

**WARTBURG COLLEGE  
ENVIRONMENTAL AND OCCUPATIONAL SAFETY PROGRAM**

**HAZARDOUS WASTE PLAN**

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**General**

Wartburg College will conduct all operations relating to hazardous materials in compliance with all applicable local, state, and federal regulations. In addition to accepting its responsibility in complying with the law, the college takes seriously its responsibility to provide for the safety and security of its students, faculty, staff, alumni, and campus visitors to the campus and its responsibility for care of the environment.

To facilitate accomplishing these responsibilities, this program is established to guide the college through safe and legal management of hazardous materials and hazardous wastes in all college departments.

**Responsibilities**

The President of Wartburg College is ultimately responsible for all environmental and safety issues. This responsibility is exercised through the normal chain of authority within the college, delegating the charge for ensuring safe work practices and compliance of established policies and programs to the Cabinet, directors, department chairs, supervisors, and ultimately each employee and student.

Faculty, directors, and supervisors are required to enforce the program and all laws and regulations associated with the safe management of hazardous waste.

Employees and students must be conscientious in their efforts to follow the program. Specifically, they have the responsibility to:

- Collect all hazardous wastes in accordance with established guidelines, laws, and regulations.
- Identify unknown or surplus chemicals to supervisor, faculty, or departmental director.
- Package and label all materials slated for disposal in accordance with this plan.
- When unsure, consult with supervisors or faculty regarding the safe handling and proper disposal of hazardous materials.
- When a conflict occurs, defer the decision to the Safety Committee.

The Science Lab Supervisor is responsible for monitoring the quantities of generated hazardous waste turned in for disposal. When sufficient quantities are on hand, the Science Lab Supervisor will coordinate appropriate disposal.

## **Program Development**

The President of Wartburg College has established a Safety Committee to develop and maintain the hazardous waste program. In turn, the President and Cabinet approve this program. Anyone using or generating hazardous waste is required to follow the procedures of this program.

Person(s) recommending additions or deletions to this program shall direct their concerns to the Chair, Safety Committee. This committee will consider such recommendations.

## **References**

The Resource Conservation and Recovery Act of 1976 (RCRA)  
Title 40 of Code of Federal Regulations, parts 240 through 299  
29 CFR, 1910.120, Hazardous Waste Operations  
Environmental Management Guide for Small Laboratories, May 2000

## **Management Procedures**

### **I. SUMMARY:**

Wartburg College is registered with the Environmental Protection Agency (EPA) as a Conditionally Exempt Small Quantity Generator (CESQG). To remain in this category, prudent and timely management of waste storage and disposal is important. CESQG's must comply with three basic waste management requirements. First, they are limited to generating no more than 220 pounds (100 kilograms) of hazardous waste per calendar month, including no more than 2.2 pounds (1kilogram) of acutely hazardous waste. Second, they may accumulate no more than 2,200 pounds (1,000 Kilograms). Third, all hazardous wastes must be identified per federal regulations. Fourth, CESQG's must ensure delivery of hazardous waste to a certified offsite treatment or disposal facility.

Hazardous waste is generated in varying quantities throughout the campus. Primary collection points of generation are the chemistry and biology Departments, with the possibility of reduced quantities generated by the Physics Department, Art Department, Maintenance Department, Printing Services, Communication Arts Department, Campus Programming, Health and Wellness, Athletics, and Food Service. Faculty teaching the specific class that generates waste and directors of departments that generate waste are responsible for making a hazardous waste determination.

Once a chemical is used for its intended purpose and is designated as waste, it is placed in an appropriate container, appropriately labeled, and delivered to the central collection location, Room 242 of the Science Center. Once delivered to the central collection location, it is logged. Once sufficient quantities of waste are collected, the Science Lab Supervisor will coordinate with a certified waste disposal company for disposal. Disposal will occur at minimum once a year or when the CESQG threshold occurs. An EPA Uniform Hazardous Waste Manifest (UHW) is prepared.

## II. DEFINITIONS:

*Acute Hazardous Waste:* Hazardous wastes that are considered exceptionally toxic as listed under 40 CFR Part 261.33 (listed wastes having codes beginning with “P”)

*Central Collection Location:* The central designated location on campus for storage of all hazardous waste pending removal by a certified waste disposal company

*Collection Points:* Location where waste is initially generated and collected

*Hazardous Waste:* A waste or combination of wastes as defined in 40 CFR 261.3 or those substances defined as hazardous wastes in 49 CFR 171.8

*Hazardous Waste Label:* A specified label that must be attached to each container of chemical waste. Label will reflect source (originating department), identity, date, & hazardous category. (Appendix C)

*Hazardous Waste Log:* A specified document listing the source (originating department), description, type, class, characterization, amount generated per month, and amount accumulated per month (Appendix A)

## III. HAZARD LISTING:

The EPA may list a waste as hazardous if the agency determines that it causes or contributes to the following:

- Increase mortality.
- Increase serious irreversible illness.
- Increase serious incapacitating reversible illness.
- Substantial present or potential hazard to human health or the environment if improperly managed.

