

 Portland Community College Health & Safety Manual	Dept: Environmental Health and Safety (EH&S)	
	Function: Facilities Management Services	
	Topic: Chapter 21 — Regulated Waste Program	
	Board Policy: B507	Revised Date: November 2018

Authority	PCC Board Policy—B507
	Portland Community College is committed to providing a safe and healthy work and educational environment for our employees, students and visitors.

Summary	The Regulated Waste Program has been developed to assist departmental personnel to comply with current and ever-increasing Department of Environmental Quality (DEQ) and Environmental Protection Agency (EPA) requirements regarding the disposal of waste generated in small "bench scale" volumes commonly found in class rooms and laboratory settings, as well as wastes generated on a larger scale from Facilities Management Services operations and maintenance, and in industrial shops.
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I. PURPOSE

The purpose of this plan is to assess and determine the general characteristics of regulated wastes generated by Portland Community College (PCC) departments. This program is designed to meet or exceed current regulatory standards for the management of those wastes; whether they are classified as hazardous, biological, universal, or non-hazardous.

The plan has been adapted to current PCC policies and procedures in such a way that it is user friendly for the purpose of obtaining a high level of consistent involvement by the departments. As a result, PCC has reduced the amount of regulated waste generated, thus simplifying the overall process, the liability of PCC, and lowering costs.

The plan has been developed to include all of PCC's operations, whether the volumes are large or small and whether they are from maintenance activities or education. Having one plan for all PCC operations will simplify the management efforts needed by Environmental Health and Safety (EH&S) and increase the department's effectiveness due to consistency throughout the district.

II. AUTHORITY

PCC Board Policy – B507

40 CFR 260-263, 270, 273 Resource Conservation and Recovery Act (RCRA)

OAR 340 Divisions 100-103, 109-113, and 142 Hazardous Waste Management

OAR 437 Division 2 – 1910.120 Hazardous waste operations and emergency response

OAR 437 Division 2 - 1910.1030(d)(2)(viii) & (xiii) – Biological waste containers

OAR 437 Division 2 – 1910.1450 Occupational exposure to hazardous chemicals in labs

Other related Health & Safety Manual Chapters:

Chapter 4 - Bloodborne Pathogen Exposure Control Plan

Chapter 9 - Chemical Hygiene Plan

III. RESPONSIBILITY

Responsibility for the success of the Regulated Waste Program rests at all levels in the College and is described as follows:

Supervisors/Managers/Deans

- Insuring all employees receive initial as well as in depth on the job training of the Regulated Waste Program and understand their role in waste management at Portland Community College.
- Maintain annual records of this training for all their employees.

Environmental Health and Safety (EH&S)

- Providing training material to supervisors and managers.
- Maintaining records of waste determinations for the district.
- Scheduling and overseeing all waste disposal activities and making sure all waste is disposed of within the regulated timeframes.
- Providing technical support to employees and departments for any waste generated by Portland Community College.

- Managing all Central Accumulation Areas (CAA) including inspections.
- Maintaining all records and manifests from waste shipments.
- Insuring DEQ compliance district wide and submitting yearly DEQ Hazardous Waste reports.

Instructional Support Technicians (IST)/Project Managers

- Performing initial waste determinations for any waste generated in their assigned work areas.
- Submitting waste determination information to Environmental Health and Safety.
- Performing Satellite Accumulation Area Inspections for areas they manage.
- Maintaining all records for assigned Satellite Accumulation Areas (SAA) including all Satellite Accumulation Logs and Inspection forms.
- Ensuring waste is stored in compatible containers and only with other compatible wastes

All other Employees

- Reading and understanding the Health and Safety Manual.
- Following all procedures outlined in the Regulated Waste Program
- Knowing the locations of the SAAs closest to their assigned work area.

Chemical Hygiene Committees

- Performing annual inspections of chemical storage areas, SAAs, and confirming the completion of all inspection records. More information can be found in *Chapter 9 – The Chemical Hygiene Plan*.

