University of Portland

Regulated Waste Management Plan

UNIVERSITY OF PORTLAND

PORTLAND, OREGON

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University of Portland

Section One

Purpose and Scope

1.1 Purpose

The Regulated Waste Management Plan outlines the proper procedures for managing State or Federally regulated wastes at University of Portland. For the purpose of this plan, "regulated waste" includes, but is not limited to:

- Hazardous Waste
- Used Oil
- Universal Waste
- Paint Waste.
- Biological Materials Waste
- Radiological Material Waste
- Explosives
- Polychlorinated Bisphenols (PCBs)
- Contaminated Equipment

This document is intended to serve as a "how-to" manual for University of Portland employees, students, faculty and subcontractors involved with the handling of regulated waste. These procedures will be revised as necessary to reflect changes in University of Portland practices, changes in regulatory status, and applicable environmental regulations.

1.2 Applicability

The procedures contained in this Regulated Waste Management Plan shall be followed by all University of Portland employees, faculty, students and subcontractors employed by University of Portland. The Environmental Health and Safety (EHS) Officer must approve any deviation from the procedures defined in this document in writing.

The following departments are most affected by its requirements:

- Science Departments, Swindells Hall and Romanaggi Hall
- Physical Plant and related Areas
- Photography, Research Spaces and Laboratories, Buckley Center
- Printing Services and Mail Center, Tyson Hall
- Engineering Shops and Research Laboratories, Shiley Hall
- Drama and Theater Departments, Mago Hunt Center

Note: *All University of Portland departments, operations and facilities must be aware of these requirements. Every department generating or managing waste must use these regulatory requirements to determine the regulatory status and management procedures that are applicable and relevant to each waste stream in conjunction with EHS.*

1.3 Regulatory Requirements

State and federal law and implementing regulations apply to wastes covered in this plan. The following regulatory citations in Table 1-1 cover each of these waste streams.

Table 1-1 Waste Stream Regulatory Citations

Waste Stream	State Rules Oregon DEQ	Federal Rules EPA	Section Location this Plan
Hazardous Waste	OAR 340 Division 100 through 135	40 CFR Parts 260 through 270	Two, Three, Four, Five, Six, and Seven
Used Oil	OAR 340 Division 111	40 CFR Part 279	Eight
Universal Waste	OAR 340 Division 113	40 CFR Part 273	Nine
Paint Waste	Different parts of OAR 340 Division 100 through 135	Different parts of 40 CFR Parts 260 through 270	Ten
Polychlorinated Bisphenols (PCBs)	2015 ORS 466.265[1]	Sec. 6(e) of the Toxic Substances Control Act (TSCA) [15 USC 2605]. Title 40 CFR Part 761	
Biological Material	Oregon Revised Statutes (ORS) 459.386 to 459.405 and Oregon Administrative Rules (OAR) 340-093-0030, OAR 340-093-0190, and OAR 333-056-0020 to 333-056-0050	State Responsibility	
Radiological Material	ORS 453.605 through 453.807.	10 CFR 20.2002	
Explosive High-hazard Material	ORS 480.200[1] Definitions for ORS 480.200 to 480.290		

Regulatory requirements, procedures, and management practices will be discussed for each waste stream separately. Where applicable and possible, procedures for individual departments will be addressed by waste type. All procedures defined in this manual are written for compliance with the above regulations to provide best management practices to minimize all waste streams.

1.4 University of Portland's Regulatory Classification

1.4.1 Hazardous Waste Regulatory Status

The Oregon DEQ Hazardous Waste Regulations apply to the storage, treatment, transportation, and disposal of wastes that either are listed by the Environmental Protection Agency (EPA) or meet one or more of the characteristics of ignitability, corrosivity, reactivity, or toxicity as defined in 40 CFR 261.

Table 1-2 Accumulation and Storage Limits for Hazardous Waste Generators (40 CFR 261.5(g), 262.34(b), and 262.34(e))

Generator Category	Accumulation Limit	Storage/Shipping Schedule
Very Small Quantity Generator produces 220 lbs. or less of hazardous waste per month (up to ½ drum).	2,200 lbs. If generator exceeds this limit, waste must be managed according to guidelines in the next category.	2,200 lbs. or less of hazardous waste may be stored indefinitely.
Small Quantity Generator Generates more than 220 lbs. and less than 2,200 lbs. of hazardous waste per month (1/2 to 5 drums).	13,200 lbs. If generator exceeds this limit, a permit is required.	Waste must be shipped off-site within 180 days after the waste was first placed in a container. If the receiving facility is more than 200 miles from the generation site, the SQG may store wastes up to 270 days.
Large Quantity Generator Generates more than 2,200 lbs. of hazardous waste per month (more than 5 drums).	Can store any amount of Hazardous Waste up to 90 days.	Must ship within 90 days of start of accumulation point.

A complete list of Federal Generator Requirements Summary is available in **Appendix K**.

University of Portland is classified either as a "Very Small Quantity Generator (VSQG)" of hazardous waste or a “Small Quantity Generator (SQG) of hazardous waste. Within this limitation, University of Portland personnel are prohibited from:

- Treating a hazardous waste;
- Storing a hazardous waste greater than 180 days, unless the receiving facility is greater than 200 miles away. In that case wastes can be stored on-site for up to 270 days;
- Transporting hazardous waste away from the campus; and
- Negligent or otherwise unlawful waste disposal.

University of Portland provides its departments with a single method for the lawful disposal of hazardous waste. The EHS Officer manages a contract waste transport and disposal services. Those at University of Portland who have a potential for generating hazardous waste are responsible for five primary management activities:

- Hazardous waste minimization;
- Proper management of the waste material while it is being generated;
- Proper labeling, storage and inspection of waste materials while accumulated on-site;
- Processing hazardous waste for removal; and
- Becoming trained in, then practicing, the proper management of hazardous waste in accordance with all federal and state regulations and laws.

This plan defines the procedures a department must implement in order to properly conduct these activities. In order to simplify compliance with hazardous waste regulations, each department may wish to select an EHS Departmental Coordinator for safety and environmental compliance issues. The EHS Officer will train this person, in the appropriate regulations. A fifth area of responsibility, Emergency Response Procedures for Accidental Release of Hazardous Waste, is discussed in Appendix H: University of Portland Chemical Spill Response Procedures and Guide.

1.4.1.1 Internal Chemical Exchange

Chemical exchange between University of Portland departments is encouraged under the supervision of the EHS officer. If there is excess stock of chemicals in a department, a laboratory is decommissioned, or research ends, it is encouraged to seek other users on campus prior to designating a chemical product a hazardous waste. This saves on disposal costs and will reduce costs for the receiving department.

1.4.1.2 Non-regulated Waste Disposal

Some chemicals are not regulated as hazardous substances but are, nonetheless, environmentally unfriendly and it is University of Portland's intent to protect the environment. If a waste is generated by a department containing chemicals or chemical reside, it must be reviewed for safe disposal and not assumed it can be placed in the normal trash or in a sink sewer drain.

The EHS officer will make all final determinations as to the final disposition of all chemical and biological substances that may be hazardous.

1.4.2 Used Oil Program Overview

The Physical Plant - Automotive Shop is both a generator and the depository of "Used Oil" at the University of Portland. Used oil is managed in 55-gallon drums with fixed top and bottom, a threaded bung, and labeled "Used Oil."

A licensed authorized used oil transporter and recycle/reuse facility or energy transfer user picks up the Used Oil and properly manages the Used Oil in accordance with applicable state and federal regulations. University of Portland management and handling procedures for Used Oil are found in Section Eight: Used Oil Program.

Physical Plant coordinates the pickup of Used Oil drums from campus.

1.4.3 Universal Waste Regulatory Status

The University of Portland is a generator of "Universal Waste" and the universal waste storage is maintained at the Physical Plant building. The wastes managed under this category are:

- Fluorescent Light Bulbs
- Batteries (Other than lead-acid batteries)
- Pesticides
- Mercury Thermostats

Physical Plant and the Environmental Health and Safety Officer, through universal waste recyclers, provides collection barrels, boxes, and drums for the different types of Universal Wastes at the points of generation. Management, proper handling, and disposal of Universal Wastes at University of Portland follow state and federal hazardous waste regulations. Licensed disposal contractors are used for transport and disposal of these wastes.

University of Portland management and handling procedures for Universal Waste are found in **Section Nine: Universal Waste Procedures**.

1.4.4 Paint Waste Regulatory Status

The University is a generator of "Paint Wastes". As a matter of policy, the University of Portland strives to use water-based paint products when and wherever it can. Use of oil- and solvent-based products are kept to an absolute minimum. The University of Portland recycles all unused paint products to the extent that it can be recycled. The University attempts to limit purchase of paint products to the volume necessary for any one paint job, and requires paint contractors to do the same. Paint wastes are separated and managed based on whether they are recyclable, water-based, or organic wastes. Management, proper handling and disposal of paint wastes at University of Portland follow state and federal hazardous waste regulations and laws. Licensed disposal contractors are used for transport and disposal of these wastes. Non-hazardous water-based paint waste is recycled back to the company through which the paint is acquired.

Environmental Health and Safety and Physical Plant will collect and store all paint wastes from other generating departments on campus, and coordinate their recycling or proper disposal.

University of Portland management and handling procedures for Paint Wastes are found in **Section Ten: Paint Waste Procedures**.

1.4.5 Polychlorinated Bisphenols (PCBs)

Although no longer commercially produced in the United States, PCBs may be present in products and materials produced before the 1979 PCB ban. Products that may contain PCBs include:

- Transformers and capacitors
- Electrical equipment including voltage regulators, switches, re-closers, bushings, and electromagnets
- Oil used in motors and hydraulic systems
- Old electrical devices or appliances containing PCB capacitors
- Fluorescent light ballasts
- Cable insulation
- Thermal insulation material including fiberglass, felt, foam and cork
- Adhesives and tapes
- Oil-based paint
- Caulking

- Plastics
- Carbonless copy paper
- Floor finish

Prior to replacement or demolition of a building or products the EHS Officer should review the material to ensure there is not presence of PCBs. If suspected items are found, they shall be tested and confirmed before any work can commence. A PCB Plan will be required to be developed and submitted to the EPA Region 10, local, office. The PCB Remediation Plan is located in **Section** Eleven: Polychlorinated Bisphenol's (PCB) Remediation and Disposal**.**

Section Two

Waste Characterization and Hazardous Waste Determination

2.1 General Disposal

Any substance that no longer serves its intended purpose and is destined for disposal should be evaluated by the generator to determine if it meets the definition of a hazardous waste. Every possible effort shall be made by the generating department at the University of Portland to identify each waste stream. Unknowns cannot be accepted for disposal. Unknowns must be submitted for chemical analysis by the generating department to properly categorize the waste stream before a hazardous waste contractor can accept it for transport and disposal.

A wrongly identified waste, if released accidentally to the environment, or causing the fouling of an incinerator pollution control system, not only will harm life and property, but can result in potential regulatory fines and possibly litigation. Likewise, the indiscriminate discarding of unknown chemical substances can have equally serious consequences.

NOTE: All radioactive waste, including radioactive wastes meeting the definition for a hazardous waste, must be processed through University of Portland's program for radioactive waste disposal.

The following sources can be used to accurately characterize a waste stream:

- Oregon and Federal Hazardous Waste Regulations
- Safety Data Sheets (SDS) or Material Safety Data Sheets (MSDS) of the chemical
- Process Knowledge from generating department users and Laboratory Principal Investigators
- Chemical Analysis following hazardous waste regulatory classification procedures
- University of Portland EHS Officer

In the event a waste chemical substance does not meet the regulatory definition of a Resource Conservation & Recovery Act (RCRA) hazardous waste, yet the generator recognizes unique hazardous characteristics, which are not subject to other regulatory requirements, the generator shall contact the EHS Officer to determine if the waste substance should be disposed as a hazardous waste. Many hazardous chemicals may not be RCRA-regulated but may be regulated by other laws and disposal restrictions.

2.2 Hazardous Waste Determination Procedures

"**Solid Waste**" (using the broad regulatory definition,), which may be a hazardous waste, is generated within six primary activity areas at University of Portland.

These activities and associated areas include (but are not limited to) the Physical Plant Shops, Engineering Shops and Labs, Science laboratories, Performing Arts Shop, and the Mail Center. The generators in these areas are responsible for properly characterizing the "solid waste" to determine if it is a "hazardous waste" and if so, what Hazardous Waste category it falls into.

There are five general categories of hazardous waste at University of Portland:

- Off-specification chemical stock
- Lab and Research effluent and residue
- Waste film development solutions
- Facility operations, maintenance, and shop waste (e.g., paint related waste, solvents, lead-acid batteries)
- Universal Wastes collected by the Physical Plant (e.g. fluorescent lamps, non-lead acid batteries, mercury switches)

Note: "Used Oil" is not a hazardous waste if managed properly and contains only oils as defined in the Used Oil regulations. Used Oil must not contain any other waste or hazardous waste. Used Oil procedures are discussed in Section Eight.

"**Universal Wastes**" are a selected group of products that contain a hazardous waste material. However, hazardous waste regulations allow special management procedures for these wastes where they are recycled in a specific manner. Universal Waste procedures are discussed in Section Nine.

"**Paint Waste**" can be hazardous waste or non-hazardous waste depending on the chemistry of the paint. Usually the difference is whether the paint is water-based, organic or solvent-based. Paint Wastes procedures are discussed in Section Ten.

