Weber State University Hazardous Materials Management Plan



Published by the Environmental Health and Safety Office 3734 Dixon Parkway, Ogden UT 84403

Revision Date: 08/2022

Contents

1.	Introduction
2.	Duties and Responsibilities
	2.1 Departments
	2.2. Chemical Hygiene Plan (CHP) 4
	2.3. Radiation Safety
	2.4. Bloodborne Pathogen
3.	Hazardous Materials Handling and Storage
	3.1. Introduction to Chemical Waste Regulations 4
	3.2. Overview of Chemical, Biological, and Radioactive Waste Disposal Procedures
	3.3 Biological and Infectious Waste
	3.4. Radioactive Waste
	3.5. Management of Containers
4.	Hazardous Material Warning Labels
	4.1 Warning Labels (GHS)
	4.2 Radioactive Material Warning Labels
	4.3 Biohazard or Infectious Agent Warning Labels
5.	Identification of Hazardous Waste 7
	5.1 Characteristics of Chemical Wastes
6.	Universal Waste Management10
7.	Emergency Response10
8.	Hazardous Waste Pickups and Disposal10
	8.1. Improper Disposal10
	8.2. Hazardous Waste Pickup Requests11
	8.3. Non-RCRA Waste Streams11
9.	Labeling Requirements12
10.	Waste Minimization
11.	Security13

1. Introduction

The Hazardous Materials Management Plan (HMMP) is developed and implemented to protect WSU's faculty, staff, and students. This plan applies to all WSU Campuses and facilities. Federal, State, and local laws govern hazardous materials handling and disposal, and WSU will comply with these regulations. Utah Code Annotated Title 19, Chapter 6, Part 1, and the Code of Federal Regulations, (49 CFR 171.1(a)) and the Department of Transportation.

For this document, hazardous materials are defined as any item or agent (biological, chemical, or radiological) that can cause harm to humans, animals, or the environment, either by itself or through interaction with other factors.

OSHA's definition includes any substance or chemical which is a health hazard or physical hazard, including; chemicals that are carcinogens, toxic agents, irritants, corrosives, and sensitizers (agents which act on the hematopoietic system, damage lungs, skin, eyes, or mucous membranes. Combustible chemicals, explosive, flammable, oxidizers, pyrophoric, unstable-reactive or water-reactive, and chemicals which, in the course of normal handling, use, or storage, may produce or release dust gases, fumes, vapors, mists, or smoke that may have any of the previously mentioned characteristics.

2. Duties and Responsibilities

A crucial element of any program for managing hazardous materials is the articulation and clarification of the roles and responsibilities of all stakeholders. Clarifying roles and duties for executing the Hazardous Materials Management Plan (HMMP) will promote responsibility, streamline operations, improve safety

Weber State University is considered a Small Quantity Generator (SQG) of hazardous waste. Therefore, it is the responsibility of each employee to identify any possible hazardous waste that might be generated and then assure that the waste is handled in a manner consistent with current regulations.

2.1 Departments

Each department will:

2.1.1 Ensure that all personnel who handle chemicals or supervise personnel who handle or generate chemical waste take the appropriate training within 6 months of hire.

HAZARDOUS MATERIALS MANAGEMENT PLAN

2.1.2. New Employees must be under the direct supervision of a trained employee when handling chemicals until all required training has been completed.2.1.3. Ensure activities related to hazardous materials in the workplace are conducted safely.

2.2. Chemical Hygiene Plan (CHP)

Laboratory Supervisors must ensure that all laboratory personnel are familiar with the contents of the CHP, including any procedures that address chemical-specific hazards.

2.3. Radiation Safety

All personnel who work with radioactive materials at the university must be trained before physical contact with the radioactive materials.

2.4. Bloodborne Pathogen

Specify something like all personnel who have the potential to come into contact with either BBP).

3. Hazardous Materials Handling and Storage

3.1. Introduction to Chemical Waste Regulations

The Resource Conservation and Recovery Act (RCRA) chemical waste regulations apply only to waste chemicals. Laboratory chemicals become chemical wastes when the chemicals are: spent, expired, surplus stock, or unused chemicals that no longer have a legitimate use. The chemical waste regulations do not apply to chemical reagents that are actively used and stored in the laboratory for legitimate research purposes.

