metal or plastic containers. Do not break glass containers. If not handled in this manner, empty containers must be handled and disposed as hazardous waste.

EXCEPTION: Because of the stringency of the definition of “empty” for P-listed acute hazardous chemicals, always collect empty P-listed chemical containers for handling and off-site disposal as hazardous waste by Facilities Services and the university’s waste contractor.

SAA Self-Inspections and Maintenance

While not explicitly required by regulations, SAA operators must conduct monthly inspections of SAAs for rule-required and university policy-required information. State and federal regulations *do not* require that any records of inspections be maintained; therefore, keep only a rolling 3-month record of SAA inspections. Use the form shown on the following page to conduct and record SAA inspections.

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Monthly SAA Inspection - USE ERASABLE MARKER

ANSWER "Y" OR "✓" FOR YES AND "N" OR "X" FOR NO. --- KEEP A ROLLING 3-MO. RECORD. --- ERASE ENTRIES FROM OLDEST MONTH COLUMN TO RECORD CURRENT INSPECTION. --- SAVE ANY CORRECTIVE ACTION ITEMS THAT HAVE NOT BEEN COMPLETED.			
Inspections are not required by State/Federal regulation, but Facilities, Safety, & Support Services requires monthly checks of compliance and performance. Regulatory citations indicate State/Federal requirements.			
	month	month	month
DATE OF INSPECTION			
NAME OF INSPECTOR			
Required by Regulation			
Are containers in good condition? (30 TAC §335.69(f)(2) / 40 CFR §262.34(d)(2))			
Is the waste compatible with the containers? (30 TAC §335.69(d)(1) / 40 CFR §262.34(c)(1)(i))			
Are containers kept closed except when adding or removing waste? (30 TAC §335.69(d)(1) / 40 CFR §262.34(c)(1)(i))			
Are containers marked "hazardous waste" or labeled to identify the contents? (30 TAC §335.69(d)(2) / 40 CFR §262.34(c)(1)(ii))			
Has the sum of hazardous waste volumes in the SAA exceeded 55 gallons, or has more than 1 quart of acutely hazardous waste(s) accumulated? If YES, THEN answer a. & b.:			
a. Has/have the container(s) responsible for holding the excess amount been marked with the beginning date of the excess accumulation (the "Accumulation Start Date" on the Hazardous Waste tag)? (30 TAC §335.69(e) / 40 CFR §262.34(c)(2))			
b. Has the container holding the excess amount remained in the SAA >3 days? (30 TAC §335.69(e) / 40 CFR §262.34(c)(2))			
Does the facility maintain a record of the location of each SAA? (i.e., Has the manager of this SAA location notified the SRM of its existence and location?) (30 TAC §335.9(a)(1)(G))			
Required by the Office of Facilities, Safety, & Support Services			
If containers formerly contained product, have the original labels been removed or defaced?			
Are containers of incompatible wastes separated?			
Do all containers have secondary containment (e.g., spill pallet, bucket or pan) for spill prevention?			
Is there adequate head space in all containers?			
Are labels and tags properly filled in?			
Briefly describe the listed Corrective Actions:	CORRECTIVE ACTION REQUIRED (BRIEFLY LIST)		
	DATE COMPLETED		
	COMPLETED BY		

Monthly waste generation record

Estimated quantity of hazardous waste generated during the month (kg):			
Quantity picked up by SRM:			

Emergency Preparedness for SAAs

Similar to normal preparedness for chemical spills of any kind, SAA operators should consider the nature of the hazardous wastes being generated and accumulated and develop an appropriate emergency preparedness plan, including

- Map of the workspace with key features identified:
 - FIRE EXTINGUISHERS
 - ALARMS
 - EXITS
 - TELEPHONES
 - SAA
 - FIRST AID KIT
 - EMERGENCY SHOWER
 - EYEWASH STATION



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- SPILL CLEANUP KIT
- UTILITY SHUTOFF
- NON-HAZARDOUS WASTE ACCUMULATION AREAS
- Key contacts,
- Spill response materiel, and
- Cleanup procedures.

The following table, taken from the A&M–Central Texas SAA Wall Chart, offers a useable format.