The hazardous waste determination and characterization process is defined in Oregon and Federal EPA Hazardous Waste Regulations, which can be accessed through the following Internet Links:

- Oregon Hazardous Waste Regulations (OAR 340-100 through 135): http://www.deq.state.or.us/about/rules.htm
- Federal Hazardous Waste Regulations (40CFR 260 through 270): http://www.epa.gov/docs/epacfr40/chapt-I.info/subch-I.htm

These regulations are available for use or reference through the EHS Officer as well.

The hazardous waste determination and characterization process is discussed in more detail in the following sections.

2.2.1 Solid Waste

The first question to be answered when defining a waste stream is: "Is this material a solid waste?" A solid waste is any solid, semi-solid, liquid or contained gaseous material that is discarded or considered "inherently waste-like". The State and Federal regulatory definitions and URL links walk you through the specific regulatory map to satisfy this question. The regulatory citations are:

- Oregon Hazardous Waste Regulations (OAR 340-100 through 135): http://www.deq.state.or.us/about/rules.htm

- Federal Hazardous Waste Regulations (40CFR 260 through 270): http://www.epa.gov/docs/epacfr40/chapt-I.info/subch-I.htm

Exclusions

Several types of materials are specifically excluded from the definition of solid waste under State and Federal regulations. These waste types are listed in the above regulations. Some recycled materials are also exempt from the definition of a solid waste. Some materials when recycled are solid wastes and others are not; these materials are defined in the above regulations (40CFRPart 261.4).

After reviewing these regulations, classify the waste stream as either a solid waste or not a solid waste.

2.2.2 Hazardous and Miscellaneous Regulated Wastes

In order for a waste material to be a hazardous waste, it must first meet the definition of a solid waste (Section 2.2.1 above). The Oregon DEQ and Federal EPA Hazardous Waste regulations listed above walk you through the determination criteria for hazardous waste identification (40CFR261). There are two different ways a waste can be classified as a hazardous waste. It can be a listed hazardous waste and/or it can be a characteristic hazardous waste. Tables in 40CFR261.31 through 261.33, define listed hazardous wastes. If a waste is included in any of these lists (F, K, P, and U lists) it is a listed hazardous waste. In the case of U listed and P listed wastes, the waste must be "unused" and in their pure form, not mixed. These lists are as follows:

- F-listed waste from operations that are not specific to a particular manufacturing operation (40CFR261.31). Example: Spent halogenated solvents used in degreasing.
- K-listed waste from specific manufacturing process (40CFR261.32). Example: Sludge from wood preserving.
- P-listed acute hazardous commercial chemical products (40CFR261.33(e)).
- U-listed toxic commercial chemical products (40CFR261.33(f)).

It is also necessary to determine if a waste is a characteristic hazardous waste. The four hazardous waste characteristics are:

- Ignitability (40CFR261.21, hazardous waste code D001)
- Corrosivity (40CFR261.22, hazardous waste code D002)
- Reactivity (40CFR261.23, hazardous waste code D003)
- Toxicity (40CFR261.24, hazardous waste code D004)

If a waste exhibits any of the four characteristics listed above, it is characterized as a hazardous waste.

> **Note:** *A waste may be both a listed and a characteristic hazardous* **waste and carry multiple hazardous waste codes.**

The generator of the waste must also determine if it is regulated under Toxic Substance Control Act (TSCA) or any other applicable federal or state laws or regulations. A waste does not necessarily have to be defined as a solid waste in order to belong in these categories.

- Summary of the Environmental Protection Agency - Toxic Substance Control Act

- https://www.epa.gov/laws-regulations/summary-toxic-substances-control-act

The EHS Officer must verify all hazardous waste determinations and will assist departments in determining if the waste belongs to additional waste categories.

Please refer to and use the following resource material when identifying and coding Hazardous Wastes: APPENDIX A – Hazardous Waste Codes and Hazardous Waste Lists

2.3 Empty Containers

Residues of hazardous waste remaining in a container may not be subject to the requirements specified in this plan if the container meets the regulatory definition of an empty container.

A container or an inner liner removed from a container that has held a hazardous waste, except a compressed gas or acute hazardous waste, is empty if:

- All wastes have been removed that can be removed using common practices (e.g., pouring, pumping, aspirating), and
- No material pours out of the container when held upside down or no more than 2.5 cm (one inch) of residue remain on the bottom of the container or inner liner (for Department of Transportation (DOT) recycling) or
- No more than 3% by weight of the total capacity of the container remains in the container or inner liner if the container is less than or equal to 100 gallons, or
- No more than 0.3% by weight of the total capacity of the container remains in the container or inner liner if the container is greater than 100 gallons in size.

A container that has held a hazardous waste that is a compressed gas is empty when the pressure in the container approaches atmospheric pressure. However, it should be noted that releasing hazardous waste from a compressed gas cylinder for the purpose of returning the cylinder to atmospheric pressure is considered illegal discharge of a hazardous waste and is strictly prohibited by any UP personnel. This includes depleted spray cans that contain a hazardous waste.

The rinseate generated when cleaning hazardous material from an acute hazardous waste container, should be managed in accordance with the requirements specified in this plan unless it can be determined, using the procedures outlined in this section, that the material is not a hazardous

CAUTION A container or an inner liner removed from a container that has held a P-listed or acute hazardous waste (as identified in Appendix A) is not considered empty until:

- The container or inner liner has been triple rinsed using a solvent capable of removing the waste.
- The container or inner liner has been cleaned by another method that has been shown in the scientific literature, or through tests conducted by the generator, to achieve equivalent removal.
- Or, in containers with liners, the inner liner that prevented contact of the acute hazardous waste with the container has been removed.

waste. Normally, all rinseate from an acute hazardous waste container is an acute hazardous waste and should be collected and managed accordingly.

2.4 Hazardous Waste Minimization Requirements

EPA defines waste minimization as the reduction, to the most feasible extent, of hazardous waste that is subsequently treated, stored and disposed of. Waste minimization includes any source reduction or recycling activity undertaken by a generator that results in either the reduction of the total volume or quantity of hazardous waste, or the reduction of toxicity of hazardous waste, or both, so long as the reduction is consistent with the goal of minimizing the present and future threat to human health and the environment.

The main ideas behind waste minimization are toxicity, volume reduction, and material substitution. Toxicity reduction means reducing the degree of hazard associated with the raw material that, consequently, reduces the degree of hazard of the waste. Material substitution means the use of less toxic or even nontoxic materials.

The Oregon DEQ Hazardous Waste Regulations dictate that all possible efforts should be taken to eliminate or reduce the generation of hazardous waste. University of Portland departments are responsible for assessing each source of hazardous waste within their operations and for establishing control measures to ensure that the least possible amount of waste is generated.

In anticipation of future hazardous waste minimization audits by Oregon DEQ, each department should record any efforts undertaken for hazardous waste reduction and submit the documentation to the EHS Officer on an annual basis. Waste reduction action is to be implemented by an effective combination of the following methods:

- Non-hazardous reagents shall be substituted for hazardous reagents where possible, to avoid generating hazardous waste.
- Current equipment that produces a hazardous waste stream and can be replaced by a new technology that reduces or eliminates that waste stream shall be given high priority in the selection and procurement of replacement equipment.
- No greater quantity of a hazardous reagent shall be procured than will be necessary to satisfy immediate planned usage. Unused chemical overstock constitutes a large portion of hazardous waste generated at University of Portland.
- Any written agreement entered into by a department with an industrial client, in which hazardous reagents or samples are supplied for specific research or experimental use on behalf of that client, shall include a provision for return of the unused amounts to the client for appropriate disposal.
- Any agent of a department shall not accept donations of chemicals unless immediate planned usage is confirmed for the entire amount.
- Chemical reaction systems shall be preplanned and designed so that by-products and effluent may be rendered non-hazardous in the process, prior to reaching waste status.
- Upon application of hazardous reagents such as paints, pesticides, etc., the entire volume of material shall be applied or an additional area shall be identified where any remaining excess can be properly applied at the same rate, so that the entire amount can be depleted.

2.4.1 Terminated Employees

Upon termination of an employee or separation of a student, the exit process shall include immediate collection of all chemical reagents and waste residues used by or in the possession of that person. Prior to separation, the department is responsible for documenting the identity of each chemical reagent collected. The intent is to ensure that unused chemicals are returned to the department chemical stores and placed on inventory for continued use, wherever possible. Also, this procedure can help prevent the need for future analysis of "unknown" chemicals.

2.4.2 Chemical Stock Management

As a part of a proper chemical stock management program at University of Portland, old chemical stock will be a disposed of through the waste stream if no use is found. Some of this old stock is hazardous waste. Other constituents of this old stock may not meet the definition of hazardous waste. However, these wastes usually cannot be accepted into local sanitary or solid waste landfills. In order that liabilities are minimized, these chemical wastes are given to a hazardous waste disposer, classified and managed as non-RCRA regulated wastes. From a regulatory standpoint, these unused chemicals are not hazardous wastes. From a cost standpoint, disposal of these chemicals as wastes may cost as much as the disposal of hazardous waste.

When a department generates chemical wastes, old stock chemicals may not meet the hazardous waste criteria and should be separated from those determined to be hazardous waste. The hazardous wastes shall be fully managed as regulatory requirements dictate. The other chemical wastes should be managed in a practical way and recycled if possible. When pressed further by waste minimization requirements, University of Portland may examine other options for dealing with these other chemical wastes.

Departments seeking options for waste minimization, recycling, or disposal of hazardous waste should request assistance from the EHS Officer.

2.5 Chemical Inventory Requirements

Federal, state, and local regulations require University of Portland to inventory the types and quantities of its hazardous materials. The Chemical Inventory Program, coordinated by the EHS Officer, tracks and reports the storage and use of hazardous materials. The inventory assists emergency responders, provides campus users with specific hazard and storage information, aids in the sharing of chemicals, and reminds users to dispose of sensitive chemicals before they become unsafe or expensive to dispose of.

Oregon State Fire Marshal's Office requires the annual reporting of hazardous substances in quantities above a specified threshold. Annual reporting will be coordinated by the EHS Officer with assistance from all departments on campus that store hazardous materials.

Appendix B: Chemical Inventory Requirements outlines who is required to perform this inventory, what needs to be inventoried, when to inventory and how to report it.

Additional information about the University of Portland's chemical inventory is available in the Hazard Communication Program.

2.6 Safety Data Sheet SDS Management

Under the OSHA Hazard Communication Standard (29 CFR 1910.1200), the University is required to maintain the proper management of Safety Data Sheets (SDS), formerly Material Safety Data Sheets (MSDS), for all chemicals brought to the University of Portland campus. The University of Portland uses an online database system to track all chemical Safety Data Sheets. The EHS Officer is the administrator of the database. Departments that regularly purchase chemicals for research or maintenance/ cleaning may also have administrative rights to the management system to ensure timely updating and accuracy of our SDS program. Further information is available in the University of Portland Hazard Communication Program.

Section Three

Hazardous Waste Storage Procedures

3.1 Waste Accumulation Points

Two types of hazardous waste accumulation points are present at University of Portland's main campus:

- Accumulation Points
- Satellite Accumulation Points.

3.1.1 Accumulation Point

An accumulation point is a location on-site at which hazardous waste can be accumulated for up to:

- 90 days without a permit, if you are a Large Quantity Generator (LQG).
- 180 days, if you are a Small Quantity Generator (SQG) or 270 days if you are a SQG and the receiving facility is more than 200 miles away.
- Indefinitely, if you are a Very Small Quantity Generator (VSQG). You can store up to 2,200 lbs on-site indefinitely, as long as you follow specific requirements and stay within this generation limit.

The storage limit clock begins for any container of hazardous waste entering the “Accumulation Point,” regardless of the amount. The clock begins for any collection container in the “Accumulation Point” when it receives its first amount of hazardous waste, regardless of amount.

3.1.2 Satellite Accumulation Point

A satellite accumulation point is a location at or near the point of generation that is under the control of the operator of the process generating the waste. No more than 55 gallons of hazardous waste or one quart of acute hazardous waste can be accumulated at a satellite accumulation point before being transferred to the “Accumulation Point”.

The difference between a satellite accumulation point and an accumulation point are the volume and the length of time wastes may be accumulated. At a satellite accumulation point, up to 55 gallons of hazardous waste or up to one quart of acute hazardous waste may be accumulated for a reasonable amount of time, which University of Portland policy sets at 180 days. At an accumulation point, an unlimited volume of waste may be accumulated in containers for up to 180 days. If a department has not been approved by the EHS Officer to maintain a hazardous waste accumulation point, then they are, by default, are a satellite accumulation point and must stay within the volumes

Note: *Container size selection is very important in minimizing costs when accumulating in these areas. Estimate your waste volume carefully while allowing for extra time to arrange shipping. It is recommended that you chose a container size that you can fill within a 30 or 60-day period in this situation.*

As a matter of policy, no hazardous waste shall be stored at an Accumulation Point at University of Portland's campus for greater than 180 days from the accumulation date on the container, regardless of generator regulatory status. This allows for possible situations where waste accumulation may exceed small quantity generator limits. This policy will be in effect until enough departments and staff personnel are

stated above and follow all procedures outlined in this plan. The EHS Officer will determine which is a satellite and accumulation point

Most laboratories in the Swindells Hall Science Building have "Satellite Accumulation Points". Swindells Hall has one "Accumulation Point" for central hazardous waste management, storage, and preparation for transport of Hazardous Waste from science departments within the building.