The Department of Environmental Quality (DEQ) is the enforcing entity in Utah. Therefore, the university must comply with the regulations set forth by RCRA and the DEQ. The university is subject to compliance inspections by the DEQ without warning. Non-compliance with chemical waste regulations can result in citations or enforcement actions against the university and researchers, along with significant fines or criminal penalties.

Researchers are responsible for properly collecting all the chemical wastes generated from laboratory experiments and disposing of them through EHS.

Standard Operating Procedures (SOPs) should be used when using hazardous materials.

3.2. Overview of Chemical, Biological, and Radioactive Waste Disposal Procedures

3.2.1. Chemical Waste

Researchers must collect chemical wastes in empty compatible chemical reagent containers and dispose of them through EHS

3.2.2. To manage an experiment's chemical wastes, follow the five-step procedure below:

1. Collect the chemical waste in an empty chemical reagent bottle that is chemically compatible with the waste to be collected;

2. Close the waste container with its original lid;

3. Complete the Hazardous Waste label and place it over the existing reagent label as soon as the first drop of waste is added to the waste container;

4. Keep the chemical waste container closed at all times except when adding waste to it;

5. Inspect every chemical waste container weekly, and document the inspection findings.

- 3.2.3. To obtain Hazardous Waste labels, email the Environmental Health and Safety Department, providing a name, phone number, mail code, and the number of Hazardous Waste labels required.
- 3.2.4. To request a chemical waste pickup, fill out and submit the appropriate form.

3.3 Biological and Infectious Waste

Biological waste cannot contain any chemicals or radioactive materials. Laboratory personnel should collect biological wastes in point-of-use receptacles or sharps containers. Containers should be lined with a red bag and labeled to indicate they are for biomedical wastes only. All personnel need to have access to the ECP

3.4. Radioactive Waste

All radiological waste will be stored in a waste container approved for radiation. Contact EHS for assistance in determining appropriate disposal method.

3.5. Management of Containers

Open containers are one of the most common EPA violations for hazardous waste management. In addition to being a regulatory violation, open containers allow for evaporation (considered treatment and requires a permit), invite spills, and potentially expose people to hazardous waste. Containers should be kept in good condition and closed at all times, except when wastes are added.

If the container is broken, it must be replaced or overpacked. Chemical containers must be compatible with the chemicals they hold so that the chemicals do not react with each other and the containers do not break. All of the containers must be labeled and put in secondary containment bins. When ready for waste to be picked up, fill out the waste pickup form on the website.

4. Hazardous Material Warning Labels

A hazardous material warning label should always be placed on the exterior of the container to identify the presence of a hazardous substance. Everyone who works in the laboratory or with any potentially hazardous waste must get acquainted with these warning labels to take adequate safety measures. Non-hazardous items should not be stored in containers or bags with hazardous material warning labels. If you are unfamiliar with a container or piece of equipment with a hazardous substance warning label, do not use or handle it until the Laboratory Supervisor has adequately taught you on

4.1 Warning Labels (GHS)

Osha Standards call for the Globally Harmonized System (GHS) to communicate hazards to users using labels with the corresponding GHS pictograms. These should be on the containers themselves and the SDSs. Users should familiarize themselves with these symbols and their meaning before working with chemicals to ensure the correct response is taken in the event of a chemical release or exposure.



Figure 1: GHS Pictograms

HAZARDOUS MATERIALS MANAGEMENT PLAN

In Addition to GHS markings, Chemical containers should have the words printed such as Flammable, Corrosive, Reactive, or Toxic labels.

4.2 Radioactive Material Warning Labels

A radioactive warning label is placed on containers or equipment that contain radioactive elements. The appearance of a radioactive warning label does not always imply dangerous amounts of radiation in the region. However, precautions should be taken to avoid contaminating persons or equipment with radioactive materials. See the Radiation Safety Plan (RSP) for more information on radiation safety.



Figure 2: Radioactive symbol

4.3 Biohazard or Infectious Agent Warning Labels

A biohazard label is applied to materials that have the potential to cause sickness. Infectious items are gathered in red bags before being stored in red or gray, colored buckets, red plastic tubs, or cardboard boxes labeled with the BIOHAZARD warning label. For more information on biosafety, see the WSU Biosafety Plan (BSP)



Figure 3: Biohazard symbol

5. Identification of Hazardous Waste

RCRA laws require chemical waste generators to guarantee that wastes are appropriately recognized, separated, handled, collected, tagged, and stored before ultimate disposal. Therefore, understanding how chemical wastes are recognized is important so that these wastes may be appropriately handled and collected for disposal.