Emergency Contacts			
For emergency services, dial 911 or UPD @ 501-5800			
Safety Office	Director:	Mr. Shawn Kelley	tel no. 254-519-5771
	Office Rm. No.	Warrior Hall, 425H1	
Dept. Chair	Bio Faculty	Dr. Laura Erlandson	tel no. 254-519-5723
	Office Rm. No.	Heritage Hall, 302H	
Lab Coordinator		Dr. Gunisha Sagar	tel no. 254-501-5843
	Office Rm. No.	Heirtage Hall, 302E	
Local Authorities			
Killeen Fire Dept - 911			
UPD - 911 or 254-501-5805			
Other Important Phone Numbers			
Poison Control 1-800-222-1222			
Emergency/Spill Response Equipment			
Item	Quantity	Location	Last Inspected (date / init.)
Spill Kit	2	409 & 412	
First Aid Kit	3	407, 410, 413	
Eyewash	5	407, 409, 410, 412, & 413	
Deluge Shower	5	407, 409, 410, 412, & 413	
Fire Extinguisher	7	407, 409, 410, 412, & 413	
*Add other spill response equipment, such as aprons, brooms, solvents, etc.			
Replacement items may be ordered from : EMD Millipor Corp @ www.emdmillipore.com			

Emergency Response for SAAs

Should an incident occur, quickly follow the protocol shown below.



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Incident Discovery

Recognize

↓

Observe

↓

Notify

RECOGNIZE - Know your work area; know the hazards.

Common hazards, from greatest to least:

Flammable Gas Release without Ignition (e.g., hydrogen) – Evident by visible damage to equipment, sound, condensation or frost on surface. High explosion hazard. Immediately evacuate.

Fire – Commonly evident by visible flame and/or smoke, heat, charring of surface. If caused by compressed gas, shut off the source if possible, but do not extinguish. Immediately evacuate, unless the fire is incipient and controllable.

Corrosive – Gases or Vapor Release – Evident by visible liquid, damage to equipment, and characteristic odor. Dense vapors may near the ground and can explosively ignite. Evacuate if the release is large, is uncontrolled, and/or there is a potential for ignition.

Non-Flammable Gas Release – Evident by visible damage to equipment, sound, condensation or frost on surface. Risk of asphyxiation due to oxygen displacement. Evacuate if release appears large and uncontrolled, especially if in a building or confined space.

Toxic / Corrosive Gas or Vapor Release (e.g., acid or caustic) – Evident due to equipment damage, visible vapor cloud, odor, or acute pain in breathing, the eyes, and the skin. Evacuate to a safe distance.

Injury / Illness (including confined space) – Seek First-Aid/CPR/AED-trained personnel. Do not move the victim unless a continuing incident (e.g., chemical release) presents an ongoing risk. Look for the cause. Do not enter a confined space to attempt to help a person.

Life-Threatening Equipment Failure – Can be invisible. Often accompanied by sudden or loud sound or vibration. Stand clear of any failed or failing equipment. Shut off power if safe to do so.

Oil or Other Organic Liquid Spill or Release – Visible or clear to dark colored fluids. Same flow freely while some are viscous. Can have a noticeable odor. Observe from a safe distance.

OBSERVE AND NOTE quickly and from a safe place:

Location of the problem and its source;
Identity of the material involved;
Extent of the problem (Incidental or Uncontrolled);
Threat of fire, explosion or other;
Injuries to personnel and their severity; and
Risks to other personnel or emergency responders.

1. immediately notify nearby persons who may be in danger or who may be trained to assist. (Do so without slowing notification of Emergency Dispatch (911)). IF THERE IS IMMEDIATE DANGER TO LIFE OR HEALTH, ACTIVATE THE ALARM SYSTEM IMMEDIATELY.


2. immediately notify Emergency Dispatch @ 911 and provide the following information:
1. Your name;
2. Your observations (Location, Identity, Extent, Threat, Injuries, Risks).
Be prepared to act (e.g., care for injured, keep others away, control minor spills or fires) if properly trained or until the arrival of emergency responders.

3. call Safety & Risk Management @ 254-519-5771.

4. remain on-scene at a safe distance (if instructed by the emergency dispatcher) to meet responders and guide them to the scene.

