

**The University of Texas at San Antonio  
Office of Laboratory Safety and Compliance**

**Part B**

**Chemical Waste Management Safety Plan**



## i. Signature Page

This Chemical Waste Management Safety Plan has been reviewed for regulatory compliance and best management practices by the undersigned individuals and is hereby adopted for use and compliance by all employees at The University of Texas at San Antonio (UTSA).

PRINTED NAME	SIGNATURE	TITLE	DATE
Anthony Vallejo		Director, Laboratory Safety and Compliance	09/03/2024
Richard M. Garza		Asst. Director, Laboratory Safety and Hazardous Materials Management	09/03/2024

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### iii. Emergency Procedures & Contacts

UTSA's emergency preparedness plan (<http://alerts.utsa.edu/utsa-community-emergency-response/>) outlines various scenarios which UTSA personnel could encounter at any UTSA facility. It is imperative that all faculty, staff and students become familiar with this plan. Familiarity and knowing what immediate actions to take could help prevent serious bodily injury or damage to the facility.

#### A. Emergency VS Non-Emergency Situations

##### 1. Emergency

Release of hazardous substances that pose a significant threat to health and safety or that by their very nature require an emergency response regardless of the circumstances surrounding the release or the mitigating factors, are emergency situations. The following definitions designate an emergency situation:

- a. The situation is unclear to the person causing or discovering the spill.
- b. The release requires evacuation of persons.
- c. The release involves or poses a threat.
- d. Fire, suspected fire, explosion or other imminent danger.
- e. Conditions that are Immediately Dangerous to Life and Health (IDLH).
- f. High levels of exposure to toxic substances.
- g. The person(s) in the work area is uncertain they can handle the severity of the hazard with the personal protective equipment (PPE) and response equipment that has been provided, and/or the exposure limit could easily be exceeded.

##### 2. Non-Emergency

Conversely, releases that do not pose significant safety or health hazards to person(s) in the immediate vicinity or to the person(s) cleaning releases, and do not have the potential to become emergencies within a short time frame are not emergency situations. The following situations are NOT emergency situations:

- a. The person causing or discovering the release understands the properties and can make an informed decision as to the exposure level.
- b. The release can be appropriately cleaned up by the lab personnel using authorized (certified) spill kits.
- c. The materials are limited in quantity, exposure potential, or toxicity and present minor safety or health hazards to persons in the immediate work area or those assigned to clean up the activity.
- d. Incidental releases of hazardous substances that are routinely cleaned up by Laboratory Safety and Compliance (LSC) or trained custodians from outside the immediate release area need not be considered an emergency.

#### B. Emergency Situation – Fire

The following steps are basic protocol for handling a fire or fire-related emergency in the laboratory:

1. Pull the fire alarm.

2. Call extension 4911 (UTSA Police Department) from a safe location.
3. Verbally notify all personnel in the affected or immediate area
4. Evacuate

C. Emergency Situation – Spill

If the spill is of highly toxic/flammable, you are unsure of how to proceed or if it is more than one person can easily contain, execute the following:

1. Call extension 4911
2. Evacuate personnel from the spill area and alert neighbors to the spill.
3. Isolate the spill area and close doors to the room where the spill occurred.
4. Remove ignition sources and shut down equipment.
5. Establish exhaust ventilation to the outside of the building only.
6. Turn on exhaust equipment.
7. Open windows.

D. Emergency Situation – Personnel Contamination

If a person becomes contaminated due to an accidental splash or by a reaction which causes an explosion, quick action can minimize the damage caused by hazardous chemicals. It is important that the following actions be initiated:

1. Remove person(s) from spill area to fresh air only if an attempt to rescue victim(s) does not present a danger to the rescuer(s).
2. Remove contaminated clothing while under an emergency shower.
3. Flood affected area with cold water for at least 15 minutes or longer if pain persists.
4. Wash skin with mild soap and water - do not use neutralizing chemicals unguents, creams or lotions.
5. Contact emergency response personnel and assure they know the chemical(s) involved.
6. Evacuation of the building is mandatory if chemicals or contaminants could enter the air circulation system of a building.

E. Emergency Contact Personnel include:

Joo L. Ong	Senior Director of Research and Infrastructure	210-458-7318
Anthony Vallejo	Director, Laboratory Safety	210-458-8515
Richard Garza	Asst. Dir. Of Laboratory Safety and Hazardous Materials Management	210-458-5808
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## **I. UTSA Overview and Purpose**

It is the policy of UTSA to comply with all regulated hazardous waste disposal in accordance with the Environmental Protection Agency (EPA) 40 Code of Federal Regulation Part 260 through 265 and 268, the Texas Commission on Environmental Quality (TCEQ) 30 Texas Administrative Code 335 and Department of Transportation (DOT) 49 Code of Federal Regulation Part 171-180. An important aspect of this program is the proper handling, storage, and disposal of all hazardous waste generated on campus. Failure to comply with waste management regulations such as labeling and storage requirements can result in criminal and civil liability

## **II. Scope**

This hazardous waste management safety plan applies to all UTSA owned, leased, or operated facilities where hazardous waste is generated. All faculty, staff and students are required to comply with all aspects of this program as well as all federal, state and local regulations.