The Physical Plant has one "Accumulation Point" for hazardous waste, one for "Used Oil" and one area for paint wastes that are non-hazardous waste. Paint wastes that are hazardous waste are managed at the Physical Plant "Accumulation Point".

Hazardous wastes generated from small departmental operations at the University of Portland campus are stored at Swindells Hall Accumulation Point or the Physical Plant Accumulation Point depending on the distance across campus required to travel, the size of the material, and the space available at the accumulation points.

Wastes that are accumulated in these areas must be managed in accordance with the procedures specified below. The generator is responsible for ensuring compliance with these procedures for his/her hazardous waste satellite accumulation point(s) and accumulation point. The EHS Officer is responsible for inspecting and auditing the Accumulation Points and Satellite Accumulation Points for compliance with these procedures.

All hazardous waste Accumulation Points must meet the following requirements:

- A Hazardous Waste sign must be posted at each area, on the door leading into the area and on the wall near the containers of stored waste.
- A sign or form with the name and phone number of the accumulation point supervisor or faculty member in charge of the area and an alternate contact person must be posted at each area.
- Emergency contact information must be posted, including: UP Campus Safety, emergency responders, local fire department, chemical responders, local hospital, and state and national response emergency centers.
- The immediate area where waste is contained should be used for hazardous waste accumulation only. No raw materials or chemical stock should be stored in the same immediate area with hazardous waste.

- Flammable materials cabinet shall be used when possible for storage of ignitable hazardous wastes.
- All containers will be appropriately labeled and segregated for compatibility.
- A copy of inspection and inventory reports shall be kept near or in the area of accumulation.
- Access to the hazardous waste accumulation points and building must never be blocked.
- The area shall be quickly and easily accessible by emergency response personnel in the event of a spill, leak, fire, or injury.
- Appropriate emergency response equipment shall be maintained for each hazardous waste accumulation and satellite area. The accumulation point supervisor or faculty in-charge is responsible for ensuring the equipment is in good condition at each of his/her accumulation points.
- In addition to all the above requirements, satellite accumulation points must be located at or near the point of waste generation and must be under the control of the person responsible for the waste-generating process.

The EHS Officer or the Chemical Hygiene Officer is responsible for inspection and auditing of all accumulation and satellite accumulation points.

Accumulation and Satellite Accumulation Point emergency equipment shall include the following:

- Fire extinguisher, 5lb ABC type;
- Absorbent of the proper type and of sufficient amount to absorb the volume present;
- Broom, bucket and mop
- Telephone or other communication device
- First aid kit
- Safety shower and eye wash station as applicable
- Coveralls, eye protection and gloves compatible with waste and
- Empty containers and bags compatible with cleanup characteristics.

The accumulation point shall be managed as follows:

- Waste shall be stored in approved containers
- Containers shall be kept closed except during waste transfers
- Inspections shall be conducted weekly (see Section 3.5).
- Incompatible materials shall not be combined into one container. Containers of incompatible materials shall be separated to protect against mixture in the event of a spill, leak or release (see APPENDIX C - EPA Compatibility Table).
- Containers shall be labeled with an approved hazardous waste label before any waste is received (see Section 3.3).

Satellite accumulation points are subject to the following requirements defined below:

1. All waste containers must be labeled, "Hazardous Waste".
2. Each waste container must have a tight-fitting cap (no corks or wax sealers).
3. The container must not leak and must be compatible with the waste.
4. Incompatible chemicals must not be mixed.
5. Remove or deface old or extraneous labels on the container.
6. Commercial products must be accompanied by an SDS or MSDS.
7. Completely fill out a Hazardous Waste tag for each individual container.(Appendix)
8. DO NOT place a date on this tag until it is being removed for placement in the Accumulation Point area.
9. Complete all information requested on the tag.
10. List all contents; percentages should add up to 100%.
11. Use full chemical names (No formulas or abbreviations).

Satellite Accumulation Point Limits:

No more than 55-gallons total of hazardous waste or one-quart total of acute hazardous waste may be accumulated. See Appendix A for a list of acute hazardous wastes.

***Hazardous waste tags are supplied by the EHS Officer**

Note: *In spite of the flexibility allowed in the regulations concerning volume limits at satellite accumulation points, University of Portland's procedure is to remove hazardous waste from all satellite accumulation points at minimum every 180 days and place them in their associated Accumulation Area. This will minimize the risk of potential hazardous waste incidents by not allowing undue accumulation of waste in laboratories.*

3.2 Waste Storage Containers

Hazardous waste shall be placed only in approved hazardous waste containers. An approved hazardous waste container is made of or lined with a material compatible with the waste. Empty containers, which originally held the primary waste constituent or similar material, are acceptable hazardous waste containers.

The original container label must be removed or defaced. An approved hazardous waste label with the appropriate information shall be affixed to the container before any hazardous waste is received. (Container labeling requirements are summarized in Section 3.3).

The container must be in good condition without holes, rust or dents. The container shall always be closed during storage, except when waste is being added or removed. A hazardous waste container shall not be opened, handled or stored in a manner that may rupture the container or cause it to leak. Consideration should be given to doubly contain certain particularly dangerous chemicals if storage conditions and limitations are not ideal.

It is the policy of the University of Portland that NO hazardous waste drums will stacked in the Hazardous Waste Accumulation area. Drums will be separated by type and compatibility and spacing shall meet applicable fire protection requirements with labels facing the aisle way. Aisle spacing for container storage in the Hazardous

Waste Accumulation area shall be such that each row of containers can be easily inspected for leakage or damage.

3.3 Labeling and Marking

An approved Hazardous Chemical Tag (Appendix D) shall be affixed to each hazardous waste container prior to and during receipt of any waste material. The EHS Officer or Chemical Hygiene Officer is responsible for ensuring each container is properly labeled before being picked up from a Satellite Accumulation Point and moved to the Accumulation Point. However, the Generator or Accumulation Point Supervisor responsible for the waste is responsible for ensuring each container in his/her area is properly labeled before placing waste into the container or receiving any waste into an Accumulation Point.

The following information shall be provided on each Hazardous Chemical Tag:

- HAZARDOUS WASTE - Federal law prohibit improper disposal. If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency;
- The specific chemical name of the hazardous waste in the container shall be identified (e.g., waste acetone), including percentages of constituents if more than one; and
- Each container shall be appropriately labeled with an EPA Hazardous Waste Number (D, F, K, U, and/or P listed waste).

The labels shall be placed on the side of each container in such a manner that they are clearly visible for inspection.

Up to 55 gallons total of hazardous waste or one-quart total of acutely hazardous waste may be collected in each satellite accumulation point. The accumulation point supervisor or faculty is responsible for notifying the EHS Officer as soon as 55 gallons of hazardous waste or one quart of acutely hazardous waste have been collected. Each container that is stored at an Accumulation Point shall have the accumulation start date on the label.

Hazardous Waste Labels must be present on all hazardous waste containers in the Accumulation Area. Once the container is ready for shipment the manifest number is added to the Hazardous Waste Label. See Appendix D for more information on Hazardous Waste Tag and Label requirements.

3.4 Accumulation Time Limits

Up to 55 gallons total of hazardous waste or one-quart total of acutely hazardous waste may be collected at each Satellite Accumulation area. Once 55 gallons of hazardous waste or one quart of acutely hazardous waste has accumulated, the Generator shall date the container(s) at the point at which the container is full. The container(s) must be moved to a designated University Accumulation Point or picked up for off-site disposal within three (3) days of declaration to the EHS Officer. Within 180 days of entering the Accumulation Point, the container must be shipped off-site for disposal at an approved RCRA disposal facility. Hazardous waste may not be stored on-site at a designated Accumulation Point for more than 180 days from the date it is first accumulated or received at the Accumulation Point.

Note: *The 180-day limit is a policy decision made by the University. This policy will remain in effect until stability has been achieved as a Very Small Quantity Generator (VSQG) or as a Small Quantity Generator (SQG).*

3.5 Inspections

If the University is a Small Quantity Generator of hazardous waste, then the following inspections shall occur. The applicable Accumulation Point Supervisor, Chemical Hygiene Officer, or faculty shall conduct weekly inspections of the hazardous waste accumulation points and record it on an inspection log kept at the site. The EHS Officer or his/her qualified designee shall inspect all the Hazardous Waste Accumulation Points at least monthly. During the inspection, the inspector shall check each item listed on Figure 3.2. The results of the inspection shall be documented on this form. A copy of the form shall be sent to the EHS Officer, and one copy retained on site for inspection.

If any corrective action is required, the Accumulation Point Supervisor or faculty must comply immediately. Once the problem has been corrected, the Accumulation Point Supervisor or area faculty must date and initial a copy of the form and mail it or scan it to the EHS Officer. The EHS Officer shall maintain these records for three years.

3.6 Record Keeping and Reporting

If the University is a Small Quantity Generator of hazardous waste, then the following record keeping shall occur. During the weekly inspections of the departmental Satellite Accumulation Points and the Accumulation Point, the current inventory of waste shall be recorded (see Section Four). The EHS Officer, for the purpose of coordinating shipments of hazardous waste, shall use this inventory. The EHS Officer shall summarize the hazardous waste activities for that half of the year. In addition to general facility information, the report shall include the following information:

- Hazardous waste transporters used during the period
- The types and quantities of hazardous wastes generated
- The types and quantities of wastes shipped off site
- The types and quantities of waste remaining in storage at the end of the half year mark;
- A description of waste minimization and toxicity reduction efforts for the year (to be included with the end of year report)
- A description of the effectiveness of the waste minimization and toxicity reduction efforts. (To be included with the end of year report). A comparison will be made to previous periods and years.

All reports must be maintained at the facility for at least three years from the date the report was filed.

Section Four

Hazardous Waste Movement to Accumulation Point

4.1 General Procedures

Departmental Hazardous Waste Generators are responsible for moving or arranging the move of their waste from point of generation or from Satellite Accumulation Points to Accumulation Points for final storage before off-site transport and disposal is arranged. The EHS Officer or the Chemical Hygiene Officer are available to assist in the safe handling and transport of materials across campus.

4.2 Pre-removal of Hazardous Material

Before moving waste to the Accumulation Point each Department Generator shall:

- Verify that a correct hazardous waste determination has been conducted
- Verify that the Hazardous Waste tags are attached to each container, that all the information on the tag is correct, current and complete
- Verify that the correct waste codes have been identified for each waste type and each container
- Verify that all containers are properly labeled, sealed correctly, and in good condition with no leakage
- Verify that there is no radioactive waste or PCB waste in the waste being managed and moved to the Accumulation point
- Complete a Hazardous Waste Pre-Removal Checklist (Figure 4-1) and submit it to the EHS Officer with a copy to the generating department files
- Follow up with the EHS Officer to verify that the waste was moved safely to the Accumulation Point, entered into the Accumulation Point logs and dated properly to start the 180-day storage clock.

Note: *No hazardous waste shall be discarded in general refuse, through wastewater drains, by burning, burial, sale, giveaway, or any means other than that provided by contract waste disposal service through the EHS Officer.*

The Departmental Generator must initiate removal of a hazardous waste from Satellite Accumulation Point to Accumulation Point, usually when the total accumulated volume of waste in the satellite area approaches 55 gallons of hazardous waste or 1 quart of acutely hazardous waste. All accumulated waste must be removed from the satellite area within three days of reaching these volume limits.

4.3 Departmental Chemical Exchange

Where possible it is encouraged for departments to exchange chemical products that are in their original containers with other departments that will no longer use that chemical product, to avoid the designation of the material as a hazardous waste. The EHS Officer and Chemical Hygiene officer will coordinate the safe transfer of chemicals from one department to another where it is possible and practical. All efforts should be made to exchange chemicals internally at the University of Portland reducing the disposal costs and any unneeded purchase of new chemical products.

Chemical exchange between University departments is encouraged. The EHS Officer will work with all department Generators to minimize waste, look for opportunities to reduce or eliminate waste streams, and recycle wherever practicable.

4.4 Satellite Accumulation Point

The Department Generator will accumulate all hazardous waste in a safe manner until removed to the Accumulation Point. Removal will take place as soon as possible after notification is given to the EHS Officer, but no later than within three days of the accumulation start date for excess wastes.

- Ignitable wastes shall be stored in accordance with fire safety requirements for storage of flammables. Contact the University Public Safety Department or EHS Officer for information ((503) 943-7161).
- Corrosive wastes shall be stored in accordance with procedures for storage of corrosive materials, with secondary containment employed to prevent contamination or reaction from leakage.
- Poisonous wastes shall be stored in exhaust-ventilated areas and double-contained to prevent leakage.
- Reactive wastes shall be isolated and reported to the EHS Officer or Chemical Hygiene Officer (CHO) for immediate removal or special handling by the contract hazardous waste service representative.

Specific storage procedures referenced above may be found in "Prudent Practices for Handling Hazardous Chemicals in Laboratories". A copy of this book, cited in 29 CFR 1910.1450, OSHA's laboratory standard for occupational exposure to hazardous chemicals in laboratories, is kept at the office of the EHS Officer.