A waste may also be listed if it is deemed acutely toxic or acutely hazardous or otherwise toxic by the EPA. A list of substances designated by the EPA as acutely hazardous or otherwise toxic is provided in Appendices A and B Respectively.

#### IV. HAZARD CHARACTERISTICS:

Several characteristics for determining whether or not a waste is hazardous are discussed in RCRA, Part 261, Subpart C. These characteristics include the following: Toxicity, Ignitability, corrosivity, reactivity, and toxicity.

- Toxicity characteristic leaching procedure (TCLP) is used to determine toxicity. It should be noted that waste demonstrating any of these characteristics is considered hazardous waste whether it is listed or not. Also, any chemical “listed” in the 40 CFR 261, Table 1, by the EPA is labeled as toxic. This list includes common laboratory heavy metals such as barium, cadmium, chromium, lead, mercury, and silver.
- Ignitability: A waste is ignitable if a representative demonstrates the following properties:
  - Is a liquid that has a flash point below 60°C (140°F), other than aqueous solutions containing less than 24% alcohol by volume.
  - Is a material other than liquid that is capable of spontaneous and sustained combustion under standard temperature and pressure.
  - Is an ignitable compressed gas.
  - Is an oxidizer.
- Corrosivity: A waste is corrosive if a representative sample under aqueous condition has:
  - pH less than or equal to 2.
  - pH greater than or equal to 12.5.
- Reactivity: A waste is reactive if a representative sample demonstrates any of the following properties:
  - Is normally unstable or reacts violently.
  - Reacts violently with water.
  - Forms explosive mixtures with water.
  - Generates toxic gases, vapors, or fumes when mixed with water.
  - Contains cyanide or sulfide and generates toxic gases, vapors, or fumes between pH 2 and 12.5.
  - Could detonate if heated under confinement or subjected to strong initiating source.
  - Could detonate at standard temperature and pressure.

There may be other hazardous waste generated on campus that may not be listed by the EPA or shown to readily exhibit any of the stipulated characteristics. Consult the Safety Data Sheet (SDS) for assistance in determining the recommended method of proper disposal for the chemical(s) used.

#### V. COLLECTION CONTAINERS:

Always use the correct container to collect and store hazardous waste. Basic guidelines are:

- Containers must have a cover or top. Screw tops or otherwise sealed tops are preferred.
- Use a separate container for each hazardous chemical waste.
- Use an appropriately sized container to match the amount of waste generated.
- Use original chemical containers if appropriately sized.

- All containers must be compatible with the specific hazardous chemical waste stored in them.
- All hazardous chemical containers must be non-leaking and tightly capped.
- All containers must be identified and appropriately labeled. (See labeling)

#### VI. HAZARDOUS CHEMICAL WASTE SEGREGATION:

Proper segregation of chemical wastes has several advantages. First, you minimize potentially dangerous reactions. Second, you protect personnel working with these chemicals. And third, by segregating these wastes, you make handling easier and potentially reduce disposal costs. The following guidelines assist in generating a well-defined and separated waste stream:

- Collect inorganic substances separately and do not mix solids with liquid unless the generation of a process waste is involved.
- Collect halon-generated and non-halogenated organic solvents in different containers.
- Collect individual non-halogenated organic solvents separately; however, when they must be mixed, clearly indicate each constituent and state its percentage composition in the mixture.
- Do not mix metals with organic solvents. Such a mixture cannot be incinerated because of the metal or landfilled because of the organic solvent.
- Recycle vacuum pump oil and do not mix with organic solvents or other chemicals. Indicate on the label and on the manifest, “pump oil known to be contaminated with other chemicals.” Uncontaminated pump oil may be recycled.
- Generally, lab ware (disposable gloves, aprons, glassware) may be cleaned and disposed of as routine trash. Items contaminated with acutely hazardous and toxic chemicals must be disposed in the same manner as the chemical waste.
- Do not put empty chemical containers into normal trash. Properly contain and mark “glass bottles” on the outside of the box prior to disposal in a commercial dumpster. Similarly, box and mark broken glassware as “broken glass” before disposal in the dumpster.

#### VII. EMPTY CONTAINERS:

Empty containers may be discarded as solid waste if they are properly managed. The prescribed management for an empty container varies depending on the type of waste. RCRA regulation defines an empty container and mandates its decontamination prior to disposal as solid waste. These guidelines are provided to assist you in defining and managing empty containers. A container of hazardous waste is empty by regulation if:

- All wastes have been removed using common practices for the type of container.
- No more than 3% residue by weight remains on the bottom if the container is smaller than 110 gallons, or
- No more than 0.3% residue by weight remains on the bottom if the container is larger than 110 gallons.

