

Chapter 13 HAZARDOUS MATERIALS MANAGMENT

Introduction

The following sections constitutes UTPB Hazardous Material Management Plan. This chapter covers the following topics:

TOPIC	PAGE
Purpose	13-1
Objectives	13-1
Scope	13-2
Annual Appraisals	13-3
Hazardous Waste Management Program Implementation	13-4
Tags	13-4
Minimization and Substitution	13-5
Segregation	13-6
Special Concerns	13-6
Chemical Tables	13-7

I. PURPOSE:

The Hazardous Materials Management Plan is designed to establish criteria for informing faculty, staff, students, visitors, and the public about hazardous materials and wastes on the UTPB campus. This plan is also designed to protect personnel, property and the environment from the misuse of hazardous materials and wastes.

II. OBJECTIVES:

The objectives of the Hazardous Materials Management Plan includes the following:

- A. To establish specific, written procedures for the identification, maintenance, use, storage, transportation, and disposal of biological, chemical, and radioactive materials and wastes at The University of Texas of the Permian Basin.
- B. To ensure these materials and wastes are handled and disposed of in accordance with the Environmental Protection Agency (EPA), Department of Transportation (DOT), Texas Department of Health-Bureau of Radiation Control (BRC) requirements, as well as other applicable federal, state, and local regulations and guidelines.
- C. To ensure there is minimal risk to faculty, staff, students, visitors, the public and the environment and proper hazardous materials training is provided to employees as required by applicable laws and regulations.
- D. To furnish appropriate information to the University Environmental Health & Safety Committee for review, analysis, and appropriate action as part of the campus-wide information collection and evaluation system.
- E. To assure that all departments are in compliance with the appropriate provisions of federal, state, and local regulations and guidelines.
- F. To prepare and submit summary reports regarding biological, chemical and radiation safety to the University Environmental Health & Safety Committee in order to identify areas of compliance, non-compliance, as well as areas for improvement.

III. SCOPE:

A. Authority and Responsibility Assigned

The Hazardous Materials Management Plan is an organization-wide process with an emphasis on the creation of management systems for the appropriate identification, maintenance, use, storage, transportation and disposal of biological, chemical and radioactive materials and wastes. Authority and direction are provided by the University Environmental Health & Safety Committee and the Safety Officer.

The committee is responsible for the following:

1. Defining and establishing objectives, program elements, and performance measures for biological, chemical, and radiation safety programs.
2. Reviewing each program's effectiveness through appropriate data.
3. Identifying concerns and problems relative to biological, chemical, laboratory and radiation safety which pose significant risks to faculty, staff, students and the public.
4. Recommending corrective actions when concerns and problems are identified.
5. Acting in an advisory capacity on all matters pertaining to hazardous materials and wastes, as required for the development of safety standards, policies and procedures.
6. Maintaining written minutes of the committee's meetings.
7. Reporting (in writing) pertinent subcommittee findings and recommendations to appropriate administrative and departmental representatives and committees.

B. Plan Elements

The Hazardous Materials Management Plan will include several special emphasis programs with written policies and procedures as follows:

1. A Hazard Communication Program for the development of workplace chemical lists; chemical container labeling; Material Safety Data Sheet (MSDS) management; employee training; performance of non-routine tasks; and coordination of contractor activities. See Chapter 12, Chemical Safety –Hazard Communication Program.
2. A Hazardous Waste Management Program for the handling and disposal of hazardous wastes. See Hazardous Waste Management Program section of this chapter.
3. A Radiation Safety Program, see Appendix B, for: the acquisition and disposal of radioactive materials; training personnel involved in the use and disposal of radioactive materials; and other procedures as required by the Bureau Radiation Control. See Radioactive Manual and License.
4. A Biomedical Safety Program, see Chapter 11, for the identification, collection, containment, storage, transportation, and disposal of biomedical waste. See chapter 12 - Biological Safety.