4.5 Hazardous Waste Recordkeeping

The EHS Officer is responsible for keeping accurate records, maintaining all required records, completing all required regulatory reports, maintaining a full and complete set of records for Hazardous Waste Management for the entire University of Portland campus. This cannot be accomplished without accurate and complete documentation by all Departmental Generators throughout the entire campus.

If the University of Portland is designated as a Small Quantity Generator, the EHS Officer and CHO will perform weekly campus inspections of all generating areas and all waste management areas and will complete and maintain a good system of records of these inspections. Copies of all inspections will go to the generating department and to the EHS Officer. Areas for correction will be documented and managed by the Generator with the assistance of the EHS Officer to satisfactory completion. Subsequent inspections will note status of corrective actions on all deficiencies. Any area of difficulty will be elevated to the department head, Dean, or relevant staff if necessary.

4.5.1 Records Management

If the University is a Small Quantity Generator of hazardous waste, then the following record keeping shall occur. The following is a list of records that must be kept complete and up-to-date by the EHS Officer:

1. Weekly Hazardous Waste, Used Oil, Universal Waste, and Paint Waste Inspection Sheets
2. Copies of Generator Pre-Removal Checklists
3. Weekly Inventory Report for all Accumulation Points
4. Monthly Summary Report for Hazardous Waste Program
5. Copies of all Manifests
6. Copies of all Waste Profiles
7. Copies of all Laboratory Analytical Reports

The generator and EHS Officer shall use the University of Portland Regulated Waste Tracking System for maintaining data on all wastes generated. This system is in electronic format (Excel) and can be maintained on the University intranet, making it easy to access and use by all Generators and managers for review.

Copies of the University of Portland Regulated Waste Tracking System sheets are presented in Appendix J for reference.

Section Five

Hazardous Waste Shipping Procedures

5.1 Regulatory Background

Pre-transport regulations are designed to provide safe transportation of a hazardous waste from origin to ultimate disposal. The pre-transport regulations used by the Department of Transportation (DOT), for transporting hazardous waste (49 CFR 172, 173, 178, and 179), were adopted by EPA and the Oregon DEQ. These regulations apply to hazardous waste shipped off-site.

5.2 Labeling and Marking

An approved Hazardous Waste Label (See Appendix D) shall be affixed to each hazardous waste shipping container prior to off-site shipment.

The EHS Officer derives information for labeling of containers for shipment from the individual waste containers. The Hazardous Chemical Tag (firmly affixed to the container) is the source of specific information needed to prepare shipping manifests, reports, and for packaging of the shipment.

Labeling requirements and marking regulations for shipping are found in:

40 CFR - CHAPTER I - PART 262: Labeling

Before transporting or offering hazardous waste for transportation off-site, a Generator must label each package in accordance with the applicable Department of Transportation regulations on hazardous materials under 49 CFR part 172.

49 CFR 172.101, Hazard Material Table. These regulations specify the following:

- Containers must be labeled in accordance with the DOT Hazardous Materials Table (available from the EHS Officer)
- Containers must be marked with the following information:
    1. Proper chemical name;
    2. Percent of constituents if applicable
    3. EPA waste codes;
    4. University Tracking I.D. number
    5. Accumulation Start Date

The EHS Officer is responsible for ensuring this information is available for all containers and wastes prior to off-site shipment.

5.3 Manifests

When hazardous waste is shipped off-site for treatment or disposal, it must be accompanied by a properly completed and signed Hazardous Waste Manifest. The EHS Officer is responsible for proper completion of the

manifest and shipping papers. This form has multiple copies for distribution as described in this section. The facility to which the waste will be shipped will provide a copy of the blank manifest to University of Portland. Blank manifests may also be obtained from Oregon DEQ or EPA. Emergency response information for each waste shipped must accompany all manifest.

The Hazardous Waste Manifest must be completed by the University of Portland or designated Hazardous Waste hauler before offering any hazardous wastes for shipment.

5.3.1 Manifest Responsible Party

As a Generator of hazardous waste, University of Portland is responsible for initiating the manifest with each shipment of waste or ensuring the Hazardous Waste Hauler completes necessary paperwork before shipment. The Generator completes the sections of the manifest outlined above and signs and dates the appropriate section of the manifest. At the time the waste is picked up, the transporter signs and dates the manifest in the appropriate section indicating that he has accepted the waste and agrees to deliver it to the designated treatment, storage or disposal facility. It is acceptable practice to have the hazardous waste transport company complete the manifest, but it is the responsibility of the University of Portland.

5.3.2 Record Retention of Manifests

The University of Portland must keep one copy of the manifest, which has been signed by the generator and transporter for each shipment of waste made to a hazardous waste facility. The original copy of the manifest must accompany the waste shipment along with two additional copies. Once the disposal facility receives the waste, the disposal facility representative signs the manifest and returns it to the Generator closing the loop. University of Portland must retain the returned copy of the manifest signed by the receiving treatment, storage or disposal facility for three years from the date of shipment.

5.3.3 Manifest Submittal and Reporting to the State

The state of Oregon Department of Environmental Quality does not require copies of Uniform Hazardous Waste Manifests. DEQ collects information from manifests on the annual hazardous waste report submitted by hazardous waste generators, hazardous waste treatment, storage and disposal facilities, and designated hazardous waste recycling facilities.. See Oregon Administrative Rule 340-102-0041 for Oregon reporting requirements. Very Small Quantity Generators are not required to report to the Department of Environmental Quality. If at any point in the calendar year the University produces over the allowable VSQ limit, then it must report to the DEQ. It has been the practice by the University of Portland to submit annual reports regardless of generator status.

5.4 Land Disposal Restriction Certification

Listed and characteristic hazardous wastes have been evaluated by EPA to determine their suitability for land disposal. The result of this evaluation is a treatment standard for each waste. Any waste meeting the treatment standards may be land disposed without restriction in a RCRA land disposal unit. If the treatment standard for a waste is not met, the waste cannot be land disposed without prior treatment.

Information defining the restricted wastes and their treatment standards is available from the EHS Officer. Whether the waste is restricted under the Land Disposal Restrictions, 40 CFR Part 268, will be determined by testing the waste or using knowledge of the waste. At the time the waste is shipped for off-site disposal, a Notification and Certification Form must be completed in full and must accompany the shipment. This form will identify the appropriate land disposal treatment standards and whether or not these standards have been met.

All laboratory analyses used to determine if a waste is subject to the land disposal restrictions will be conducted in accordance with approved EPA test methods and procedures. For wastes with treatment standards expressed as constituent concentrations in the waste extract (40 CFR 268.41), waste residues or an extract of such residues will be tested using the toxicity characteristic leaching procedure (TCLP). For wastes with treatment standards expressed as constituent concentrations in the waste (40 CFR 268.43), waste residues will be tested using a total constituent analyses (TCA).

It is the practice of the University to have the hazardous waste hauler make final determination of any land disposal restriction certificates for waste generated at the University.

5.5 Placarding

University of Portland will ensure any Hazardous Waste transporter completes the necessary and proper placards, if required to comply with DOT shipping and labeling requirements. If more than 1,000 pounds of flammable and/or combustible material are offered for shipment at one time, the placards for flammable and/or combustible material must be provided. The appropriate placards will be maintained at the facility or will be purchased by University of Portland prior to shipping quantities requiring placarding. Placards must be located on all sides of the motor vehicle. It is the practice of the University to hire approved Hazardous Waste Haulers that supply their own DOT placards for their vehicles.

5.6 Record Keeping and Reporting

One copy of each manifest prepared for a hazardous waste shipment must be kept by the EHS Officer until the original signed copy is returned from the disposal facility, which received the waste. The copy signed by University of Portland, the transporter, and the receiving facility must be maintained at the facility for three years from the date of shipment. If a hand-signed copy is not returned from the disposal facility within 35 days of the shipping date or made available by the hazardous waste hauler online, the University of Portland EHS Officer must contact the transporter or the disposal facility to determine the status of the hazardous waste.

If the completed manifest has not been returned from the disposal facility within 45 days of the date the waste was shipped from University of Portland, and is not made available online from the hazardous waste hauler, the EHS Officer will submit an Exception Report to Oregon DEQ. The report must contain a copy of the manifest retained by University of Portland and a letter of explanation stating what efforts have been made to locate the completed manifest and the results of those efforts.

All manifests and exception reports shall be maintained in the EHS office for at least three years from the date the report was filed or the waste shipment was made.

Section Six

Non-Routine Activity Procedures

6.1 New Hazardous Waste Streams

A new waste stream may be generated in three ways:

- Change in an existing process
- Implementation of a new process

- Change in the regulations

The University of Portland Departmental Generator, with the assistance of the EHS Officer, is responsible for reviewing any new waste streams to determine if they will be subject to the hazardous waste regulations. If the new waste stream is not excluded from regulation, analysis of a waste stream sample may be required. Laboratory work may include analysis for the hazardous waste characteristics outlined in Section Two and Appendix A. Knowledge of the process shall be applied to determine analytical needs. Analytical data will be reviewed to determine potential concerns of ignitability or reactivity during storage. The department generator is responsible for appropriately characterizing all new waste streams generated in his or her area.

Professors, students, and employees shall notify the EHS Officer prior to any new waste streams being generated.

6.2 Unlabeled Containers

The potential exists for containers of unknown material to be discovered. Without knowledge of the container contents, appropriate disposal options cannot be determined.

If an unidentified container is discovered, the following steps shall be taken:

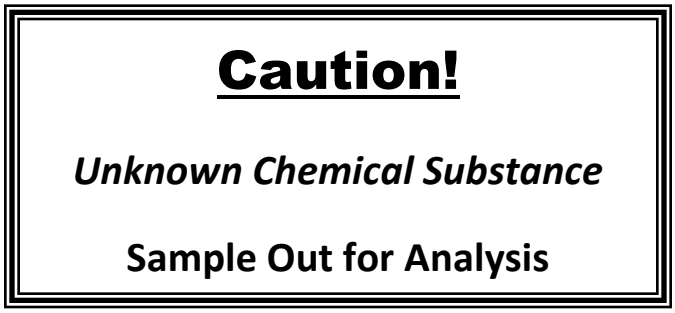
- Mark the container with the words "Awaiting Administrative Determination" and date the container.
- Initiate hazardous waste removal procedures (Section Four).
- Immediately notify the EHS Officer to arrange for the container to be relocated to the Hazardous Waste Accumulation Building.

Fields Analysis can be made by at approved hazardous waste hauler prior to shipment, however this does not guarantee the hazardous waste material will be removed from campus at the time of shipment.

If laboratory analysis is required to appropriately characterize the waste material, a completed "Sample Out for Analysis" label shall be affixed to the side of the container (Figure 6.1).

If the material is determined to be a hazardous waste, label, and date the container immediately (Using the Hazardous Waste Tag, see Appendix D), and properly dispose of the material within 180 days through the normal procedures outlined Sections Four and Five.

Figure 6.1: Sample Out-for-Analysis Label



Section Seven

Training Requirements

7.1 Training Intervals and Positions

The University of Portland strives to maintain a generator status of Very Small Quantity Generator or Small Quantity Generator. Based on available records to-date, with little exception the University has been a VSQG, (formerly known as Conditionally Exempt Generator), except for a few episodic cleanouts of laboratories which resulted in status as a Large Quantity Generator. Large Quantity Generators, Permitted Treatment, Storage, and Disposal (TSD) facilities, Interim Status TSD facilities, and Universal Waste Haulers have significantly different and more stringent training requirements. Although the University of Portland is not a SQG, they will strive keep to stricter requirements, where possible.

EPA regulation, 40CFR 262.34(d)(5)(iii), details training requirements for Small Quantity Generators.

The regulations say that Small Quantity Generators must "ensure that all employees are thoroughly familiar with proper waste handling and emergency procedures, relevant to their responsibilities during normal facility operations and emergencies." In addition, there needs to be at least one employee either on the premises or on call with the responsibility for coordinating all emergency response measures.

Regarding emergency procedures, employees must be trained to be familiar with:

1. Communications and alarm systems such as contacting emergency response personnel (e.g., the fire department)
2. Proper fire extinguish usage
3. Hazardous waste spill emergency response, containment and cleanup

There are basic recordkeeping requirements for training of Very Small Quantity Generators, and there are no requirements for annual refresher training.

With regards to who must be trained, EPA clarified this in its 1986 Small Quantity Generator rule preamble:

> "Employees who handle hazardous waste as part of their normal job responsibilities or are likely to handle wastes in an emergency situation must be thoroughly familiar with proper waste handling and emergency procedures. Employees who work in or adjacent to areas where hazardous waste are generated, handled, or stored, but do not handle hazardous waste (e.g., office or clerical staff), must still be trained to be thoroughly familiar with basic emergency procedures," (51 Federal Register 10165).

Very Small Quantity Generators do not have to comply with any training requirements per 40 CFR 261.5.

The required training must be successfully completed by all of the personnel described above. For new personnel, training must be successfully completed within six months after assignment to the facility or to a new position at the facility, whichever is later. Until that time, untrained personnel must not perform any tasks involving hazardous waste management unless they are supervised by trained personnel. University personnel may be required to take part in an annual review of the entire training program.

The EHS Officer will direct training of all applicable University personnel in hazardous waste management and emergency procedures. Included in this training will be instruction in job specific hazardous waste management as well as contingency plan implementation.

7.2 Scope of Mandatory Training Requirements

There are two general components to the training requirements for personnel who must be trained:

1. How to perform duties in a way that ensures the facility's compliance with the regulations
2. How to respond to emergencies involving hazardous waste.