Controlling Incidental Spills

- ⇒ **Get supplies**, such as spill kit and protective equipment (e.g., gloves, apron, eye protection).
- ⇒ **Control the source** of ongoing spills by shutting off supply valve or pump.
- ⇒ **Ventilate** the area if possible and advisable, based on location and risks.
- ⇒ **Contain the spill** (e.g., dike ahead of the spill and cover drains).
- ⇒ **Immobilize or treat** the material (e.g., absorb, neutralize, etc.) using spill kit supplies.
- ⇒ **Recover** spill residues and deposit wastes in labeled containers.
- ⇒ **Replenish used spill kit materials.**

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Incident Classification

INCIDENTAL or INCIPIENT Release, Spill, or Fire

A release or small fire that can be controlled locally by responsible individuals with no adverse effects on faculty / staff / students or the environment.

UNCONTROLLED Release, Spill, Fire or Explosion Risk

A spill / fire that cannot be classified as incidental / incipient, normally requiring evacuation of the building. Risk is too great for local personnel to manage.

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Section 8. Self-Transportation of Waste

Within SAAs

As stated in the section on Satellite Accumulation Areas, operators of SAAs and their authorized personnel may move wastes about within their operational areas without having to follow any rules or regulations and without receiving any required training other than hazardous waste / SAA awareness training.

From SAAs

If waste must be moved outside of an SAA operational area, certain regulations apply. *(NOTE: At its present size and CESQG status, A&M–Central Texas should have little or no need to move wastes outside of SAA areas. The hazardous waste contractor will normally come to each SAA, prepare wastes for shipment, and remove them.)*

Authorized Personnel

While at a CESQG, anyone may legally move any waste to any location on campus at any time A&M–Central Texas prohibits untrained persons from removing hazardous waste from SAA locations to another locale. As listed in the training section of this HWMP (Section 10), authorized personnel must receive in-depth training.

Intra-Campus Waste Movement

Hazardous wastes collected from SAAs must remain in the custody of authorized personnel and must be taken directly to a designated “central accumulation area” (CAA). Waste may be moved freely within the contiguous campus property. However, hazardous waste at remote locations off of the main campus may need to be handled according to TCEQ, EPA, and US Department of Transportation rules for hazardous waste transportation.


Section 9. Central Accumulation (RESERVED)

THIS SECTION RESERVED FOR FUTURE CAMPUS GROWTH OR CHANGE IN WASTE MANAGEMENT PRACTICES

Section 10. Hazardous Waste Shipping and Disposal

The Office of Facilities, Safety, & Support Services administers the collection, transportation, and storage of hazardous waste prior to final disposal. In addition, the department provides technical information and assistance to individual generators and maintains permanent records of all hazardous waste movement on the main campus.

Off-site transportation of hazardous waste is governed by TCEQ and EPA. For information on the transportation of other hazardous materials (non-wastes), refer to the campus Hazardous Materials

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(HazMat) Transportation Program also administered by the department of Facilities Services. Shipping and disposal of hazardous waste must be done by a selected hazardous waste contractor who has qualified personnel, is registered as a hazardous waste transporter, and who ensures, documents, and certifies that wastes have been legally and properly transported, handled and disposed.

While waste may be transferred to the custody of the waste contractor, transporter, and ultimately the disposal facility, the waste generator never totally loses liability for environmental damage; therefore, the selection of a reliable contractor is essential. The process of selecting a contractor is complex and requires auditing of the vendor’s entire waste management process from “cradle to grave,” so this is handled for the entire A&M System by the Texas A&M Environment, Safety and Security office in College Station.

Finally, if a laboratory cleanout or unusual, singular event causes the university to potentially exceed its monthly hazardous waste generator category (i.e., CESQG), the TCEQ offers the option of using its One-Time Shipment Request for Texas Waste Code (OTS) form (TCEQ-0757 (Rev. 01/01/2014)). Use of the OTS allows over-sized shipments to be disposed without affecting the university generator category. **ALWAYS PAY CLOSE ATTENTION TO P-LISTED CHEMICALS WHEN THEY ARE TO BE DISPOSED DUE TO THE VERY SMALL THRESHOLD (i.e., 1 Kg).**

Never attempt to employ a hazardous waste contractor other than the one currently contracted by the Texas A&M University System Office of Environment, Safety, and Security.