5. A Laboratory Safety Program, see Chapter 10, to include a policy and procedure necessary for maintaining a safe environment in all laboratories. See Chapter 10 – Laboratory Safety.

C. Data Collection and Organization

In the Hazardous Materials Management Plan, objectives, responsibilities, performance measures, data collection, and documentation are key elements. Subsequently, data is organized and analyzed in order to:

1. Identify hazardous materials program successes, deficiencies, user errors and problems.
2. Monitor trends.
3. Determine the need for changes in policies and procedures, campus activities, as well as in training and education.
4. Recommend corrective action for identified problems.
5. Monitor the effectiveness of actions.
6. Evaluate program effectiveness.

Note: Documentation and reports are maintained in the Safety, Health and Environmental Services offices and/or other designated offices.

D. Evaluation, Corrective Action and Assessment

In order to evaluate the level of protection provided to the institution, the Hazardous Materials Management Plan is periodically assessed as follows:

1. Identifies problems and corrective actions (if any).
2. Implements corrective action where necessary.
3. Monitors and evaluates the effectiveness of the action taken in preventing or reducing recurrences.

E. Communication

The policies of hazardous materials management, as well as opportunities to improve safety, are reported to the appropriate departments and committees. The actions taken to improve safety and solve problems are documented and reported. The Hazardous Material Management Subcommittee reports to the University Environmental Health & Safety Committee.

IV. ANNUAL REAPPRAISAL:

As part of the campus-wide program, the objectives, scope, organization, implementation, and effectiveness of the Hazardous Materials Management Plan will be reviewed and evaluated by the appropriate administrative units and committees on an annual basis.

V. Hazardous Waster Management Program

The following information consists of the UTPB Hazardous Waste Management Program. The Office of Environmental Health & Safety will properly dispose of all hazardous waste once this material has been identified.

Tags

Follow the example below to properly complete your hazardous waste disposal tag:

Attach An individual Hazardous Waste Disposal Tag to each waste container

Both upper and lower sections of the tag must be filled out completely and legibly . (This information is essential for record keeping).

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.

* The "REQUESTER" is the Principal Investigator or person in charge of the lab that generated the waste.

** Chemical name/Common name. Chemical formulas or abbreviations are not acceptable.

** 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.

Place any additional Hazard Information about container contents in REMARKS.

Minimization and Substitution

The cost of commercial waste disposal continues to rise and the amount of waste generated continues to increase. UTPB cannot control disposal costs, but it can reduce the amount of waste generated. The following sections discuss how to minimize waste sources and waste products.

602	<p>(Attach Tag to container with string)</p> <p>Hazardous Waste Disposal Tag</p> <p>Requester _____ *</p> <p>Dept. _____</p> <p>Phone _____</p> <p>Chemical(s) _____ **</p> <p>_____</p> <p>_____</p>
602	<p>Hazardous Waste Disposal Tag</p> <p>Accumulation Start Date _____</p> <p>Requester _____ *</p> <p>Dept. _____</p> <p>Bldg. _____ Room _____ Ph. _____</p> <p>Chemical(s) _____ **</p> <p>_____</p> <p>Physical Properties __ Liquid __ Solid __ Gas</p> <p>Quantity __ pint __ quart __ gallon __ 5 gallon</p> <p> __ other _____</p> <p>Container Type __ glass __ metal</p> <p> __ other _____</p> <p>Reacts with __ none __ air __ water</p> <p> __ other _____</p> <p>Hazards __ flammable __ explosive __ carcinogen</p> <p> __ toxic __ corrosive __ other _____</p> <p>Remarks: _____</p> <p>_____</p> <p>Mail lower portion to EHS when ready for waste pick-up</p>

Waste Source Reduction Techniques

Use the following techniques to reduce waste sources:

Purchasing and Inventory Control

- Use computerized tracking systems to manage purchasing and control inventory.
- Maintain current inventory records to prevent overstocking and to monitor the shelf life of remaining chemicals.
- Develop a campus-wide chemical exchange network to promote chemical sharing and avoid redundant purchases.
- Purchase quantities for immediate use only. Do not order quantities to obtain a special unit cost savings.
- Obtain compressed gases from vendors who accept return of empty or partially full cylinders.
- Include waste generation as a criteria in equipment selection.
- Rotate chemical stocks to use chemicals before their shelf-life expires.
- Date chemicals when received and when opened.