IV. PROCEDURES

A. RCRA Reporting and Compliance

The Resource Conservation and Recovery Act (RCRA) was enacted to protect human health and the environment by establishing a framework for a national system of waste control. RCRA focuses both on non-hazardous as well as hazardous waste requirements and is implemented through regulations developed by the Environmental Protection Agency (EPA) and Oregon Department of Environmental Quality (DEQ).

These regulations outline how regulated waste is to be managed based on a generators hazardous waste generator status. Each campus and center at PCC has its own status with many of PCCs facilities classified by DEQ as Conditionally Exempt (CEG) and two PCC campuses classified as Small Quantity Generators (SQG). A campus or center can change status from one year to the next based on the amount of waste generated by that location. The generator status dictates several aspects of waste management including allotted storage time for Central Accumulation Areas (CAA), inspection schedule, and the level of training employees receive.

The overall regulatory frame-work established by EPA to manage hazardous waste from the point of generation, through transportation, to storage and/or disposal is referred to as the “cradle to grave” system. These regulations require detailed recordkeeping and reporting of all hazardous waste operations included waste determinations, shipping manifests, and annual hazardous waste reporting.

Each waste shipment from PCC generates a manifest that details the quantity and classification of the waste shipped. The manifest stays with the shipment all the way to the designated disposal facility at which time it is returned to the generator for recordkeeping. The information on these manifests is then used for the DEQ Annual Hazardous Waste Report. This report details the waste activities (including quantities, classifications, and on occasion specific contents of waste generated) of a given location for a calendar year and is used to determine the hazardous waste generator status.

B. Assessment and Determinations

1. Regulated Waste Categories

PCC's departmental labs, vocational training classes, as well as facility maintenance operations produce waste products that when classified, fall into one of the following categories:

- a. Hazardous Waste:** If the waste exhibits any one or more of the following characteristics, or is a listed 40 CFR 261.33 (e, f) chemical (Appendix B), it will be classed as a hazardous waste.
 - i. Ignitable Waste:** The waste material has a flash point less than 140 degrees Fahrenheit. Examples include chemicals such as toluene, acetone, alcohols, paints, cleaning solvents, Art and Dental Department solvents, and petroleum based paints.
 - ii. Corrosive Wastes:** To fit this category the waste must have a pH equal to or less than 2 or equal to or greater than 12.5. Examples include Sodium Hydroxide, Sulfuric Acid, Hydrochloric Acid, Acetic Acid, and Battery Acid.
 - iii. Reactive Waste:** This includes any waste material that is reactive to water, shock, heat, or pressure; or is normally unstable and easily undergoes violent change without detonation. Also included are sulfide or cyanide bearing wastes which when exposed to pH conditions between 2 and 12.5 can generate toxic gases, vapors, or fumes sufficient to present a danger to human health.
 - iv. Inorganic Solutions containing heavy metals:** The heavy metal's list includes lead, chromium, selenium, mercury, arsenic, cadmium, silver, and barium. Any mixture or solution containing one or more of these metals is included in this category.
 - v. Toxic Waste:** includes materials not categorized in the preceding categories and which are determined to be a hazardous waste because they are listed either by name or process. This includes materials listed in 40 CFR, Section 261.33, which is a summary of chemicals that are hazardous due to either their process of generation (cleaning with chlorinated solvents) or because of the toxicity. Examples include, lead, silver, formaldehyde, and benzene. Note: Because the toxic waste category can be somewhat confusing, please contact EH&S for assistance.

- b. Biological Waste:** Any waste containing body fluids (blood, saliva, urine), or specimens for dissection such as frogs and pigs are classified as biological waste.
- c. Universal Waste:** There are currently four types of waste considered Universal Waste in Oregon: Batteries, Pesticides, Mercury containing equipment, and Mercury containing lamps. PCC has chosen to recycle those items regulated as Universal Wastes by the EPA and DEQ.
- d. Non-hazardous Managed Waste:** There are a variety of non-hazardous wastes generated by PCC. Examples include the following: fluids used in preserving dissection specimens, used oils, engine coolant, water soluble machining oils and catch basin sludge.