Section 11. Training

State and federal regulations **do not require** CESQGs to provide hazardous waste management training to their employees.

Nevertheless, the A&M System requires, for safety and as a good management practice, that two levels of training be provided.

- Facilities Services staff and anyone who will be managing, transporting, or cleaning up spills of hazardous waste should receive in-depth training.
- Awareness training should be provided to members of the campus community who may be generating hazardous waste.

Course materials are available for both types of training, with plans for on-line training through TrainTraq.

Section 12. Records

According to TCEQ and EPA, CESQGs are exempt from any record-keeping requirements. However, since the campus will manage operations as if it is an SQG, the following records should be maintained:



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- **Hazardous waste determinations** – Any documented determinations, *although not required, should be kept on file.*
- **SAA inspections** – Inspections and records for Satellite Accumulation Areas (SAAs) at LQGs, SQGs or CESQGs are not required. The SAA poster/sign includes an inspection form that has a rolling, 3-month inspection record (temporary). Other than that, *no permanent record is necessary for SAA inspections.*
- **Waste shipment and disposal records** – Keep these records permanently. Several types of records may be produced, including:
 - Pre-shipment waste lists submitted to the waste contractor;
 - Copies of tags from individual waste containers
 - Hazardous waste manifests and accompanying lab pack inventories
 - TCEQ one-time shipment requests, along with TCEQ responses
 - Manifest deviation documents
 - Certificates of disposal from destination treatment/disposal facilities
 - Documents proving the net weights of any P-listed wastes.
- **Training** – Although training is not required by regulation for CESQGs, records of A&M System / University-required training for (1) waste handlers (e.g., Facilities Services staff; select Facilities Maintenance staff) and (2) waste generators (e.g., science faculty; student workers) should be maintained using the TrainTraq learning management system.

Section 13. Spill Cleanup

A&M-Central Texas’ Hazard Communication Program requires that employees be informed of hazardous materials that they might use or be exposed to at work. In addition, the program includes training on handling spills and other emergencies. Safety Data Sheets (SDSs) are a source of this information and should be maintained for all chemicals used or stored within a workplace. Special cleanup supplies should be available and employees should be trained on how to use these supplies. The department of Facilities Services staff can provide additional information on handling specific chemical spills. Contaminated clothing, rags, absorbent materials, or other waste from cleanup of spills or leaks must be properly disposed of. All labs should post emergency numbers to be used and have a response scenario for emergencies.

Emergency telephone numbers of importance are listed below:

- Emergency Number 911
- University Police Department 254-501-5805 or ext: 5805 from any campus phone
- Facilities Services 254-519-5771 or ext: 5771 from any campus phone

Waste Disposal Company used by Texas A&M University System:

SET Environmental
 Contact: Patricia Miller
 Office Phone: 281-227-5171
 Cell Phone: 713-703-6647
 Email: pmiller@setenv.com



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Spills of hazardous waste or other chemicals that are beyond the capability of waste generators and their personnel to safely clean up should be reported to UPD and Facilities Services staff . If Facilities Servies has the capability to conduct the cleanup, it will do so. If not, the university relies on the Killeen Fire Department hazardous materials team to contain larger spills. Cleanup would be conducted by either the Killeen Fire Department Hazardous Materials team or a spill response contractor, such as the university’s hazardous waste contractor, who offers these response services.

Section 14. Release Reporting

Hazardous waste spills that might occur on campus would ordinarily be within building workspaces at or near SAAs. As such, these spills are not by rule reportable releases.

However, if a chemical or hazardous waste spills into a sanitary sewer drain at anything greater than *de minimis* amounts, the university should report the release City of Killeen wastewater utilities.