EPA regulations published in 40 CFR 265.16 regarding personnel training are presented in Appendix C of this Regulated Waste Management Plan (copies available from EHS Officer).

7.3 Training Required by Other Laws

Besides the required RCRA training, other laws and regulations require training for many of the same personnel who must receive RCRA training.

- For example, persons working at permitted TSD facilities as well as hazardous substance emergency response personnel are required to be trained in accordance with OSHA regulations published in 29 CFR 1910.120.
- Personnel who work in areas in which hazardous chemicals are present may be required to be trained in accordance with OSHA regulations published in 29 CFR 1910.1200 or in accordance with substance specific standards in 29 CFR 1910 Subpart Z.
- All employees who handle, prepare for shipment, load, unload or drive a vehicle hauling DOT hazardous materials must be trained in accordance with the DOT training requirements in 49 CFR 172.700-.704. These regulations require initial general awareness, function-specific and safety training as well as recurrent training every three years or when changes in the relevant regulations occur.

To ensure that University of Portland personnel meet all of the training requirements specified by environmental laws, the director, department head or supervisor, with guidance from the EHS Officer, should determine the necessary training required for associated employees.

7.4 Documentation and Training Records

The following documents and records will be maintained at University of Portland, even though they are not required for Very Small Quantity Generator or Small Quantity Generators:

1. The job title for each position at University of Portland related to hazardous waste management including the name of the employee filling the job;
2. A written job description for each position listed including the requisite skill, education or other qualifications, and duties of personnel assigned to each position;
3. A written description of the type and amount of introductory and continuing training that will be given to each person filling the listed position; and
4. Records documenting that the required training/job experience has been given to, and completed by applicable University of Portland personnel.

Training records on current and former employees will be kept for at least three years. Personnel training records may accompany personnel transferred to a different department within the university.

7.5 Training

Personnel who handle or are occupationally exposed to hazardous waste are required to be trained initially in the proper methods for the management of hazardous waste and the implementation of the facility's contingency plan. The training programs must be provided and directed by a qualified professional trainer in hazardous waste management and applicable state and federal EHS regulations. Personnel who are assigned to a position related to hazardous waste management must complete training within six months of their assignment. These personnel must not work in unsupervised positions until they have successfully completed training. Refer to Section Seven for details regarding who must be trained and the scope of the required training.

7.5.1 OSHA HAZWOPER Training

The Hazardous Waste Operations and Emergency Response Standard (HAZWOPER) applies to five distinct groups of employers and their employees. This includes any employees who are exposed or potentially exposed to hazardous substances -- including hazardous waste -- and who are engaged in one of the following operations as specified by 1910.120(a)(1)(i-v) and 1926.65(a)(1)(i-v).

7.5.2 OSHA Hazard Communication Program Training

Employees who work with or around hazardous materials are required to have a basic understanding of the hazards of use of chemicals in their work place. Employees are to be trained at the time they are assigned to work with a hazardous chemical. The intent of this provision (1910.1200(h)) is to have information prior to exposure to prevent the occurrence of adverse health effects. Additional information about this training is available in the University of Portland Hazard Communication Program.

7.5.3 OSHA Bloodborne Pathogen Standard

For Employees that work with the collection and disposal of biological materials are required to complete the Universities Bloodborne Pathogen Exposure Control Training OSHA provision (1910.1030.) Additional information is available in the University of Portland Bloodborne Pathogen Exposure Control Plan.

7.5.4 DOT HazMat Training for Hazardous Waste Generators

The Department of Transportation defines a Hazmat Employee as a person, who, in the course of employment, directly affects hazardous materials transportation safety. This includes individuals, who, during the course of employment:

- Load, unload, or handles hazardous material;
- Prepares hazardous materials for transportation;
- Operates a vehicle used to transport hazardous materials;
- Directly affects hazardous materials transportation safety (such as supervising); or
- May be involved in one or several of the activities of a Hazmat Employee.

The EHS Officer is required to complete DOT hazmat training in order to assist with the handling, loading, and transportation hazardous waste on the University of Portland campus.

DOT's *hazmat employee training* standard is available at 49 CFR 172 subpart H.

7.5.5 EPA Resources Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) regulations establish basic hazardous waste management standards for persons who produce hazardous waste, called hazardous waste generators. These standards are

found in title 40 of the Code of Federal Regulations (CFR) in part 262 and at 40 CFR §261.5. The generator regulations ensure that hazardous waste is appropriately identified and handled safely to protect human health and the environment, while minimizing interference with daily business operations.

Section Eight

Used Oil Program

8.1 Used Oil Management

The University of Portland is a generator of "Used Oil" which is regulated under state and federal law. Used Oil is not classified as hazardous waste if managed according to these procedures. The Physical Plant, Shiley School of Engineering, and Swindells Hall are generators of Used Oil.

Used Oil managed at the University of Portland consists of and is primarily limited to the following oils:

Table 8-1 Allowable "Used Oil" Types

Motor Oil	Hydraulic Fluids	Refrigeration Oils
Gear Oil	Brake Fluids	Other Non-Hazardous Oils
Greases	Electrical Insulation Oils	Machine Cutting & Coolant Oil
Heat Transfer Oils	Vacuum Pump Oils	

A licensed authorized used oil transporter, recycle/reuse or energy transfer facility transporter picks up the Used Oil and properly transports and manages it in accordance with applicable state and federal regulations.

8.2 Procedures

Only Used Oils listed in the above table are managed within this program. The Physical Plant Automotive Shop is established as the depository for the location, storage, management, and disposal of Used Oil from the University of Portland.

The accumulated used oil is shipped out for recycle, reuse, or for use at an energy transfer facility.

55-gallon drums with fixed tops and bottoms and a threaded bung are used for accumulation of Used Oil. A large funnel is used to facilitate transfer of the oil into the drum. All drums must be in new condition and must be inspected weekly for damage or leakage. Drums in-use will be placed in a catch pan with enough capacity to collect at least 5 gallons of oil in the event of spill during transfer or other incident. Preferably the containment pan will have two-foot greater diameter than the drum. Oil absorbent will be kept near-by and used for any spillage cleanup and control.

No other wastes will be placed in the Used Oil drums.

8.3 Labeling and Record Keeping

All Used Oil drums will be labeled, "Used Oil". A log will be kept near the used oil accumulation area showing the following information:

- Date the new empty drum is put into service.
- Dates, type and amount of used oil added (on each addition).
- Notes on any leakage or spillage.
- Notes on all inspections.
- Dates used oil drum full and transporter contacted.
- Dates drums picked up and name of vendor/transporter and final destination.

A sign will be kept near the "Used Oil" storage area identifying the oil management area.

8.4 Disposal

Disposal records for management of the "Used Oil" program will be submitted to the EHS Officer.

All spills and leaks will be cleaned up immediately and placed in a separate drum with locking lid labeled oil cleanup waste.

"Used Oil" will not be co-mingled with other wastes like hazardous waste, universal waste, paint waste, or other wastes.

"Used Oil" will not be dumped on the ground, used for dust control, or managed in any other way than these procedures.

Only a licensed "Used Oil" haulers and management firms will be used for transport and reuse of this oil. Accurate records of haulers, transporters, recyclers will be kept. Any change in vendor will be coordinated with the EHS Officer to ensure that the vendor is current with license requirements and has no outstanding regulatory issues.

Section Nine

Universal Waste Program

9.1 Universal Waste Scope

University of Portland is a generator of "Universal Waste", as mentioned in Section 1 of this document, and these wastes are a special class of hazardous waste with special management procedures.

Facilities Services is the primary generator of "Universal Waste" at the University, however other departments generate Universal Waste. The wastes managed under this category are:

- Spent hazardous waste lamps (Fluorescent Light Bulbs or tubes)
  (EPA considers all waste lamps that exhibit a hazardous waste characteristic to be universal wastes. The trigger is usually toxicity due to mercury, lead, or another heavy metal.)
- Hazardous Batteries (Other than lead-acid batteries)
- Mercury-Containing Thermostats

- Recalled and Unused Pesticides

The EHS Officer will coordinate with Facilities Services to provide collection barrels, boxes, and drums for the different types of Universal Wastes at the points of generation. Management and proper handling and disposal of universal waste follows state and federal hazardous waste regulations. Licensed disposal contractors are used for transport and disposal of these wastes.

If properly managed, Universal wastes are not counted in a facility's monthly hazardous waste generator status determination. It is the intention of the University to minimize the generation of hazardous waste and manage lamps/ lights as a universal waste.

9.2 Training for Universal Waste Management

Training is required for handlers and managers of Universal Waste to include familiarity of these procedures, cleanup procedures, and emergency procedures. Cleanup and emergency procedures are those outlined in other sections of this plan and the campus emergency action plan. Training is coordinated and conducted by the Environmental Health and Safety Officer.

9.3 Universal Waste Disposal

Hazardous Waste Manifests do not have to be used for shipping and transporting universal waste-lamps. The University will use a licensed hauler for transport of lamps to a permitted hazardous waste disposal facility. Copies of all transport and disposal papers and receipts will be kept by the EHS Officer.

All waste lamps will be treated as Universal Waste unless prior approval is obtained by the EHS Officer. In such cases, proof by testing or certification by manufacturer of lamps will make the final determination.

9.4 Waste Lamps Management

Waste lamps must be protected to keep from breakage and release of toxic metals. Storage must be in drums or containers that are labeled "Universal Waste-Lamps". Do not break lamps. Broken lamps must be treated as Hazardous waste, recorded on the Hazardous Waste Log, and manifested and disposed of through an approved hazardous waste hauler.

Universal waste lamps may be stored at the Walter E Nelson Facilities Services Universal Waste Accumulation Room for up to one year before requiring a permit. To comply with this limit the following procedures must be followed:

- Mark the accumulation container with the first date lamps are placed in it and record that in a log in the Physical Plant Accumulation Area Universal Waste Room
- Mark each individual lamp with the date it is removed from the fixture
- Place the lamps only in the "Universal Waste-Lamps" accumulation area in the Physical Plant with a sign posted and labeled with the first date lamps are placed into the container.

9.5 Waste Battery Management Rules

Waste Batteries (non-lead acid type) are managed similarly as waste lamps. The Federal universal waste rules are found in Title 40 Code of Federal Regulations (CFR) Part 273. Oregon State Universal waste rules are found in Oregon Administrative Rule (OAR) Chapter 340, Division 113.

Batteries are collected by Physical Plant and the EHS Officer from around campus and brought to the main Physical Plant Accumulation Point.

A handler of universal waste batteries must manage them in a way that prevents the release of any waste or component of the waste to the environment. Any battery that shows evidence of leakage, spillage or damage that could cause leakage must be contained. The container must be closed, structurally sound, compatible with the contents of the battery, with no sign of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions.

9.5.1 Disposal Restrictions

Handlers of universal waste batteries are prohibited from disposing of universal waste batteries and diluting or treating universal waste batteries. Universal waste batteries must be treated, disposed or recycled by universal waste destination facilities. Handlers of universal waste batteries may conduct the following activities as long as the casing of each individual battery cell is not breached, remains intact and is closed, except when removing electrolyte:

- Sorting the batteries by type
- Mixing battery types in one container
- Discharging the batteries so as to remove the electric charge
- Regenerating used batteries
- Disassembling batteries or battery packs into individual batteries or cells
- Removing batteries from consumer products
- Removing electrolyte from batteries.

Electrolyte removed from batteries or solid waste generated from the management of universal waste (e.g., battery pack materials, discarded consumer products) is not universal waste and must be managed according to applicable hazardous waste management requirements, if the waste exhibits a characteristic of hazardous waste.

9.5.2 Battery Waste Accumulation

All waste batteries can be accumulated for up to one year. The same labeling and recordkeeping procedures must be followed as for waste lamps. Six Specific types of batteries bins for collection are:

- Nickel Cadmium
- Lithium Ion
- Alkaline
- Lead Acid
- Unsorted (Button Cell, Magnesium, Nickel Metal Hydride…)

Lithium Ion, Lead Acid, and Unsorted batteries must have their connection ends tapped to prevent contact to other connections or reactive conductive surfaces.

9.6 Mercury Containing Equipment Management

9.6.1 Definition and Scope

Mercury-containing equipment, such as thermostats, thermometers, mercury switches, manometers, barometers, flow meters, regulators and pressure relief valves, can contain levels of mercury that make them hazardous waste when disposed. Mercury is a toxic metal that can accumulate in living tissue and cause adverse health effects.

Waste mercury-containing devices produced by non-households are classified as "universal waste" in Oregon. Managing universal waste is simpler than managing waste as hazardous waste and encourages the collection and recycling of these wastes. Proper universal waste management requires managing the waste in a manner that does not release mercury into the environment.

Universal waste mercury-containing equipment has special management requirements that include storage time limits and labeling and container requirements.

9.6.2 Labeling and marking

Containers holding universal waste mercury-containing equipment or mercury ampules removed from the equipment must be labeled or marked clearly with one of the following phrases: "Universal Waste – Mercury-Containing Equipment," "Waste Mercury-Containing Equipment" or "Used Mercury-Containing Equipment."