## **III. Responsibilities**

- A. Laboratory Safety and Compliance (Hazardous Materials Management - HMM)
  - 1. Responsible for maintaining accurate documentation for proper classification of generator status with TCEQ.
  - 2. Responsible for properly classifying waste based on process knowledge or by analytical sampling.
  - 3. Responsible for maintaining all documentation associated with the chemical waste. This includes hazardous waste requests through BioRAFT, and annual waste generated volume.
  - 4. Ensure that all waste collected is properly segregated based on hazard characteristics and compatibility, and in appropriate waste container.
  - 5. Report annual waste summary to TCEQ under the STEERS program.
- B. Faculty, Staff and Students
  - 1. Responsible for segregating hazardous waste and properly collecting in compatible containers. Ensure location of storage is approved by HMM before usage.
  - 2. Responsible for properly labeling waste containers with hazardous waste labels provided by HMM.
  - 3. Responsible for keeping all containers properly closed except for adding or removing chemicals, or venting to relieve pressure.
  - 4. Responsible for filling out the on-line hazardous waste form via BioRaft website, <https://utsa.bioraft.com/>
  - 5. Ensure each person generating hazardous waste logs in to BioRAFT and takes Hazardous Waste Generator Training.

## **IV. Periodic Review**

This Plan will be reviewed periodically, at least every three years for compliance with the most recent applicable federal, state and local rules and regulations.

## V. Waste Generator Status

UTSA is designated as a Large Quantity Generator status and as such, must comply with the 90-day rule for accumulating (storing) hazardous waste anywhere on site, without a RCRA TSDf permit. The accumulation storage site for UTSA is located on West Campus behind Central Receiving. There are six facilities, which have been registered through UTSA Notice of Registration with the Texas Commission on Environmental Quality. Each hazardous waste facility is detailed of its contents in the Operating Procedures document on waste management.

There are conditions which must be adhered to in order to comply with 40 CFR 262.34(d):

1. Accumulate "on-site" for up to 90 days.
2. Store the waste in containers with compatible with the waste.
3. Each container must be labeled with hazardous waste labels, provided by HMM containing the following information:
  - a. Lab# (building and room number)
  - b. PI (Principle Investigator)
  - c. pH (if applicable)
  - d. composition/constituent
  - e. Hazards present (i.e. flammable, corrosive, toxic, or reactive)
  - f. Satellite accumulation start date
4. Have an emergency preparedness plan.
5. Have a waste analysis plan.

## VI. Chemical Waste Disposal

Request for chemical or biological waste pick-up can be found at <https://utsa.bioraft.com/>. The waste pick-up will be accomplished within three working days by HMM. However, if circumstances warrant immediate pick up, HMM will respond as soon as possible. Generators must ensure that all waste is properly tagged with hazardous waste label(s) provided by HMM. Waste will be picked up from designated locations in the labs.

- A. Procedures for waste pick up are as follows:
  1. Submit pick up request on <https://utsa.bioraft.com/>.
  2. Place the waste in the designated location with a completely filled BioRAFT waste submission and hazardous waste label.
  3. Ensure waste is stored in a compatible waste container to prevent leaks or damage.
  4. No unknowns will be picked up without prior coordination.
  5. Write request# from BioRAFT on the hazardous waste label.

**NOTE:** Chemicals will not be picked up if the BioRAFT waste submission and hazardous waste label are not properly filled out. However, if there is a need for an emergency pick-up, contact HMM at ext. 5808.

- B. Prior to requesting hazardous waste disposal from HMM, university personnel must comply with the following requirements:



1. Empty containers must be defaced of all hazardous symbols and warnings prior to disposal. Update ChemTracker to reflect the disposal and use of inventoried chemicals. HMM will remove empty containers to ensure no hazardous residue is present
2. Determine if another person or lab could use any unused or unopened chemicals. This can be done by listing the chemical on our Chem Swap page on our HMM website. Principle Investigators can view the chemical listing by logging on to the website and requesting a Chem Swap
3. UTSA will not tolerate hazardous waste disposal down sanitary or storm drains. Disposal of chemicals should be facilitated by the HMM.

**NOTE:** All waste subject to disposal must be submitted to HWMD via the form found at <https://utsa.bioraft.com>. It is important that the form be filled out in its entirety to expedite transfer of the waste.