The EPA Resource Conservation and Recovery Act (RCRA) regulates the disposal of solid wastes, liquids, and gases in containers. All RCRA-regulated waste producers must assess danger. First, determine whether any waste components are "listed" hazardous waste ingredients or if the waste has a regulated hazardous waste feature. Hazardous

HAZARDOUS MATERIALS MANAGEMENT PLAN

wastes are listed as: (see <u>https://www.epa.gov/hw/defining-hazardous-waste-listed-characteristic-and-mixed-radiological-wastes</u>)

"K" specified waste sources.

"F" Non-specific waste.

"U" listed commercial chemical wastes.

"P" classified wastes are severely dangerous off-spec or wasted commercial chemicals. (see Appendix A)

Next, a generator must decide whether the waste is ignitable, corrosive, reactive, or poisonous. A waste containing elements with one or more of the four characteristics must be treated as hazardous waste.

5.1 Characteristics of Chemical Wastes

Chemical wastes that fulfill one or more of the following criteria are classified as regulated chemical wastes and must be disposed of by EHS. Examine the chemical's SDS or the label on the chemical container to discover the kind of chemical waste that will be created.

5.1.1 Ignitability

Hazardous wastes attributed to ignitability include liquids having flashpoints below 140° F (60°C), non-liquids that create fire under certain circumstances, ignitable compressed gases, and oxidizers. The EPA allocated the waste designation D001 to ignitable hazardous wastes.

Certain peroxide-forming compounds like ethers have disposal dates ranging from six to 18 months. Check the manufacturer's instructions to ensure that these compounds are not retained over their expiration date in the lab. Any peroxideforming compounds retained over their expiration date pose an explosive risk that may endanger lab staff and need particular disposal procedures. To keep track of expiration dates for peroxide formers, all peroxide forming chemicals must have the date received and the date opened recorded on the container label. In addition, EHS must be contacted to arrange for the collection and disposal of any peroxideforming compounds before their expiration date.



5.1.2. Corrosivity

Chemical solutions with a pH less than or equal to 2 or greater than or equal to 12 are considered corrosive. EPA hazardous waste number D002.



5.1.3. Reactivity

Chemicals that are normally unstable or react violently with water. Sodium metal and sodium hydride are water-reactive because they generate flammable hydrogen gas in contact with water.

Dry picric acid is highly explosive. Therefore, it would be considered a reactive waste when disposed of. Picric acid also forms shock-sensitive compounds in contact with heavy metals.

Expired solvents such as isopropyl ether, ethyl ether, furan, tetrahydrofuran, and p-dioxane may form unstable organic peroxides on exposure to atmospheric oxygen or UV light. These compounds may be shock-sensitive explosives. If these items are found in the laboratory, contact EHS before disturbing them. Certain cyanide or sulfide solutions form highly toxic gases on exposure to acids and therefore are classified as reactive wastes. EPA hazardous waste number D003.



5.1.4. Toxicity

Toxicity characteristics leaching procedure (TCLP) toxic chemicals are waste in which extracts contain high concentrations of heavy metals or pesticides that could be released into the groundwater. Specifically," code Toxic Compounds (see EPA Waste Codes).



6. Universal Waste Management

Universal wastes are wastes that might not be easily recognized as chemical wastes. Universal wastes must be properly collected and disposed of through EHS, although there are instances where they may also be picked up and disposed of by Sustainability. The following is a list of universal wastes:

- Aerosol cans (EHS)
- Batteries (Sustainability)
- Mercury containing switches and devices (EHS)
- Computers and computer peripherals (Property Control)
- Certain fluorescent lamps. (EHS)
- Latex and certain other paints

7. Emergency Response

Everyone who works with dangerous materials or chemical waste must know what to do in case of a fire, a medical emergency, a spill, or an uncontrolled release of dangerous materials. Unfortunately, many spills of dangerous substances cannot be cleaned up safely by lab workers, who may not have the right PPE or specialized training. If researchers spill chemicals that cannot be cleaned up safely, they must follow procedures to evacuate the area and call EHS immediately at 801-626-7077. Refer to the Chemical Hygiene Plan (CHP) and Chemical Spill SOP for emergency procedures.