9.6.3 Accumulation time

Handlers generating universal waste, including universal waste mercury-containing equipment, may not accumulate universal waste for longer than one year. Handlers who receive universal waste from off-site, called “off-site collection sites,” may only accumulate for six months. DEQ will grant an extension if the handler can demonstrate to DEQ that additional time is needed to facilitate proper recovery, treatment or disposal of the waste. All handlers must respect the accumulation time limits. Usually, this can be done by placing the date on the container holding the mercury-containing equipment or devices when accumulation starts.

9.6.4 Compatible containers

Mercury-containing equipment should be collected in well-sealed, leak-proof, heavy plastic containers in an area where there is little risk of fire or breakage. Do not use tin or aluminum containers because mercury may combine with these metals and may leak through seams. Do not dispose of mercury-containing equipment with regular solid waste.

9.6.5 Mercury-containing equipment not covered by this guidance

- Equipment that is not a waste under the Code of Federal Regulations (Title 40 CFR Part 261)
- Mercury-containing equipment that is not a hazardous waste
- Equipment and devices from which the mercury has been recovered

9.7 Pesticide Waste Management

Environmentally sound management of pesticide waste and empty pesticide containers is in everyone's best interest. Accidental release or indiscriminate discharge of pesticide waste into the environment can harm people and contaminate surface and groundwater. Pesticide contaminated water poses a hazard to non-target organisms such as plants, beneficial insects, fish and other aquatic life.

9.7.1 Pesticide Waste Definition

Pesticide wastes is any substance or material containing pesticide that cannot or will not be used and will be discarded and disposed of. By definition, pesticide wastes are "hazardous wastes" in Oregon. Pesticide wastes include, but are not limited to:

- Surplus spray solution, ultra-low volume (ULV) spray concentrate, dusts, granules, or baits remaining in the application equipment (such as tanks, hoppers, booms, hoses) after use.
- Pesticide-contaminated water produced by cleaning the interior surfaces of the pesticide application

equipment or from rinsing empty pesticide containers.
- Pesticide-contaminated absorbent, water, or other materials generated from cleaning up spilled spray solutions.
- Empty, contaminated (unrinsed) pesticide containers.

Spills of all pesticides, including pesticide wastes, must be reported to the Oregon Emergency Management Division (1-800-452-0311) and must be cleaned up according to Oregon revised regulation 340-142-0060.

9.7.2 Pesticide wastes are hazardous waste.

Pesticide-containing materials that cannot or will not be reused (i.e., pesticide wastes), and must be disposed are "hazardous wastes" and are designated "pesticide residue" generated from two sources:

- The point of application (in the field and essentially limited to agriculture and silviculture); and
- Permanent bases of operation (i.e., places where equipment is stored, such as an airfield or pesticide dealership.

9.7.3 Pesticide Waste Disposal Options

When pesticide-containing material cannot be used or reused for its intended purpose according to label instructions, it becomes pesticide waste. Two on-site management options are available and two off-site disposal options are available for these wastes.

1. Manage the pesticide waste prior to disposal according to the universal waste management standards.
2. Manage the waste prior to disposal according to the "hazardous waste" management standards.

9.7.3.1 Option Number 1 – Manage the Pesticide Waste as a Universal Waste

Managing pesticide waste according to the universal waste management standards has many benefits:

- Waste is not counted toward generator category,
- No reporting or fees are required, and
- No hazardous waste manifest is required to transport the waste.

To manage the pesticide waste according to the universal waste management standards you must:

- Contain the waste
- Label the waste container with the words “Waste Pesticide”,
- Store the waste for no more then on year
- Transport the waste pesticide to a pesticide collection event or a facility authorized to collect universal waste pesticides.
-

Final disposal of the pesticide waste must be at a:

- Permitted hazardous waste facility, or
- Permitted solid waste facility provided that the waste meets land disposal concentrations-based standards are met for pesticide active ingredients or, if no standards exist, the pesticide waste passes the DEQ aquatic toxicity test.

Note: All the criteria above must be met or the pesticide waste is by definition a hazardous waste.

9.7.3.2 Option Number 2 – Manage the Pesticide Waste as a Hazardous Waste

Note: The regulatory requirements that apply to the University depend upon the amount of hazardous waste generate each month. If the University maintains its status as a Very Small Quantity Generator, generating less than 220 pounds in a month of hazardous waste per calendar month, UP is are subject to fewer management requirements.

If the University of Portland becomes a Small Quantity Generator, producing more than 220 pounds of hazardous waste is generated in a calendar month, it will manage the pesticide waste as a hazardous waste:

- Labeling and mark the container with the date the wastes were created and the words **"HAZARDOUS WASTE",**
- Store the wastes no longer than 90 or 180 days, depending on generator category.
- Ship the pesticide waste as hazardous wastes using a hazardous waste transporter to a hazardous disposal facility. A hazardous waste manifest must be used,
- Report to the DEQ about the hazardous waste that is generated, and
- Pay DEQ hazardous waste generator fees.

Section Ten

Paint Waste Program

Paint waste requirements and generator status were briefly covered in Section 1.4.4. The Physical Plant is primary generator of "Paint Wastes" at the University of Portland, however other departments may contribute to the paint wastes generated at the University. The wastes managed under this category are listed in Table 10-1. As a matter of policy, the University of Portland strives to use water-based paint products when and wherever it can. Use of oil and solvent-based products are kept to an absolute minimum. The University of Portland will recycle all unused paint products to the extent they can, limit purchase of paint products to the volume necessary for any one paint job and require paint contractors to do the same. Paint wastes will be separated, and managed based on whether they are recyclable, water-based, or organic wastes. Management, proper handling and disposal of Paint Wastes at University of Portland, will follow state and federal hazardous waste regulations. Licensed disposal contractors are used for transport and disposal of these wastes.

Table 10-1 Paint Waste Types

Water-Based (Non-Hazardous Waste)	Organic-Based (Hazardous Waste)
Water-Based Paint	Oil-Based Paint
Water-Based Thinners	Solvent-Based Paint
Water-Based Cleaners	Oil-Based Thinners
	Solvent Thinners
	Oil-Based Cleaners
	Solvent-Based Cleaners
	Other Paint Waste
	Lead-based Paint

10.1 Paint Waste Procedure

Paint waste will be carefully managed to separate hazardous waste from non-hazardous waste. The table above will be used as a general guide in discriminating between differing waste streams. All questionable paint waste will be evaluated by the generating department and the EHS Officer.

Paint waste that is hazardous waste will be accumulated at the Physical Plant accumulation point and managed like all other hazardous waste by labeling the containers with tags, documenting dates of generation, and maintaining records at the accumulation area with copies to the Physical Plant office and the EHS Officer.

The Regulated Waste Tracking System will be used to manage records of generation and planning for proper shipment and disposal.

Water-based paints that are non-hazardous will be recycled through local vendors or donated to various reuse programs. The Physical Plant Paint Shop will recycle non-hazardous paint products.

10.2 Lead Paint Regulations

Lead-based paint and lead-based paint debris and lead-paint waste water are managed under the Environmental Protection Agency (EPA) Lead Paint Regulations under the Renovation, Repair and Painting Rule.

The Renovation, Repair and Painting (RRP) rule was implemented on April 22, 2008 to protect children and adults against the hazardous lead dust and chips that are disturbed during common renovation activities like sanding, cutting, and demolition. In 2010, EPA gave the Oregon Construction Contractors Board and the Oregon Health Authority the authority to administer the rule in Oregon.

10.2.1 Lead Paint Worker Protections

OSHA has a Lead in Construction Standard (pdf) which outlines worker protection requirements for construction workers exposed to lead. The standard includes requirements addressing exposure assessment, methods of compliance, respiratory protection, protective clothing and equipment, hygiene facilities and practices, medical surveillance, medical removal protection, employee information and training, signs, recordkeeping and observation of monitoring.

10.2.2 Oregon Department of Environmental Quality (DEQ) Requirements

Oregon DEQ is responsible for managing proper disposal of potentially hazardous wastes, including lead-based paint debris and waste water. Learn more about proper disposal of lead-based paint waste from residential households (pdf). The household waste exclusion does not apply to commercial, public or other non-residential child-occupied facilities.

10.2.3 Local Lead-Based Paint Regulations

The City of Portland and Multnomah County have their own lead-based paint regulations regarding its handling and proper disposal. Proper paper work and permitting are required when conducting renovation, remodel, and repair or painting of structures prior to 1979.

Section Eleven

Polychlorinated Bisphenol's (PCB) Remediation and Disposal

University of Portland has had Polychlorinated Bisphenol (PCB) containing ballasts or other materials that require special handling and disposal. Legacy material may be present in buildings at the University constructed before 1979.

Federal regulations regarding PCBs are promulgated under Sec. 6(e) of the Toxic Substances Control Act (TSCA) [15 USC 2605]. Title 40 CFR Part 761, most recently amended in June 1998, governs the manufacture, processing, distribution, use, marking, storage, disposal, cleanup, and release reporting requirements for PCBs

When lighting systems and building equipment are updated, the Physical Plant will replace and retrofit all existing light fixtures on campus. The Physical Plant will do this work in-house, unless the amount or type of work dictates using a contractor for the express purpose of removing all existing fixtures and replace with energy efficient fixtures and ballasts.

The Physical Plant is responsible to follow all required procedures for correct identification, storage, and of recycling or disposing of lamps and ballasts with and without PCBs in conjunction with the Environmental Health and Safety Officer. EHS will assist in this process and handle notification to the local EPA Region Office, submitting the remediation plan.

11.1 PCB Procedure

Procedures for correct identification and recycle or disposal of lamps and ballasts:

1. Examine the fixture for any obvious leaks that may have come from ballasts. (i.e.: brown tar like or burnt coffee looking substance around or under the ballast or on the fixture)
2. If there is evidence of contamination, mark the fixture with "dots" as provided. This will be a marker so you can find the fixture. Call Thomas Blume, Assistant Director of Physical Plant, and notify Jeffrey Rook, Environmental Health and Safety Officer.
3. Put the tubes in a container provided by the recycler/disposal company.
4. Check the ballast. Ballasts made after 1978 do not contain PCB's and should be labeled "no PCB's". If no such label is on the ballast, assume the ballast contains PCB.
5. If the ballast contains "no PCB's", put them in a container with like kind. Always ensure that non-PCB containing ballasts and ballasts containing PCB's are kept segregated and are in two different locations.
6. If the ballast contains PCB's and/or is LEAKING, call Environmental Health and Safety Officer, 503-943-7161. Segregate the fixture from all NON-PCB ballasts into provided drums. The Physical Plant Department will complete the removal and disposal of fluorescent tubes and ballasts according to sections C, D, E and F of the University of Portland PCB Re-mediation Plan. The Physical Plant Mechanics Shop and the Environmental Health and Safety Officer will complete the clean-up and post-tests as directed in section C, D, E, F, and G of the University of Portland PCB Re-mediation Plan.
7. The University of Portland will contact the appropriate disposal-company to pick up the barrel. A manifest or chain of custody will be maintained by Environmental Health & Safety.

8. Upon proper disposal, a disposal certificate will be issued by the disposal-company to the University of Portland

11.2 Standard Operating Procedures for PCB Re-mediation

WARNING – HAZARDOUS MATERIALS

PCBs (polychlorinated biphenyls), are known animal carcinogens and possible human carcinogens. Exposure must be avoided. Exposure routes include inhalation (lungs), ingestion (eating), and absorption (skin contact). To avoid exposure, do not inhale the smoke or fumes, or make skin contact with any PCB containing compound, and do not put contaminated tools in your mouth. Properly handle, decontaminate, package, and/or dispose of PCB contaminated articles or clothing. Do not take contaminated clothing home. Personal clothing contaminated with PCBs must be disposed of as regulated waste.

Use of cleaning solvent, especially acetone, require mechanical ventilation and may require the use of a respirator with organic vapor cartridges. Forced air ventilation with fans, and open doors and

11.2.1 Attachments to this SOP

- Safety Information Sheet Regarding PCBs and Fluorescent Light Fixtures
- Response Kit(s) for PCB Cleanup
- Form to Diagram Floor and Furniture Layout and PCB Contamination
- Form to Diagram Light Fixture Layout and PCB Contamination
- 'Chain of Custody' Form Used by the PCB Testing Laboratory
- PCB Storage Area Leak Inspection Form
- PCB Sampling and Disposal Tracking Log

11.2.2 General Safety Information

1. Observe all safety practices applicable to the to the electrical industry.
2. All district sites have received the attached "Safety Information Sheet" which provides background information on the source of and hazards PCBs and describes actions occupants should take if a light ballast begins to leak or smoke.
3. If you have any questions regarding this SOP, Environmental Health and Safety Officer; 503-943-7161.

11.2.3 Determining an Appropriate Response

1. **Investigating a "Lights Out" report.** When the lights (lamps) are reported out and the custodian cannot get new lamps to work, the custodian will request the district electrician to go to the site and determine the extent of repairs and/or PCB re-mediation. See paragraph D. (District electricians have been trained to do this assessment.)
2. **Leaking Ballast.** Prompt cleanup and repair required. See paragraph E. If a leaking ballast has splattered potting material outside the fixture and onto the floor and/or room furnishings contact the Environmental

Health and Safety Officer; 503-943-7161, before proceeding with repairs and cleanup. Rope off the area until clean has been completed.

3. **Smoking or Odor Emitting Ballast.** Prompt cleanup and repair is required. See paragraph E.

Procedures for Investigating "Lights Out": (To be completed by the electrician.)