2. Waste Determination

To insure proper management of these wastes it is critical that the process of assessment and determination be carefully performed. The key step to successful control of waste is the pre-generation waste determination. This is the process of evaluating what the waste will be before the waste is generated or immediately after the lab or project is completed. Before preparing the chemicals and/or supplies for use on a project or lab procedure, the employee should take the time to review the Safety Data Sheet (SDS) of any chemicals that might be used as well as the proposed procedure for the project. This information along with the employee's expertise should be used to determine the proper category of the waste to be generated. Once the initial waste determination is complete and before the employee starts the project, employee should make sure compatible container(s) and storage are available.

The waste determination should include what personal protective equipment (PPE) is needed while handling the waste. Typically the PPE needed for handling the waste will be the same that was needed while performing the lab or project but a full assessment should be completed to ensure a higher level of protection isn't required. There should also be an evaluation for what spill response material is needed for the waste. Each department should make sure the proper neutralizers and absorbents are stored at the Satellite Accumulation Area (SAA) in case of an accident or spill.

For academic departments, all determination information should be stated on the lab/project procedural documents and should describe what steps are to be taken as the "final step" towards completion of the lab/project. In the case of the Facilities Management Services (FMS), determination information should be stated in the Service Request Center (SRC) Work Order in the Notes Log with the heading of "Disposal."

Once the project or lab is completed, employees should verify that the waste generated matches the characteristics anticipated. This is a double check safety measure in the event other materials were accidentally mixed together. If there is any question as to the contents of the waste or what category the waste stream should fall in, the waste should be classified as Hazardous.

3. Waste Generators by Waste Category

The following table shows the general departments and programs that contribute to the different regulated waste streams.

Hazardous Waste	Art Automotive Aviation Biology Chemistry FMS Health Programs
Biological Waste	Biology Custodial (sharps only) Health Programs
Universal Waste	District Wide (used batteries) FMS
Non-hazardous Managed Waste	Automotive Aviation Biology Diesel FMS

C. Waste Handling Specifics

1. Hazardous waste

Hazardous waste is the largest category of regulated waste generated at Portland Community College. The largest contributors to hazardous waste are academic programs but FMS occasionally generates waste in this category.

Any waste determined to be hazardous should be put in containers compatible with the characteristics of the waste. All containers should be labeled and include the phrase "Hazardous Waste," the name of the department that generated the waste, all applicable hazard characteristics, and a description of the contents. Examples of labels and containers can be found in the Fact Sheet in Appendix F. This labeled container can then be added to the Satellite Accumulation Area (SAA) for the department that generated the waste.

Once the waste is stored in the SAA, PCC's "Hazardous waste log" for that SAA should be filled out and should include information specific to the constituents of that waste container. It is important to complete this information for compliance with DEQ criteria. A blank copy of this log can be found in Appendix D.

Many aerosol products such as cleaners, spray paints, and adhesives contain chemicals that are considered a hazardous waste and must be disposed of as such. Even an empty aerosol container which has not been depressurized is considered a reactive hazardous waste. Because waste aerosol cans, whether emptied of contents or not, must be managed as hazardous waste they cannot be thrown in the trash. Aerosol cans for disposal should be stored in a SAA in a labeled, plastic screw top bucket.

2. Biological waste

Most biological waste at Portland Community College is generated by the health professional courses, veterinary courses, or biology departments and can be sorted into two categories.

Regulated Medical waste includes:

- Sharps such as needles, scalpel blades, or microscope slides
- Laboratory waste like test tubes and media plates that were inoculated
- Bodily fluids like blood, saliva, and urine
- Gloves or other material that contain free liquids

Pathological waste includes:

- Animals used for dissection
- Human source tissue that emanates from a medical procedure.