Releases to sewer must also be compared against the CERCLA list of reportable quantities (RQs). If an RQ is exceeded, the release must also be reported to state and federal entities as follows:

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COLLECT INFORMATION TO BE REPORTED		
State	Federal	Check boxes indicate which information must be provided for State SERC notifications (30 TAC §327.3(d)) and which is required for Federal National Response Center notifications (40 CFR 300.405(d)). DO NOT DELAY FOR LACK OF COMPLETE INFORMATION!
<input type="checkbox"/>	<input type="checkbox"/>	The name, address and telephone number of the person making the telephone report.
<input type="checkbox"/>	<input type="checkbox"/>	Name and address of the party responsible for the incident.
<input type="checkbox"/>	<input type="checkbox"/>	The date, time, and exact address or location of the spill or discharge.
<input type="checkbox"/>	<input type="checkbox"/>	A specific description or identification of the petroleum product or other oil discharged or spilled.
<input type="checkbox"/>	<input type="checkbox"/>	An estimate of the total quantity discharged or spilled into the environment.
<input type="checkbox"/>	<input type="checkbox"/>	An estimate of the quantity discharged into or upon water in storm sewers, ditches or streams.
<input type="checkbox"/>	<input type="checkbox"/>	The duration of the incident.
<input type="checkbox"/>	<input type="checkbox"/>	The name of the surface water or a description of the waters in the state affected or threatened by the discharge or spill.
<input type="checkbox"/>	<input type="checkbox"/>	The cause / source of the discharge or spill.
<input type="checkbox"/>	<input type="checkbox"/>	A description of the extent of actual or potential water pollution or harmful impacts to the environment and a identification of any environmentally sensitive areas or natural resources at risk.
<input type="checkbox"/>	<input type="checkbox"/>	If different from the person making the report, the names, addresses, and telephone numbers of the response person and the contact person at the location of the discharge or spill.
<input type="checkbox"/>	<input type="checkbox"/>	A description of any actions that have been taken, are being taken, and will be taken to contain and respond to discharge or spill.
<input type="checkbox"/>	<input type="checkbox"/>	Whether an evacuation may be needed.
<input type="checkbox"/>	<input type="checkbox"/>	Any damages or injuries caused by the discharge.
<input type="checkbox"/>	<input type="checkbox"/>	Any known or anticipated health risks.
<input type="checkbox"/>	<input type="checkbox"/>	The names of individuals and/or organizations who have also been contacted.
<input type="checkbox"/>	<input type="checkbox"/>	The identity of any governmental representatives, including local authorities or third parties, responding to the discharge or spill.
<input type="checkbox"/>	<input type="checkbox"/>	Weather conditions at the incident location.
<input type="checkbox"/>	<input type="checkbox"/>	Any other information that may be significant to the response action.
2. IMMEDIATELY CONTACT THE FOLLOWING (as indicated by the size of the spill and whether or not it reaches surface water)		
→ State Emergency Response Commission's Spill-Reporting Hotline at 1-800-832-8224		
→ Federal National Response Center at 1-800-424-8802 or, if you have Internet access, use the NRC On-Line Reporting Tool at:		
http://www.nrc.uscg.mil/nrchp.html		

Section 15. Source Reduction and Waste Minimization

As a CESQG, there is no regulatory requirement for source reduction and waste minimization. However, consistent with A&M System Policy 24.01 Risk Management paragraph 4, all A&M System members are to institute environmental management systems (EMS) that include stewardship provisions for waste minimization and continual improvement.

Hazardous waste regulations have evolved from emphasis on reduction to the prevention of environmental pollution. The Pollution Prevention Act of 1990 (Federal Regulation) made the prevention of pollution and reduction of waste generation a national priority. The key to source



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reduction is "front-end minimization". Front-end minimization means reducing overall hazardous waste production by reducing the quantities of hazardous chemicals purchased, used and by substituting for less hazardous materials.

Research and teaching laboratories and other working groups that generate hazardous waste should review their purchasing practices and systems, chemical usage patterns, and workplace activities to identify potential points in their operations where source reduction and waste minimization can be implemented. Contact the department of Facilities Services if you have any questions.

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Abbreviations, Acronyms and Definitions

Acute Hazardous Waste – In accordance with 40 CFR §261.11(a)(2), hazardous waste that has the following criteria:

- Fatal to humans in low doses
- In the absence of data on human toxicity capable of causing or significantly contributing to an increase in serious irreversible, or incapacitating reversible illness

CAS – Chemical Abstracts Service: Chemical Abstracts Service (CAS), a division of the American Chemical Society, is the world's authority for chemical information and related solutions. Dedicated to the ACS vision of improving people's lives through the transforming power of chemistry, the CAS team of highly trained scientists finds, collects and organizes all publicly disclosed substance information, creating the world's most valuable collection of content that is vital to innovation worldwide. Scientific researchers and patent professionals around the world rely on a suite of research solutions from CAS that enable discovery and facilitate workflows.