A container of acutely hazardous waste is empty if:

- It has been triple-rinsed with an appropriate solvent.
- It has been cleansed by a method shown to be equivalent to triple rinsing.

- The container has an inner liner, which prevented contact between the container and the acutely hazardous waste.

Guidelines for Handling Residues:

- The residue in a RCRA “empty” container or liner is exempt from regulations (i.e., a RCRA “empty” container can be discarded as solid waste).
- Residue from “triple-rinse” of acutely hazardous waste must be collected for proper disposal.
- Empty containers that have been rinsed are solid waste and can be disposed of in the trash can.
- When “triple rinsing” containers, use appropriate quantities of solvent to minimize the generation of large volumes of waste.

VIII. LABELING:

Each container must be labeled with the words “hazardous waste,” date of generation, identification and percentage of the chemicals, and hazard category. See Appendix C for label design. Labels are available through the laboratory supervisor.

IX. TREATMENT TECHNOLOGIES:

Treatment is an option, but a state or federal license may be required. Wartburg College will not treat any hazardous waste without the appropriate license, unless specifically allowed by RCRA. This includes evaporation, neutralization, biological treatment, carbon adsorption, de-chlorination, incineration, precipitation, or other types of treatment processes. The following procedures, while considered a form of treatment by the EPA, are authorized by the EPA without a permit and their use is encouraged to minimize waste accumulation:

- On-Site Disposal: Hazardous waste stored prior to discharge is regulated, and dilution of waste in order to meet discharge limits is usually not allowable. However, in some cases, wastes that meet the RCRA definition of hazardous may be acceptable for sewer disposal. Specifically, wastes that are mixed with domestic sewage and discharged to a publicly-owned treatment works (POTW) are not regulated under RCRA. This is known as the “domestic sewage exclusion.” The City of Waverly has been contacted regarding this provision, and the city allows discharge of non-hazardous waste and hazardous waste unless the waste is flammable, is P listed, has a pH less than or equal to 2 or greater than or equal to 12.5., and is not disposed in large amounts at one time. Additionally, the city coordinated these specifications with the Iowa DNR before responding to the college’s request.
- Elementary Neutralization: The EPA allows elementary neutralization (i.e., pH adjustment) of hazardous wastes. Elementary neutralization units (as defined in 40 CFR 260.10) may be used to neutralize D002 (corrosive) wastes without worry of RCRA permit requirements. Two important points to remember are: (1) elementary neutralization only refers to pH adjustment, and (2) neutralized waste should only be discharged down the drain if it meets all applicable discharge standards (see On-site Disposal above.)

- **Recycling:** EPA allows generators to recycle hazardous wastes without a permit. In the regulations, EPA states that a material is “recycled” if it is used, reused, or reclaimed (40 CFR 261.1). A material is “used or reused” if it is either (1) employed as an ingredient to make a product, or (2) employed in a particular function as an effective substitute for a commercial product. A material is “reclaimed” if it is processed to recover a useful product or if it is regenerated. Although the EPA considers recycling a form of treatment, it does not require recyclers to obtain a permit. You may be able to take advantage of this exemption by distilling solvents, reclaiming precious metals, or precipitating metal salts.
- **Treatment in Accumulation Containers:** Generators may treat hazardous wastes in accumulation containers without obtaining a RCRA permit, provided the containers are managed in compliance with EPA’s container management standards in 40 CFR part 265, subpart 1. Examples of treatment in accumulation containers include precipitating heavy metals from solutions and oxidation/reduction reactions. Remember, treatment residues may still require management as hazardous waste and, residues destined for land disposal are subject to land disposal restriction standards (40 CFR 268).
- **Liquid wastes that are nonhazardous and water soluble** may be flushed to the sanitary sewer with copious amounts of water. Liquids that are nonhazardous but not water-soluble must be solidified (absorbed) and disposed of as a solid.

#### X. UNKNOWN WASTES:

When unknown wastes are found, the container will be identified as unknown and protected and labeled as corrosive, flammable, reactive, and toxic until laboratory analysis determines otherwise. Immediately, the substance will be given to a certified laboratory to determine its identity.

#### XI. RECORDKEEPING:

When notified of hazardous waste to be removed from a location, the laboratory supervisor will maintain a record in a database of when the material was first generated and where it was stored. (Appendix A) Departments will maintain a monthly accumulation log (Appendix B) and provided results to the lab supervisor. Additional records will reflect total volume of waste and plan for shipments and waste removal. Hazardous waste shipment records and manifests will be retained by the laboratory supervisor. Training records will be maintained by the department conducting the training.

#### XII. TRAINING

Departments that generate hazardous waste will establish a training plan for anyone who generates hazardous waste. At minimum, employees and students handling or generating hazardous waste will be able to demonstrate safe handling procedures, proper labeling and containerization, and how to arrange for transfer of waste to the central holding facility. Training will be conducted annually or at the beginning of a class, whatever is appropriate.