All biological waste should be disposed of in red color-coded containers and bags. These containers can be reusable plastic totes supplied by a biological waste disposal vendor or sturdy cardboard boxes. All sharps should be disposed of in strong, puncture resistant containers and the full containers disposed of with other Regulated Medical Waste. (More information can be found in *Chapter 4 – Bloodborne Pathogens Exposure Control Plan*.) All containers must be marked with the Biological Hazard symbol and one of the following phrases: “Bio-hazard”, “Biological waste”, or “Regulated Medical Waste.”

Pick-up and disposal of biological waste is managed by an appropriate biological waste disposal vendor and the pick-up schedule is based on campus and amount of waste generated during any given term. More information on this vendor and the pick-up schedule can be obtained from the Environmental, Health, and Safety (EH&S) department.

3. Universal waste

The Universal Waste Rule permits certain hazardous wastes known as Universal Waste (UW) to be managed under streamlined requirements that encourage the collection, recycling and/or disposal of these wastes. Persons that generate or accumulate UW are called Universal Waste Handlers and are subject to specific standards depending up on the type and amount of UW that is accumulated. Portland Community College has elected to manage all UW according to DEQ’s more stringent Small Quantity Generator (SQG) requirements. These requirements allow the UW to be stored for no more than one year. Each campus or center will have at least one storage area for all types of UW.

The four types of waste considered Universal Waste by Oregon are batteries, mercury containing lamps, mercury containing equipment, and pesticides. Each of these wastes have specific management requirements outlined below.

a. Batteries

Improper storage and handling of waste batteries can pose special health and safety risks. When accumulating different types of batteries, employees should be aware that some types may be incompatible with each other. Explosion is another potential risk when batteries are stored in contact with one another. Waste batteries that contain a residual charge when collected together may discharge each other, creating heat and forming hydrogen gas. If the container is not properly ventilated there is a potential for an explosion.

There is also a potential for partially-corroded batteries to leak corrosive chemicals. If proper precautions are not taken, employees handling batteries may get chemical burns on their skin. Employees handling batteries should protect themselves by wearing personal protective equipment (PPE) such as safety glasses and gloves.

PCC's management of waste batteries has been designed to comply with Or-OSHA requirements and be consistent with the information provided with the battery's SDS. SAAs are maintained across the district for collection of waste batteries. These SAAs are routinely monitored and the collection containers emptied to insure disposal of the waste batteries occurs within the time limits required for a SQG.

Containers of waste batteries must be labeled or marked clearly with one of the following phrases, "Universal Waste--Batteries," "Waste Batteries," or "Used Batteries." Waste batteries are stored according to individual types in 5-gallon plastic containers. For example, nickel-cadmium (or ni-cad) batteries will all be stored in one container, alkaline batteries together in another, and lead-acid type in another. The container lid should stay closed unless batteries are being added.

b. Mercury-Containing Lamps

A mercury containing lamp is defined as a lamp in which mercury is purposely added by the manufacturer for operation of said lamp. PCC has expanded the list of waste lamps managed as universal waste to include high-pressure sodium and metal halide lamps due to the fact they might contain mercury and lead.

As soon as work is completed that generates waste lamps, the lamps should be taken to the campus UW SAA and the lamps placed in cardboard boxes according to their type for ease of recycling. The cardboard boxes should be large enough to contain the length of the lamp and still close completely. All boxes must be clearly marked with one of the following phrases: "Universal Waste- Lamps," "Waste Lamps," or "Used Lamps." If the waste lamps contain mercury, the label must clearly read "Universal Waste-Mercury containing lamps," "Waste Mercury Containing Lamps," or "Used Mercury Containing Lamps." All labels must also include the date that the first lamp was placed in the box. All boxes should remain closed unless waste is being added. Employees should notify EH&S when UW containers become full so that more containers can be provided.

Spent lamps being replaced by Maintenance staff or contractor personnel can be placed into the box that the new lamps came from. This box containing the spent lamp will then be classified as a waste storage container, and is to be marked as indicated above, and dated when the first lamp is placed in the box.