Chemical Usage

- Use lab procedures that assure the integrity of chemical quality.
- Reduce spills and waste by pre-weighing chemicals for undergraduate use.
- Require proper labeling of all secondary containers. Replace all deteriorating labels on primary and secondary containers.
- Substitute less hazardous chemicals whenever possible (e.g., biodegradable scintillation cocktails instead of xylene or toluene-based cocktails).
- Minimize the use of heavy metals (e.g., silver, chromium, mercury, barium, cadmium, and lead).
- Substitute alcohol or electronic thermal monitors for mercury thermometers.
- Use "No-Chromix", detergents, or enzymatic cleaners to clean laboratory glassware.
- Minimize solvent waste by recycling or substitution.

Waste Minimization Techniques

Follow these techniques to reduce hazardous waste:

- Do not mix different types of waste.
- Do not put non-hazardous waste, such as a mixture of water, sodium bicarbonate, and acetic acid, into a waste container of hazardous waste.
- Do not combine inorganic heavy metal waste with organic solvents waste.
- Segregate halogenated waste solvents from non-halogenated waste solvents
- Segregate waste streams by storing them in separate waste containers. Store waste containers separate from reagent containers being used to avoid accidental contamination.
- Decontaminate empty containers to make them non-hazardous.
- Neutralize dilute acids and bases to make them non-hazardous and suitable for drain disposal.
- When possible, redesign experimental protocols so that harmful byproducts are detoxified or reduced.
- Recycle chemicals via purification.
- Make lab employees accountable for waste when labs are decommissioned.

Segregation

Segregated waste is safer and easier to dispose of than nonsegregated waste. Mixed waste, for example, must be handled as both radioactive waste and hazardous waste.

Each employee who generates waste is personally responsible for the following:

- Ensuring that hazardous wastes are accumulated in safe, transportable containers.
- Ensuring that hazardous wastes are stored properly to prevent possible exposure.

In addition to the guidelines for waste minimization and substitution, follow these guidelines for waste segregation:

- Segregate waste into the following groups:

Halogenated solvents

Non-halogenated solvents

Acids

Bases

Heavy metals

Poisons

Reactives

- Do not mix non-hazardous waste, such as water, with hazardous waste.
- Do not combine inorganic heavy metal waste with organic solvent waste in hazardous waste containers.
- Double-bag dry materials contaminated with chemicals (paper, rags, towels, gloves, or kim wipes, etc.) in heavy-duty plastic bags. Do not use biohazard bags. Dispose of these items in the same manner as hazardous waste.
- Encapsulate sharps (e.g., needles, razor blades, etc.) then place them in trash dumpsters.

Special Concerns

Employees who generate hazardous waste must maintain and control their hazardous waste accumulation areas. Special concerns for hazardous waste include the following:

- Unneeded chemicals that are to be discarded must be handled and managed as hazardous waste.
- Unknown chemical waste will be picked up by Safety & Health Office. Departments will be charged for the chemical analysis to determine proper disposal method.
- Gas cylinders are extremely difficult to discard. They should be returned to the manufacturer or distributor whenever possible. Cylinders that cannot be returned should be tagged as hazardous waste as soon as possible.
- Photographic chemicals containing silver may not be placed in the sanitary sewer. They must be disposed of as hazardous waste.

NOTE:

Some developing equipment has a filter to capture silver before the photographic effluent enters the drain. Please notify the Safety & Health Office if you have this type of equipment.