Central Accumulation Area (CAA) – Site designated by the department of Facilities Services to be used for the accumulation of hazardous waste prior to shipment to permitted disposal facilities. There is one CAA on A&M-Central Texas campus:

- 4th floor Warrior Hall


(Note: A conditionally exempt small quantity generator (CESQG) of hazardous waste does not have to designate accumulation areas, either satellite locations (SAAs) or central locations (CAAs). Neither must these areas comply with accumulation time regulations. However, small quantity generators and large quantity generators who have designated SAAs and CAAs must comply with applicable regulations (30 TAC §335.69 and 40 CFR §262.34).)

Commerce – Trade or transportation in the jurisdiction of the United States within a single state; between a place in a state and a place outside of the state; that affects trade or transportation between a place in a state and place outside of the state; or on a United States-registered aircraft (49 CFR §171.8).

CESQG – Conditionally Exempt Small Quantity Generator: If you generate no more than 220 lbs (100 kg) of hazardous waste per month, you are a Conditionally Exempt Small Quantity Generator (CESQG). You must comply with three basic waste management requirements to remain exempt from the full hazardous waste regulations that apply to generators of larger quantities (SQGs and LQGs).

DSHS – Department of State Health Services (Texas): Mission is to improve health and well-being in Texas.

EPA – The Environmental Protection Agency: Mission is to protect human health and the environment.

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EPA Identification Number – The number assigned by the Environmental Protection Agency to regulated generators, transporters or treatment, storage or disposal facilities.

(Note: In addition to an EPA ID Number, a facility required to notify or register with the TCEQ also receives a state Solid Waste Registration Number. CESQGs are not required to notify the TCEQ or the EPA and are not assigned either EPA or state ID numbers.)

EMS – Environmental Management System: Refers to the management of an organization's environmental programs in a comprehensive, systematic, planned and documented manner. It includes the organizational structure, planning and resources for developing, implementing and maintaining policy for environmental protection.

Facility – Includes all contiguous land, structures, other appurtenances, and improvements on the land used for storing (Note: includes accumulating in central accumulation areas [CAAs]), processing or disposing of municipal hazardous waste or industrial solid waste (30 TAC §335.1(60); 40 CFR §260.10).

*(Note: EPA instead uses the terms “treating, storing, or disposing”. In either case (TCEQ or EPA), the operative words of this definition are “...used for storing, processing or disposing of ... waste” That is, in hazardous waste regulatory terminology, the entire campus is **NOT** the facility, but only those portions dedicated to waste management (i.e., for generators, only the CAAs; the rules exclude SAAs from the definition). Higher education facilities are institutional and are, by definition, nonindustrial.; therefore, universities do not generate industrial solid waste. They produce either municipal hazardous waste (or simply hazardous waste) or municipal solid waste.*

Generator – **Any person, by site**, who produces municipal hazardous waste or industrial solid waste; any person who possesses municipal hazardous waste or industrial solid waste to be shipped to any other person; or any person whose act first causes the solid waste to become subject to regulation.


(Note the subtle but important difference between the definition of “facility,” which strictly includes waste management units and their immediate surrounds only, and “generator,” which is “by site,” a broader, more inclusive term that includes the entire contiguous property owned/operated by a “person” (see definition of “person” below).

GHS – Globally Harmonized System of classification and labeling of Chemicals. The GHS is a system for standardizing and harmonizing the classification and labeling of chemicals. It is a logical and comprehensive approach to:

- Defining health, physical and environmental hazards of chemicals;
- Creating classification processes that use available data on chemicals for comparison with the defined hazard criteria; and
- Communicating hazard information, as well as protective measures, on labels and Safety Data Sheets (SDS).

Hazardous Material – A substance or material, including a hazardous substance, which has been determined by the U.S. Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated.

Hazardous Waste – Any solid waste material listed or identified in Title 40 Code of Federal Regulations, Part 261, Subpart C and D or exhibiting the characteristics of ignitability, corrosivity, reactivity, or EP toxicity also defined in Part 261.