#### C. Identification and Storage

All chemical waste subject to disposal must have a complete and accurate identification prior to disposal. This provides an important aspect of a safe and environmentally sound hazardous waste management program. The use of the Safety Data Sheet (SDS) will help provide sufficient information for disposal procedures. LSC maintains a copy of most SDS used on campus. If you need a copy, submit your request to LSC.

**NOTE:** HMM will not accept unknown/unlabeled chemicals. The expense for analysis/identification, when the identity of a material cannot be determined, will be the responsibility of the department.

Hazardous waste subject to disposal must be properly labeled at all times starting from the time of initial accumulation until it leaves UTSA campus via a certified hazardous waste removal contractor. In accordance with our federal rules (40 CFR §261) and state rules (30 TAC 355), all containers used to store hazardous waste must be labeled using the hazardous waste labels provided by HMM.

**NOTE:** Using hazardous waste labels supplied by HMM, will keep labs compliant with the above standard.

#### D. Segregation

UTSA has various waste streams identified through the TCEQ. In order to reduce hazardous waste disposal cost, in as much as possible, the HMM requires that users store and segregate their waste in accordance with the following segregation scheme:

Waste Stream	Description	Tx Waste Code
# 2	Lab Pack (non-bulked; solids, reactive, poisons)	0002003H
# 5	Inorganic Acids/Bases	0005104H
# 6	Non-halogenated/Halogenated organic solvents	0006204H
# 7	Non-halogenated flammable organic solvents	0007203H
# 8	Paint Thinner	0008211H
# 9	Halogenated organic solvent	0009202H

# 10	Photo Fixer	0010119H
# 11	Aqueous w/trace non-halogenated organic solvent	0011101H
# 12	Aqueous w/trace toxic heavy metals	0012113H
# 13	Paint	0013209H
# 14	Waste Oil	00142061
# 15	Formalin	00151021
# 16	Ethidium Bromide	00161021
# 22	Mercuric Iodide	0022119H
# 23	Solid Filters contaminated w/Halogen- Non-Halogenated Organic & Mercuric Iodide	0023310H
# 24	Broken thermometers/Equip. w/Mercury	0024319H
# 25	Soil spiked with arsenic in laboratory	0025302H
# 26	Contaminated soils with hydrocarbon	00263011
# 27	Soil contaminated with inorganic chemicals	0027302H

If hazardous waste cannot be segregated, a complete description of its contents must be provided in the hazardous waste disposal form on BioRAFT. This will include the name of each constituent, its percentage, and the volume of each container.

Halogenated solvents should not be combined for disposal with solvents that do not contain halogens because of the differences in handling and disposal methods. Corrosives should also not be combined with organic solvents.

#### E. Labeling

Ensure each individual item (bottle, bag, box, etc...) is clearly labeled using the hazardous waste label provided by HMM. List all constituents by their specific, non-abbreviated chemical names. Hazardous waste labels must be filled out completely and correctly. If multiple compatible chemicals are placed inside the waste container, then each chemical must be listed with percentage using process knowledge.

## VII. Special Consideration

#### A. Chemical Waste

Some chemicals will require special handling due to the volume of waste or explosive characteristic. If you have any chemicals requiring special handling contact HMM. Shock-sensitive compounds that are suspected to contain unstable PEROXIDES (i.e. ethers, picric acid, etc.) should be considered **extremely dangerous** and must be handled very carefully. To avoid the chance of explosion, **DO NOT** attempt to open containers. Use extreme caution when handling chemicals that are reactive with air, water, and other substances.

1. Non-Flammable Liquid Waste - For large generators of non-regulated waste (Ethidium Bromide, Formalin, Compressor Oil, etc.), these can be accumulated in a 2.5-gallon HDPE (High-density polyethylene) container with a wide mouth (provided by HMM). The containers must be clean and clearly labeled with the researchers' name and department so

a return location can be determined. Hold containers until they are 90% full, then submit using <https://utsa.bioraft.com> and ensuring the hazardous waste label and form on BioRAFT is filled out correctly/completely.

2. Flammable Solvent Waste - Waste generators are provided 2.5-gallon HDPE waste containers provided by HMM. They should not be filled beyond 90% of its capacity. These containers must be labeled with its contents.
3. Corrosive Waste – corrosive waste must be kept in PVC coated containers. Do not mix organic and inorganic acid/bases. Small volumes of inorganic acids/bases generated during teaching labs or research can be neutralized and flushed down the sanitary drain with copious amount of water. Label the containers with waste contents.
4. Toxic/Reactive/Oxidizer Waste - Most solid waste can be left in its original container for disposal. Do not deface these containers if they are holding its original contents. Extra precautions should be taken during storage awaiting disposal. Liquid waste must be properly labeled with contents including percentage if mixed in aqueous solution.
5. Photographic Developer and Fixer - All Fixer should be collected in a 2.5-gallon HDPE container. Make sure containers are labeled with your name, building, and room number for prompt return. Hold containers for disposal until they are 90% full.