Unless a ballast "smokes" while you are investigating, there is no inhalation hazard. The skin absorption hazard is unknown so follow appropriate precautions by wearing PPE

1. Apply general safety precautions applicable to the electrical industry.
2. Wear the following PPE:
    a. Goggles face shield or safety glasses with brow shield. **Do not** wear regular eyeglasses.
    b. Nitrile gloves.
    c. Disposable lab coat and other outer garments as needed (e.g., booties, hats, etc.)
3. If there is no ballast leak or other visible contamination, then repair procedures may continue without PPE.
4. Dispose of failed PCB ballast by wrapping it in paper towels and placing it in a double plastic bag. Secure the bag with tape and label as follows: "Contains PCBs, date, loc #, room #, fixture #, and your name." Place the ballast and other PCB contaminated debris in appropriate drums in the PCB waste storage area in the maintenance building. Do not leave PCB materials in maintenance trucks overnight. A non-PCB ballast (states "No PCBs" or "PCB Free", or manufactured after July 1, 1979) should be wrapped in paper towels, placed in a single plastic bag, and discarded into the maintenance trash dumpster along with other non-PCB cleanup materials. Specific procedures for a leaking ballast and visible contamination are contained in paragraph E.
5. Physical Plant Mechanics Shop will complete the appropriate documentation and turn it the Environmental Health and Safety Officer.

11.2.4 Specific Procedures for Cleanup and Repair of a Leaking, Smoking, or Smelling Ballast

1. Apply general safety precautions applicable to the electrical industry.
2. Keep unauthorized personnel out of the room until re-mediation is completed.
3. Keep the lights/lamps turned off to prevent additional ballast damage.
4. Secure entrances and label accordingly to prevent unauthorized entry during PCB re-mediation activities.
5. Let leaking or smoking ballast cool at least 20 minutes after lights are shut off. There is a thermal burn hazard when dealing with hot ballast or hot potting (leaking) materials.
6. The room must be ventilated and clear of smoke, otherwise wear a respirator with organic vapor cartridges. Continue to ventilate the room even if respirators are worn. Closed rooms must be actively ventilated with fans and preferable directly to the outside. Contaminated spaces must be unoccupied and ventilated until the next day.
7. Re-mediation workers must wear PPE listed in paragraph D-2 above.
8. Lay down plastic sheeting under each ballast and light fixture to be worked on.
9. Access fluorescent lamps and remove the lamps.
10. Caution: Potential Thermal Burn! When the ballast is cool, remove it. Identify the ballast as "No PCB" or "PCB" type. Wrap the ballast in paper towels and place in a double plastic bag. See paragraph D-4 for labeling.
11. If the ballast is a "No PCB" type and there is no past contamination from a previous ballast leak then proceed to replace the ballast. PPE is not required and discard cleaning materials and ballast in the maintenance yard dumpster. If the ballast cavity or light fixture is contaminated with old ballast potting

material, assume it to be PCB contaminated, or if the leaking ballast contains PCBs then continue to number 12.

12. **Clean up PCB contaminated leaks using the following guidelines**:
    a. Draw a diagram indicating where contamination is found. Use the forms provided in this SOP and others specified by Director of the Physical Plant. Make copies as needed. Be clear, concise and fill in all blanks.
    b. Avoid unnecessary spreading of PCB material during the clean up.
    c. Leaks unto nonabsorbent surfaces can be initially cleaned with rags or paper towels or, if hardened, by using a putty knife. Remember not to mix contaminated tools with "clean" tools or with clean materials and be sure to decontaminate your tools after the job.
    d. Perform a double wash procedure. Wash contaminated areas and the light fixture cavity with a specified solvent or detergent and then wipe rinse with rubbing alcohol. Our preference is mineral spirits/paint thinner, but acetone can be used on difficult areas but it may remove the paint. Repeat the wash procedure a second time. Washing with a solvent or detergent should be done in a way to minimize any liquid residue. Absorb all liquids in rags or paper towels. Be careful not to contaminate stock containers of solvents or detergents. Pump-sprayers work well for the solvents and help to reduce contamination of stock solvent.
    e. When dry, outline a 10-centimeter (four-inch) square at the original point of contamination. Use your diagram dimension specifics to re-locate this area. See the diagram mentioned
    a. in 12-1.
    f. If leaks occur onto highly absorbent materials such as carpet, clothing, etc., the contaminated area must be cut out and disposed of as PCB waste. Cut out six inches beyond the extent of the contamination. If wood or concrete materials are contaminated they may be cleaned per 12-4 and reused if required "sealing" procedures in paragraph F have been implemented.
    g. Place all contaminated materials in double plastic bags. Separate the ballast from all other contaminated materials (i.e., debris) such as gloved, ground cloths, rags, paper towels, lab coats, etc. Seal with tape and label per paragraph D-4.
13. Wash hands after cleaning up and stowing contaminated materials in your truck.
14. Conduct a wipe test. Are your hands washed and all PCB contaminated materials in double plastic bags? Be sure not to contaminate the test kit. Using the test kit, wipe a 10-centimeter by 10-centimeter area (approximately a four inch square) about the center of the contaminated point. Making a 10-cm template/cutout will speed the work. Conduct one wipe test per fixture.
15. Label the test kit with date, time (24 clock), location #, fixture #, and your name.
16. Install a "PCB Free" ballast.
17. Install a low mercury (ecologically friendly) lamp, if available, and close up the light fixture. Remember to properly dispose of mercury containing lamps per EPA/DOE guidance.
18. Contact the custodian to arrange for continued "no occupancy" and continued "ventilation" of the room until the next day.
19. Dispose of the PCB contaminated material in the appropriate PCB waste drums in the maintenance department storage area within 24 hours. Do not delay in doing this. Do not leave PCB waste in your truck. Provide the foreman the documentation for the job. Thomas Blume, Assistant Director of the Physical Plant must coordinate documentation with safety services. Ballast and contaminated debris must be separated into different drums.
20. Fill out the "Chain of Custody" form provided by the lab (see attached sample) and return the sample kits to Thomas Blume, Assistant Director of the Physical Plant, 503-943-7306, to send to the lab for analysis. Provide Jeffrey Rook, Environmental Health and Safety Officer, with a copy after the lab signs for custody.
21. Environmental Health and Safety Officer will receive the lab report and recommend appropriate action.
22. The Physical Plant, is to complete all documentation and provide the information to safety services. The safety director will complete the "PCB Summary Log." See attachment. Environmental Health & Safety

Officer the Physical Plant will conduct audits on a periodic basis to ensure completeness and accuracy of documentation.

11.2.5 Sealing Procedures for Porous Materials Such as Wood and Concrete

First clean with a solvent or detergent per paragraph E.

Contact the Environmental Health and Safety and the Director the Physical Plant for detailed sealing procedures.

Decontamination and Re-mediation Materials List (to be stocked).

- Gloves; use neoprene, butyl rubber, or nitrile (nitrile is preferred).
- Goggles, face shield or safety glasses with brow shield.
- Disposable lab coat.
- Disposable overshoe/bootie.
- Disposable hat.
- Clean rags or clean paper towels.
- Large plastic trash bags.
- Tape.
- Permanent marking pen.
- Tag and tie.
- Light weight plastic ground cloths.

Cleaning solvents. Use full strength. Options include mineral spirits, turpentine, deodorized kerosene, or rubbing alcohol. Mineral spirits and rubbing alcohol are the preferred stock items. Acetone may be purchased separately but only small quantities should be kept on hand due to its volatility. Be aware that acetone will damage and/or remove paint, even baked on enamel.

Cleaning detergents. Detergents that contain “Tri-Sodium Phosphate (TSP)” may be used instead of solvents. TSP detergents may be available at larger grocery stores or at home improvement centers. Use full strength and apply with a damp rag to prevent forming wastewater. Using a detergent has advantages over solvents because they are less flammable, less odorous, and they may be less damaging to certain finishes.

Section Twelve

Explosive or High Hazard Chemical Disposal

12.1 Identification and Segregation of High Hazard or Explosives

In the event that explosives are located in the process of normal chemical disposal, or through a laboratory decommissioning project, high hazard and explosive materials, contact the Chemical Hygiene Officer and Environmental Health & Safety Officer and ensure the materials are segregated from other non-compatible chemicals. It is the intent of the University EH&S and the Chemical Hygiene officer to identify all locations where there are high hazard chemicals, and where possible discourage their use or storage on campus if alternative, safer options are available for research.

12.2 Disposal

Most hazardous waste haulers will not transport high hazard chemicals (reactive or explosives) due regulations, company policies, and high potential for danger. The Oregon State Police and Portland Police Bureau Explosive Disposal Units are able to accept certain materials and will properly dispose of them.In the event that Portland Police will not accept the waste, chemical neutralization can be performed on the material, prior to disposal.

Section Thirteen

Radioactive Material Disposal

All radioactive material disposal is handled under the University's Radioactive Management Program.

Section Fourteen

Chemical and Biological Equipment Decommissioning and Disposal

14.1 Scope

This section specifically relates to chemical or biological equipment which is no longer used and has been deemed ready to be removed from or disposed of from campus. Prior to the equipment being removed from its established laboratory research space, Environmental Health and Safety should be contacted to assist in the process of disposal. This includes any analytical equipment that came into direct contact with chemical substances for processing or analysis or was used with biological material.

14.2 Disposal Options

14.2.1 Donation

Where possible, if the analytical equipment is still functioning properly, every attempt should be made to donate the equipment to another institution after ensuring the equipment has been cleaned of any residue or hazardous material. A letter of Donation should be drafted and signed by the receiving party that once the equipment is accepted it is their responsibility to ensure proper disposal.

14.2.2 Recycling

Analytical equipment can be recycled if the material which contained the chemical or biological material is certified as cleaned or the contents which chemicals or biological material were exposed are removed and disposed of as a regulated waste. EHS will coordinate the recycling or the decommissioning of equipment.

Recycling Facilities in Portland will require a certified letter from the University of Portland Environmental Health and Safety Officer certifying that no hazardous, chemical or biological material, is remaining in the equipment.

Section Fifteen

Chemical Inventory Requirement

15.1 Requirements for Inventory

Federal, state, and local regulations require University of Portland to inventory the types and quantities of its hazardous materials. The chemical inventory program is coordinated by the EHS Officer and tracks and reports the storage and use of hazardous materials. The inventory assists emergency responders, provides campus users with specific hazard and storage information, aids in the sharing of chemicals, and reminds users to dispose of sensitive chemicals before they become unsafe or expensive to dispose of. The Oregon State Fire Marshal's office also requires a hazardous substance survey be conducted annually, for any hazardous substance above the threshold limit.

Additional Information is available in the University of Portland Hazard Communication Program.

15.2 Responsibility for Inventory Accuracy

Professors, department heads, scientists in research, supervisors, storeroom managers, and anyone other staff or faculty in charge of areas where hazardous materials are stored must prepare and maintain an updated chemical inventory (or delegate this responsibility to someone trained to safely perform the task). Department administrators are responsible for ensuring that their department has accurate and current chemical inventories on file with the EHS Officer.

A hazardous material is any material that, because of its quantity, concentration, physical characteristics, or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released.

Materials to report in a chemical inventory include, but are not limited to:
Laboratory chemicals: acids, bases, solvents, mercury, metallic salts, halogenated compounds, toxic substances such as lead compounds and acrylamide, mixtures of hazardous chemicals
Compressed gas: toxic gases, pressurized gas cylinders of pure gases or mixtures of gases
Liquids under pressure: liquid nitrogen, liquid oxygen, propane, aerosols, chlorofluorocarbon refrigerants (liquid/gas phases)
Paints and inks: both water- and oil-based paints, spray paints, printing inks or pastes
Solvents and spirits: degreasers, kerosene, paint thinners
Lubricants: pump oil, hydraulic oil, motor oil, brake fluid, greases
Finishes: varnishes, shellacs, floor waxes, lacquers
Fuels*:* gasoline, camping fuel, diesel fuel
Maintenance/structural materials: asphalt-containing roofing, adhesives, and bonding agents
Grounds/landscape materials: fertilizers, plant food supplements, soda ash
Pesticides: insecticides, rodenticides, acaricides, fungicides, defoliants, herbicides
Drugs: pharmaceuticals
Photographic materials: developers, reducers, stabilizers, activators, fixers, stop bath
Custodial materials: cleaning agents, bleaches, floor strippers, soaps and detergents, disinfectants, corrosive products, ammonia

Note: Other hazardous materials, such as ***biological agents*** *and* ***radioactive materials,*** should not be included in the chemical inventory since they are tracked under separate Radioactive programs. Very small quantities of hazardous materials (such as liquid toners and cleaners stored in offices) need not be reported. Contact the EHS Officer at ehs@up.edu if you have a question about whether a chemical or other material needs to be reported.

15.3 Annual Reporting Requirements

Each department must submit an update annually. The EHS Officer sends reminders to departments annually, along with instructions and specific due dates. In addition to the scheduled annual updates, if there are any ***significant changes*** such as room relocations, increased maximum amounts, new or dangerous chemicals added, or changes in names and phone numbers of key contacts, you must submit updates to the EHS Officer within 30 days of the change. Contact the EHS Officer if you need assistance at ehs@up.edu.

Section Sixteen

University of Portland Chemical Spill Response Procedures and Guide

16.1 Accidental Release

Accidents resulting in the release of chemicals will occur despite the best effort to work safely. It is essential that personnel have a spill response plan that includes appropriate procedures and materials to adequately contain and clean up a spill. The following procedures should be used as a guide to help design an effective spill control plan for your work area. (Refer to the *Chemical Hygiene Plan* for information on spill kit contents, and the *Chemical Spill Response Guide* (below) for detailed information on spills.)