Use caution when moving and storing waste lamps to reduce breakage and prevent release of any of the components of the lamp to the environment. In the event a lamp is broken or damaged, immediately clean up and store the broken components in a separate box that can be completely closed.

c. Mercury containing equipment

There are several applications across the district where mercury containing equipment is used. Most common are mercury containing thermostats and thermometers. PCC has been working to replace any mercury containing equipment found during maintenance projects with more efficient and environmentally friendly options.

Employees should use caution when performing maintenance work with any equipment that has the potential to contain mercury. Employees should wear appropriate PPE and have mercury spill response material on hand in the event that a piece of equipment is damaged allowing for the release of mercury vapors or elemental mercury.

All equipment removed and designated as waste must be stored in sturdy containers that can be completely sealed. The container must be labeled or marked clearly with any of the following phrases: "Universal Waste – Mercury Containing Equipment," "Waste Mercury Containing Equipment," or "Used Mercury Containing Equipment." The label must also include the date that the first piece of waste equipment was added to the container.

d. Pesticide Waste

PCC participates in Oregon's Integrated Pest Management (IPM) program. With this program PCC has been able to reduce pesticide usage by close to 90% across the district. The majority of pesticides used are environmentally safe, non-EPA regulated chemicals with low hazard ratings. It is PCC's policy is to use pesticides as directed on the label, completely emptying the containers. All empty containers are to be "triple-rinsed" and the rinsate poured into the spray tank. Metal containers after "triple-rinsing" are to have three holes punctured into them and then the cans crushed prior to placement in metals recycling. Plastic caps and label sleeves should be removed from plastic containers after they have been "triple-rinsed." Any containers not rinsed, are to be classed as regulated waste and placed into a SAA and a waste log completed (Appendix D).

4. Non-hazardous Managed Waste

There are a variety of non-hazardous wastes generated at Portland Community College that have their own dedicated management. This includes used oils, engine coolant, water soluble machining oils, used oil filters, and some non-hazardous solutions used in Biology or Medical Labs.

Most of the used oils, coolants, and fluids used in automotive departments and other similar trade courses are stored in containers specific to the fluid. At the end of each term, EH&S schedules a used oil contractor to come and empty the containers and the fluids are taken for recycling.

Used oil filters are stored in a metal, open top 55-gallon drum marked "used oil filters for recycling." When the drum is 90% full, the employee managing the SAA should submit an SRC for EH&S to schedule a pickup of the filters by a used oil contractor.

There are some organic wastes commonly found in the Biology and Medical Labs which might be assessed and determined to be non-hazardous. Examples of these types of wastes are agar, sugar solutions such as glucose and sucrose, broth solutions, and starch solutions. These wastes and solutions containing low concentrations (no more than 5% or 0.2M) of the non-hazardous chemicals can be disposed of via the sink to the sanitary sewer in volumes not exceeding two liters. Employees should not dilute solutions to fall within the concentration limits for sewer discharge. The Sewer Discharge Log (Appendix E) is to be completed each time non-hazardous organic waste is disposed of down the drain.

The solutions used for the preservation of dissection specimens (such as Carosafe) are collected in bulk containers and stored in SAAs managed by the department who generated the waste. Once the bulk containers are 90% full, the employee managing the SAA should submit an SRC for EH&S to come and swap the full container for an empty one.

D. Storage Procedures

5. Satellite Accumulation Areas

Departments can store certain quantities of regulated waste at or near their point of generation where waste initially accumulates and is under the control of the employee overseeing the waste. PCC's EH&S office can provide assistance in designating these Satellite Accumulation Areas (SAA) as well as obtaining containers and labels and can assist with the use of the different logs. Each location will be clearly labeled as a "Satellite Accumulation Area" and must be inspected weekly to insure proper management. All wastes are to be labeled and kept in containers sufficient to safely contain the waste. Each SAA will have the appropriate neutralizers and absorbent spill response material available and easily accessible for all types of waste held in that area. For those waste streams that require gloves as part of the PPE, disposable gloves rated for the material being handled will also be easily accessible.

For some SAAs at PCC, there are bulk containers for the collection of waste solutions. Examples include used automotive fluids, paint thinners and lacquers, or solutions used for the preservation of dissection specimens. For these bulk containers, employees must complete an accumulation log to record the description of the waste added, the quantity of waste added, and the date when it was added. The Satellite Accumulation Log can be found in Appendix C.