#### B. Universal Waste – Used lightbulb waste

On a recurring basis UTSA personnel generate used light bulbs. Many lamps and bulbs contain toxic substances, such as lead and mercury that pose a threat to public health. These hazardous lamps are regulated under the universal waste rule (30 TAC §335.261). Lamps that may qualify for handling as universal waste are:

- a. Fluorescent lamps
  - b. Mercury vapor lamps
  - c. High-pressure sodium vapor lamps
  - d. Low-pressure sodium vapor lamps
  - e. Metal halide lamps
  - f. Incandescent lamps
1. Disposing of Universal Waste Lamp - There are two options for disposing of universal waste lamps: (1) permitted hazardous waste landfill or (2) recycling. State regulations prohibit disposal of hazardous waste lamps and light bulbs in municipal solid waste landfills. One exception is for Conditionally Exempt Small Quantity Generators (i.e. Downtown Campus and The Institute of Texans Culture). However, UTSA should comply with state regulations at all sites for environmental reasons.
  2. Accumulation Time Limits for Universal Waste Lamps - UTSA, as a universal waste handler, may accumulate universal waste lamps for no longer than one year from the date that the lamps are generated. One exemption to this rule is if we can prove that the extension is necessary to facilitate proper recovery, treatment, or disposal.
  3. Accumulation marking - Lamps being accumulated must be clearly marked with the date accumulation started. These containers must be marked with one of the following phrases:
    - a. “Universal Waste—Lamp(s)”

- b. "Waste Lamp(s)"
  - c. "Used Lamp(s)"
4. Storage - On-site storage at UTSA is accomplished by HMM. The storage is located on West Campus inside a portable building behind Central Receiving. Universal waste lamps should be stored in the original container.

#### C. Polychlorinated Biphenyls (PCBs)

Most PCBs on campus are found in transformers and light ballasts. Light ballasts containing PCBs, and subject to replacement, must be turned in to HMM for disposal. Transformers must have the oil drained prior to disposal. The PCB oil drained from the transformers will be treated as hazardous waste and disposed through HMM.

#### D. Batteries

Waste batteries may be considered hazardous waste because of their corrosivity, reactivity, or toxicity. The main environmental concerns of batteries are the metals they contain such as Mercury (Hg), Cadmium (Cd), and Lead (Pb). Lead acid batteries are considered corrosive as well as toxic.

All batteries, including Alkaline, should be turned in to HMM for recycling. Any large Lead acid batteries removed from emergency generators should be processed through HMM.

Remove batteries from battery-operated equipment and recycle them before disposing of the equipment. See attachment 1 for types of batteries and disposal methods.

#### E. Paint

Latex paint cans may be disposed of through normal trash provided excess paint has been spent and the cans have been allowed to dry and no liquid paint residue is present. HMM will collect all other paint for proper disposal.

## Attachment 1 – Types of Batteries and Disposal Method

Battery Type	Common Name	Sizes Available	Examples of Use	Proper Disposal
Alkaline	Coppertop, Alkaline	AAA, AA, C, D, 6V, 9V	Flashlights, calculators, toys, clocks, smoke alarms, remote controls	Dispose in normal trash as replaced (do not accumulate)
Button	Mercuric Oxide, Silver Oxide, Lithium, Alkaline, Zinc-Air	Sizes vary	Watches, hearing aids, toys, greeting cards, remote controls	Turn in to HMM
Carbon Zinc	"Classic", Heavy Duty, General Purpose, All Purpose, Power Cell	AAA, AA, C, D 6V, 9V	Flashlights, calculators, toys, clocks, smoke alarms, remote controls, transistor radios, garage door openers	Turn in to HMM
Lithium	Usually has "lithium" label on the battery	3V, 6V, 3V button	Cameras, calculators, computer memory back-up, tennis shoes	Turn in to HMM
Nickel-Cadmium (Rechargeable)	Either unlabeled or labeled "Ni-Cd"	AAA, AA, C, D, 6V, 9V	Flashlights, toys, cellular phones, power tools, computer packs	Turn in to HMM
Reusable Alkaline Manganese (Rechargeable)	Renewal	AAA, AA, C, D	Flashlights, calculators, toys, clocks, radios, remote controls	Turn in HMM
Sealed Lead Acid (Rechargeable)	"Gel," VRB, AGM, Cyclone, El Power, Dynasty, Gates, Lithonia, Saft, Panasonic, Yuasa	Multiples of 2 Volts: 2V, 6V, 12V	Video cameras, power tools, wheelchairs, ATV's, metal detectors, clocks, cameras	Turn in to HMM
Lead Acid Vehicle Batteries	Autozone, Sears Die Hard, Yuasa	12V	Cars, trucks, motorcycles	Turn in to FS Auto Shop