8. Hazardous Waste Pickups and Disposal

8.1. Improper Disposal

Hazardous chemicals or waste should never be poured down the drain as a disposal method. Likewise, hazardous waste should not be discharged into the environment through disposal, evaporation, or entry into the sewer or storm drains. Anyone with knowledge of the inappropriate disposal of potentially hazardous waste should contact EHS immediately. Improper disposal of hazardous waste is illegal and can have significant repercussions.

8.2. Hazardous Waste Pickup Requests.

To schedule a hazardous waste pickup, submit a waste pickup request on the EHS website. The EHS department will coordinate a time for pickup. Turnaround time for hazardous waste pickup is 1-3 business days.

8.2.1. Conditions of Acceptance of Waste

- a. The containers must be clean and in good condition (no evidence of spilling, leaking, cracking, or denting).
- b. The containers must be closed (no funnels, saran wrap, aluminum foil, or other filling devices).
- c. The hazardous waste label must be properly filled out to include the full chemical names, concentrations, and hazards. Concentrations should be shown as a percent and should equal 100% concentration.
- d. All liquid laboratory waste must include a pH.
- e. Only containers listed on the waste pickup form will be removed.
- f. The containers must be stored in a secure location until EHS removes them.
- g. Do not put containers in the hallway.

Containers not meeting the above requirements will not be picked up until all conditions can be satisfied.

8.3. Non-RCRA Waste Streams

Many chemicals, products, and reagents do not meet the federal definition of hazardous waste. Nevertheless, EHS still collects these materials to ensure proper disposal.

8.3.1. Universal Waste

Universal waste is a subset of hazardous waste with reduced regulatory requirements. Universal waste includes batteries, light bulbs, mercury-containing devices, and pesticides.

- a. Batteries are collected and recycled by Sustainability. See their website for more information.
- b. Light bulbs and fluorescent tubes:
 - i. Light bulbs are collected if they are labeled with CFL. All other bulbs can be thrown in the trash.
 - ii. Fluorescent tubes are collected if they have silver caps.
 - iii. All green-capped tubes are to be thrown away.
 - iv. White-capped tubes are the most desirable as they are LEDs.
- c. LED bulbs
 - i. LED bulbs and tubes can be thrown in the regular trash.

8.3.2. Empty containers

Containers that have been emptied should be defaced of all hazard information and chemical information and labeled "empty". These containers are considered RCRA empty and can be disposed of in the regular garbage. Any empty container that once contained a **P-Listed (acutely toxic)** hazardous waste should be given to the EHS Department for disposal because it is still considered regulated waste.

8.3.3. Containers holding non-acute hazardous waste are considered RCRA empty when they meet the following conditions:

- a. All waste has been removed.
- b. No more than 2.5 centimeters of material remain in the container.
- c. No more than 3% by weight of the container remains for containers with a capacity of 110 gallons or less, and no more than 0.3% by weight remains for containers with capacities over 110.

9. Labeling Requirements

Each chemical waste container must be labeled with a Hazardous Waste label as soon as the first drop of waste has been added to the container. For Labels, please email the EHS Department at EHS@weber.edu. Please provide the following, name, mail code, and the number of labels requested. Complete the following sections of the hazardous waste label:

- a. Name of the College / Department.
- b. Spell chemical names completely- no abbreviations or chemical formulas.
- c. Include chemical concentrations.
- d. Check the appropriate boxes for the hazards associated with the waste to the best of your knowledge

Attach the Hazardous Waste Label securely, covering the container's original label and leaving the chemical composition in view. See figure 4.



Figure 4: Hazardous Waste Label.

10. Waste Minimization

Under RCRA, the generation of hazardous waste is to be minimized or eliminated as feasible. The goal of WSU is to minimize waste so we can reduce the amount of hazardous waste generated and the inherent toxicity of the wastes generated.

The following practices are key elements of waste minimization:

- Maintain a current inventory of chemicals.
- Select less toxic, hazardous chemicals or substitute a non-hazardous material for a hazardous material whenever possible.
- Practice Source Reduction: Order the smallest quantity of the material necessary.
- Do not accept free or donated materials that have no immediate use.
- Review laboratory protocols to identify hazardous waste streams and review whether they can be reduced or minimized before work commences.
- Minimize quantities of solutions containing heavy metals.
- Clearly label all materials used in the laboratory to prevent the generation of unknowns.

11. Security

Hazardous waste storage areas should be secure. Access should be limited to those who have received training and are familiar with the hazards. Any attempts by unknown personnel to access hazardous waste storage areas should be immediately reported to Public Safety (801) 626-6460.