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HWMP – Hazardous Waste Management Program: Used to provide cost-effective hazardous waste management programs to assure compliance with all Federal, State and local regulations.

Hazardous Waste Manifest – A legal document containing required information, which must accompany shipments of Municipal Hazardous Waste or Class I-Industrial Solid Waste transported on public roads or thoroughfares.

LDR – Land Disposal Restrictions: The LDR program ensures that toxic constituents present in hazardous waste are properly treated before hazardous waste is land disposed. Since then, the LDR team has developed mandatory technology-based treatment standards that must be met before hazardous waste is placed in a landfill. These standards help minimize short and long-term threats to human health and the environment, which directly benefits local communities where hazardous waste landfills are located.

LQG – Large Quantity Generator: Large Quantity Generators (LQGs) generate 1,000 kilograms per month or more of hazardous waste or more than one kilogram per month of acutely hazardous waste.

Mixed Waste – A radioactive waste that is also a hazardous waste.

MSW – Municipal Solid Waste: Commonly known as trash or garbage in the United States and as refuse or rubbish in Britain, is a waste type consisting of everyday items that are discarded by the public.


MSDS – Material Safety Data Sheets (Old term may still be found in some places).

On-Site – The same or geographically contiguous property which may be divided by public or private rights-of-way, provided the entrance and exit between the properties is at a cross-roads intersection, and access is by crossing, as opposed to going along, the right-of-way. Noncontiguous properties owned by the same person but connected by a right-of-way which he controls and to which the public does not have access, is also considered on-site property.

(Note: A generator of any size classification may move waste on-site without having to follow DOT or RCRA waste transportation requirements. However, if an SQG or LQG self-transport waste off-site or offers waste for off-site transport by a third party, waste manifest and transport requirements must be observed. CESQGs are exempt from these off-site transport limitations (40 CFR §261.5(b)) and must only follow applicable DOT hazardous materials shipping regulations. With regard to applicable DOT rules, since A&M System members are public entities, a member who is a CESQG may allow its own employees (but NOT contractors) to self-transport wastes between and among their own non-contiguous sites without having to comply with DOT rules either, because such movements are not “in commerce” (49 CFR §§171.1 and 8).

Permit – A written document issued by EPA or TCEQ that, by its conditions, authorizes the construction, installation, modification, or operation of a specified municipal hazardous waste or industrial solid waste storage, processing, or disposal facility in accordance with specified limitations.

(Note: Provided that a generator (CESQG, SQG or LQG) abides by applicable accumulation time regulations (30 TAC §335.69 and 40 CFR §262.34), no hazardous waste treatment, storage or disposal facility permit is required.)

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Person – An individual, trust, firm, joint stock company, Federal Agency, corporation (including a government corporation), partnership, association, State, municipality, commission, political subdivision of a State, or any interstate body.

PCB – Polychlorinated Biphenyls (We do not have any on the TAMUCT Main Campus). PCBs were widely used as dielectric and coolant fluids in electrical apparatus, cutting fluids for machining operations, carbonless copy paper and in heat transfer fluids. Because of PCBs' environmental toxicity and classification as a persistent organic pollutant, PCB production was banned by the United States Congress in 1979 and by the Stockholm Convention on Persistent Organic Pollutants in 2001.

Processing – The extraction of materials, transfer, volume reduction, conversion to energy, or other separation and preparation of solid waste for reuse or disposal, including the treatment or neutralization of hazardous waste, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or as to recover energy or material from the waste or so as to render such waste non-hazardous or less hazardous; safer to transport, store, and dispose; or amenable for recovery, amenable for storage, or reduced in volume.

RCRA – Resource Conservation and Recovery Act: The Resource Conservation and Recovery Act (RCRA) is the public law that creates the framework for the proper management of hazardous and non-hazardous solid waste. The law describes the waste management program mandated by Congress that gave EPA authority to develop the RCRA program. The term RCRA is often used interchangeably to refer to the law, regulations and EPA policy and guidance.


Recyclable Materials – Wastes that are recycled. Recycled material is used, reused, or reclaimed.

Reclaimed material is processed or regenerated to recover a usable product. Examples: Recovery of lead from spent batteries, or regeneration of spent solvent.