Weekly inspections should be performed using the Satellite Accumulation Area Inspection Form and will include:

- adequate area access and housekeeping
- leaks or deterioration of containers
- proper labeling
- containers are sealed
- spill kit/absorbent is present

For those employees who are assigned the management of a SAA, a Service Request Center (SRC) request should be submitted through ReADY to move waste whenever the SAA is full or it is the end of the term. A completed Hazardous Waste Log (Appendix D) or Satellite Accumulation Log (Appendix C) for bulk containers should be attached in the Related Documents section. Once the SRC has been received, EH&S will move the waste to the Central Accumulation Area (CAA) for the generating campus.

6. Central Accumulation Areas and Transportation

Each of the main campuses at PCC have a dedicated Central Accumulation Area (CAA) for the waste generated at that campus. For Sylvania and Rock Creek, the CAAs are stand-alone storage structures designed specifically for storage of waste and fire rated for that purpose. At Southeast and Cascade, the CAAs are storage rooms with exterior entrances that have been dedicated for the sole purpose of storing waste. These CAAs are managed by EH&S and inspected periodically depending on the hazardous waste generator status of that campus (either CEG or SQG).

The majority of waste stored in the CAAs fall into the Hazardous Waste category but there are some occasions where other regulated waste might be stored there until removal can be scheduled with an appropriate transporter. For waste to be stored in the CAA, EH&S must receive a SRC request for the removal of the waste from its generation site or SAA. Once the SRC has been received, a member of the EH&S team will transport the waste to the CAA for that campus. When possible, secondary containment will be used to help contain the waste in the event of a leak or spill. All transportation of regulated waste will occur on private roads or sidewalks maintained by PCC. If a public road ever needs to be crossed (in the case of

Cascade), all crossings will occur at marked cross walks and at a 90° angle to the road to limit the amount of time on the public roadway.

The hazardous waste stored in the CAAs is shipped to a designated facility at the end of each term through an appropriate hazardous waste transporter. Each of these disposal shipments generates a manifest which is filed with the EH&S office.

V. TRAINING

PCC must ensure that all employees are thoroughly familiar with proper waste handling and emergency procedures relevant to their responsibilities during normal work operations as well as emergencies. Each department is required to provide on the job training with new staff covering the regulated waste program with in-depth training on the specific waste streams generated by that department.

The initial training will cover the following items:

- Names of personnel and alternates responsible for work place safety and health.
- Safety, health, and other hazards present in the work environment.
- Proper use of personal protective equipment.
- Work practices by which the employee can minimize risks from hazards.
- Safe use of engineering controls and equipment in the work place.
- Medical surveillance requirements, including recognition of symptoms and signs which might indicate overexposure to hazards.
- The contents of PCCs Health and Safety Manual

In-depth training should cover the following items:

- Different waste streams managed in an assigned work area as well as the location and inspection of SAAs.
- How to conduct waste determinations for each waste stream.
- Proper storage, labeling, and the process to request disposal.
- Emergency spill response and waste determination associated with that process.

Training will be given within six months of a new employee's hire as well as whenever a new waste stream is introduced, or the process for storage or disposal is changed.

VI. RECORD KEEPING

There are several sets of records related to the Regulated Waste Program that are maintained by different groups at Portland Community College.

Waste determinations and any documents supporting the waste determinations will be maintained by EH&S for at least three years from the date that the waste was last processed.

Signed Waste Manifests will be maintained by EH&S for at least three years from the date the waste was accepted by the initial waste transporter.

DEQ Annual Hazardous Waste Report will be maintained by EH&S for at least three years from the due date of the report.

Training records will be maintained by the supervisor/manager for one year.

Satellite Accumulation Area records will be maintained by the employee assigned the management of the SAA. This will include the SAA inspection forms as well as SAA accumulation logs for any bulk waste containers. All SAA records will be maintained for at least three years.