Satellite Accumulation Area (SAA) – An area, system, or structure used for temporary accumulation of hazardous waste prior to transport to a central accumulation area or to a permitted off-site destination. An SAA must be at or near the point of generation where wastes initially accumulate and under the control of the operator of the process generating the waste. As a good management practice for CESQGs, an SAA should have a sign posted identifying the location of SAA and it should follow certain minimum requirements, as found in 30 TAC §335.69 and 40 CFR §262.34. Example locations: workspace corner, lab area, fume hood storage cabinet, chemical storage locker, closet, etc.

SDS – Safety Data Sheets (New term currently in use). The Hazard Communication Standard (HCS) requires chemical manufacturers, distributors, or importers to provide Safety Data Sheets (SDSs) (formerly known as Material Safety Data Sheets or MSDSs) to communicate the hazards of hazardous chemical products.

SQG – Small Quantity Generator: A generator is a small quantity generator in a calendar month if the generator generates greater than 100 kilograms (220 pounds) but less than 1,000 kilograms (2,205 pounds)

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of non-acutely hazardous waste in that month. There are stricter limits on the generation of acute hazardous waste that apply to SQGs.

Storage – The holding of solid waste for a temporary period, at the end of which the waste is processed, disposed of, recycled, or stored elsewhere. **Storage of hazardous waste** is a permit-required activity and differs from **accumulation**, which does not require a permit provided that accumulation time regulations are followed.

TCEQ – Texas Commission on Environmental Quality: The Texas Commission on Environmental Quality strives to protect Texas public health and natural resources consistent with sustainable economic development. Our goal is clean air, clean water, and the safe management of waste.


Texas Solid Waste Number – The number assigned by the TCEQ to each generator, transporter, and treatment, storage or disposal facility that is required to notify the agency of its activities.
(Note: A CESQG is not required to notify TCEQ or to obtain a Texas Solid Waste Number.)

TWC – Texas Water Code.

Transporter – Any person who conveys or transports municipal hazardous waste or industrial solid waste **off-site** by truck, ship, pipeline, or other means.
(Note: A person may move waste within a facility or across a public roadway to contiguous property under his control without it being considered transportation and without requiring a manifest or shipping papers).

Universal Waste (UW) – a subtype of hazardous waste subject to 40 CFR Part 273 and TAC §335.261-262 to include:

- **Batteries** including lead-acid that are not managed under 40 CFR §266, Subpart G (Note: Most common batteries (e.g., AA, AAA, C, D alkaline batteries) are not hazardous wastes and may be managed as normal municipal solid waste or recycled, if desired. See the campus Universal Waste Program or more details.);
- **Pesticides** – Recalled pesticides that are part of a voluntary or mandatory recall under FIFRA or pesticides managed as part of a waste pesticide program (Note: Few if any pesticides qualify as universal waste. The best option for disposal is to use them as intended rather than pay to have them disposed as hazardous waste.);
- **Mercury-Containing Equipment** (i.e. thermostats, switches, thermometers, etc.)
- **Lamps** including Fluorescent(Hg), Halogen(Hg), Metal Halide(Hg), High/Low Pressure Sodium(Hg), Mercury Vapor(Hg), Incandescent(Pb).
- **Paint and Paint-Related wastes** – considered universal waste in Texas only (30 TAC §335.262). If this waste is shipped outside of Texas, it must be manifested as hazardous waste.

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REFERENCES

The most recent version of the Texas Administrative Code, Industrial Solid Waste and Municipal Hazardous Waste, 30 TAC 335.

The most recent version of the Texas Administrative Code, Conditionally Exempt Small Quantity Generators, 30 TAC 335.

The most recent version of the Resource Conservation and Recovery Act (RCRA) administered by the Environmental Protection Agency regulation, Hazardous Waste Management, 40 CFR 260 – 265.

The most recent version of the Environmental Protection Agency regulation, Standards for Universal Waste Management, 40 CFR 273.

The National Pollution Prevention Policy, Pollution Prevention Act (PPA), 42 USC 13101.

TAMUCT – Bloodborne Pathogen Program, Biohazardous Waste Program, Hazardous Materials Transportation Program, Hazard Communication Program