16.2 Major Spills

In the event of a spill which:

1. Involves the release of a type or quantity of chemical that poses an immediate risk to health and or the environment;
2. Involves an uncontrolled fire or explosion; or,
3. Involves serious personal injury.

Take the following steps:

1. Evacuate as necessary and keep others from entering the affected area until assistance arrives.
2. Dial 911 for assistance and be prepared to provide details of the situation.
3. Stay on-site until assistance arrives.

16.3 Minor Spills

In the event of a spill involving the release of a type or quantity of chemical that does not pose an immediate risk to health, and does not have the potential to become an emergency within a short time period, take the following steps:

1. Notify other laboratory personnel of the accident.
2. Isolate the area. Close laboratory doors and evacuate the immediate area if necessary.

3. Remove all ignition sources and establish exhaust ventilation. Vent vapors to the outside of the building only (open windows and turn on fume hood).
4. Choose appropriate personal protective equipment (goggles, face shield, impervious gloves, lab coat, apron or coveralls, boots, respirator, etc.) Note: All personnel must have medical approval and be fit-tested before using a respirator. Contact EHS Officer for more information. Consult the UP Respiratory Protection Program.
5. Confine and contain the spill. Cover with appropriate absorbent material. Sweep solid material into a dustpan and place in a sealed plastic container. Decontaminate the area with soap and water after cleanup and place residue in a plastic bag or another sealed plastic container. Notify the EHS Officer for pickup.
6. For consultation or assistance, call EHS Officer, Physical Plant, or Campus Safety.

Section Seventeen

University of Portland Hazardous Waste Incident Contingency Plan

17.1 Objective

This University of Portland SOP defines general responsibilities of the first responding employees to a hazardous waste incident. It is intended to ensure safe and professional action by those who have responsibilities in hazardous waste response situations.

17.2 Definition

Hazardous Wastes will be as defined in the Oregon Hazardous Waste Regulations. A hazardous waste incident may be defined as one of these wastes and/or certain other wastes that may be leaking, spilled, burning, reacting or having a release thereof, that may endanger life, property and/or the environment.

17.3 Notification and Initial Responsibility

It will be the responsibility of the first person on the scene recognizing a hazardous waste incident to assess the degree of hazard to life, property, and/or environmental safety so that a preliminary determination can be made as to notification and/or response by University of Portland responders and/or local emergency agencies.

Call EHS Officer or Campus Safety if the spill is greater than 1 gallon, Very toxic, Poses a fire hazard, or You need assistance.

17.4 EHS Emergency Coordinators

If the first on the scene determines that a hazardous waste incident does exist, the following University departments will be notified:

University of Portland Campus Safety Department	(503) 943-7133
University of Portland Physical Plant	(503) 943-7306

EHS Officer	Sarah Schmits Office: 503-943-8903 Cell: (913)-484-0551 ehs@up.edu

17.5 First-on-Scene Procedures

The first person on scene recognizing a potential hazardous waste incident shall make a brief assessment to determine if the situation can be resolved by those available with no danger to persons, property and/or environment; and a hazardous waste incident exists.

Every potential hazardous waste incident, no matter the size, shall be reported to the EHS Officer at ehs@up.edu/ 503-943-8903

17.6 In Event of a Hazardous Waste Incident

The first person on scene recognizing a hazardous waste incident shall be the on-scene incident commander. That person shall:

- **EVACUATE** the premises by activating the nearest Fire Alarm pull box and/or by shouting for others to vacate.
- **NOTIFY** the Fire Department by telephoning 911 and request their "Hazardous Incident Response Team", with information about the incident. Also, NOTIFY the Police Department with the 911 call.
- **NOTIFY** Department Personnel who may assist with the emergency.
- **NOTIFY** Public Safety Department by telephone: (503) 943-4444.
- **ESTABLISH** a Command Post a safe distance from the incident, and indoors if possible.
- **MEET** at the Command Post when it is established on-site and relinquish command to the University Emergency Responders AND/OR the local Fire or Police, whichever arrives at the scene first.

17.7 Campus Safety Department Responsibilities

17.7.1 Emergency Procedures

The Campus Safety Department shall designate the EHS Officer as Emergency Coordinator in the event of a hazardous waste incident. That person shall serve as support to the Incident Commander. At all times, there must be at least one employee either on the facility premises or on call (i.e., available to respond to an emergency by reaching the facility within a short period of time) with the responsibility for coordinating all emergency response measures. This emergency coordinator must be thoroughly familiar with all aspects of the facility's contingency plan, all operations and activities at the facility, the location and characteristics of waste handled, the location of all records within the facility, and the facility layout. In addition, this person must have the authority to commit the resources needed to carry out the contingency plan. 18.7.1Emergency Procedures

Whenever there is an imminent or actual emergency situation, the coordinator (or his/her designee when the emergency coordinator is on call) must immediately notify appropriate state or local agencies with designated response roles if their help is needed.

The Multnomah County Local Emergency Planning Committee should be the first contact, and will assist in contacting other necessary state and federal agencies.

17.7.2 Procedures

Whenever there is a release, fire or explosion, the emergency coordinator must immediately identify the character, exact source, amount, and extent of area involved. He/she may do this by observation or review of facility records or manifests, and, if necessary, by chemical analysis.

Concurrently, the emergency coordinator must assess possible hazards to human health or the environment that may result from the release, fire or explosion. This assessment must consider both direct and indirect effects of the release, fire or explosion (e.g., the effects of any toxic, irritating, or asphyxiating gases that are generated, or the effects of any hazardous surface water run-off from water or chemical agents used to control fire- and heat-induced explosions).

- If the emergency coordinator determines that the facility has had a release, fire or explosion which could threaten human health or the environment, outside the facility, he/she must report his/her findings as follows:
- If his/her assessment indicates that evacuation of local areas may be advisable, he/she must immediately notify appropriate local authorities. He must be available to help appropriate officials decide whether local areas should be evacuated; and
- He/she must immediately notify the Campus Safety Department (using its 24 hour number (503) 943-4444. The report must include:
  - Name and telephone number of reporter;
  - Name and address of facility;
  - Time and type of incident (e.g., release, fire);
  - Name and quantity of material(s) involved, to the extent known;
  - The extent of injuries, if any; and
  - The possible hazards to human health or the environment, outside the facility.

During an emergency, the emergency coordinator must take all reasonable measures necessary to ensure that fires, explosions and releases do not occur, recur or spread to other hazardous waste at the facility. These measures must include, where applicable, stopping processes and operations, collecting and containing release waste, and removing or isolating containers.

If the facility stops operations in response to a fire, explosion or release, the emergency coordinator must monitor for leaks, pressure buildup, gas generation or ruptures in valves, pipes or other equipment wherever this is appropriate.

Immediately after an emergency, the emergency coordinator must provide for treating, storing or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire or explosion at the facility. Unless the owner or operator can demonstrate, in accordance with Oregon Hazardous

Waste Management Regulations and Environmental Cleanup Regulations of Oregon, that the recovered material is not a hazardous waste, the owner or operator becomes a Generator of hazardous waste and must manage it in accordance with all applicable requirements of Standards Applicable to Generators of Hazardous Waste, and Standards Applicable to Transporters of Hazardous Waste.

The emergency coordinator must ensure that, in the affected area(s) of the facility:

1. No waste that may be incompatible with the released material is treated, stored or disposed of until cleanup procedures are completed; and
2. All emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed.
3. The owner or operator must notify Oregon DEQ and Oregon OSHA, that the facility is in compliance with applicable cleanup standards and he/she must receive agency approval before operations are resumed in the affected area(s) of the facility.
4. The owner or operator must note in the operating record the time, date and details of any incident that requires implementing the contingency plan. Within 15 days after the incident, the emergency coordinator must submit a written report on the incident to Director of Operations and affected University department. The report must include:
    - Name, address, and telephone number of the owner or operator
    - Name, address, and telephone number of the facility
    - Date, time, and type of incident (e.g., fire, explosion)
    - Name and quantity of material(s) involved
    - The extent of injuries, if any
    - Documentation of clearance from applicable regulatory agencies and clearance for entry into the affected facilities or areas
    - An assessment of actual or potential hazards to human health or the environment, where this is applicable
    - Estimated quantity and disposition of recovered material that resulted from the incident.

17.7.3 Evacuation Plans

Including evacuation plans in this document for every building on campus would be unwieldy and cumbersome. Individual building plans, including evacuation floor plans, are maintained and copies can be obtained from: University of Portland, Campu Safety Department, 5000 N. Willamette Blvd., Portland, OR 97203-5723. Telephone: (503) 943-7161, fax: (503) 943-7473. Some Evacuation Plans are available on the EHS Pilot UP Fire Safety Page.

These plans must be obtained and the maps evacuation maps must be posted at each Accumulation Point. These plans are needed by other regulations and may require more extensive posting. For information on evacuation maps or plans contact the EHS Officer at ehs@up.edu.

17.8 List of Emergency and Spill Control Equipment and Location

These lists are maintained by the University of Portland Campus Safety Department and the EHS Officer. This list is subject to update. Copies are kept current and available at the Campus Safety Office, University of Portland, (503) 943-7161. Copies may be obtained from the EHS Officer at (503) 943-7161. This equipment is kept and maintained at the Campus Safety Office.

1. Vermiculite 20 bags
2. Oil dry 2 bags
3. Aggressive fluids Spill kit Large for up to 65 gallons
4. Non Aggressive fluids Spill kit Large for up to 65 gallons
5. Non Sparking Shovels (2)
6. Drain Blockers 24”X 24” pads (2)
7. Drain Plugs 4” (4)
8. Portable Spill kit Aggressives (on Truck)
9. Broom and Dust pan (one also on truck)
10. 85 gallon over pack drums (4)
11. Nitrile Gloves
12. Coated Tyvex Coveralls
13. Non Sparking bronze tool kit
14. Barrel leak plug kit
15. First Aid kit (in patrol vehicles)
16. 20 # ABC Fire extinguisher (in patrol vehicles)
17. Numerous plastic pans and containers of various sizes for repackaging or over packing
18. Full-face respirators (individually assigned during fit testing)
19. Drum funnels and absorbent pads of assorted sizes
20. Barrel containment spill pans
21. Spill control pallets, plastic, numerous sizes
22. Waterproof tarps for above (6)
23. One forklift with numerous barrel-handling attachments (Physical Plant)
24. Drum sampling pipettes (10)
25. Portable pH meter and pH strips
26. Mercury spill kits (2)
27. Nitrile gloves- several cases
28. One 30-gallon HEPA-filtered Vacuum
29. One Flammable fluid pump, electric
30. Two flammable fluids pumps, Pneumatic
31. One portable air compressor
32. Lab coats - three each
33. Safety glasses- 20 pairs
34. First aid kit

Toolbox with assorted tools

APPENDIX A

Hazardous Waste Codes and Hazardous Waste Lists

A-1 Toxicity Characteristic Hazardous Waste

40CFR 261.24 Toxicity Characteristic

(THIS DATA CURRENT AS OF THE FEDERAL REGISTER DATED January 13, 2015)

(a) A solid waste (except manufactured gas plant waste) exhibits the characteristic of toxicity if, using the Toxicity Characteristic Leaching Procedure, test Method 1311 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, as incorporated by reference in Section 260.11 of this chapter, the extract from a representative sample of the waste contains any of the contaminants listed in Table A-1 at the concentration equal to or greater than the respective value given in that table. Where the waste contains less than 0.5 percent filterable solids, the waste itself, after filtering using the methodology outlined in Method 1311, is considered to be the extract for the purpose of this section.

(b) A solid waste that exhibits the characteristic of toxicity has the EPA Hazardous Waste Number specified in Table A-1, which corresponds to the toxic contaminant causing it to be hazardous.

Table A-1 Maximum Concentration of Contaminants for the Toxicity Characteristic

EPA HW No. (1)	Contaminant	CAS No. (2)	Regulatory Level (mg/L)
D004	Arsenic	7440-38-2	5.0
D005	Barium	7440-39-3	100.0
D0018	Benzene	71-43-2	0.5
D006	Cadmium	7440-43-9	1.0
D019	Carbon tetrachloride	56-23-5	0.5
D020	Chlordane	57-74-9	0.03
D021	Chlorobenzene	108-90-7	100.0
D022	Chloroform	67-66-3	6.0
D007	Chromium	7440-47-3	5.0
D023	o-Cresol	95-48-7 (4)	200.0
D024	m-Cresol	108-39-4 (4)	200.0

EPA HW No. (1)	Contaminant	CAS No. (2)	Regulatory Level (mg/L)
D025	p-Cresol	106-44-5 (4)	200.0
D026	Cresol	(4)	200.0
D016	2,4-D	94-75-7	10.0
D027	1,4-Dichlorobenzene	106-46-7	7.5
D028	1,2-Dichloroethane	107-06-2	0.5
D029	1,1-Dichloroethylene	75-35-4	0.7
D030	2,4-Dinitrotoluene	121-14-2 (3)	0.13
D012	Endrin	72-20-8	0.02
D031	Heptachlor (and its epoxide)	76-44-8	0.008
D032	Hexachlorobenzene	118-74-1 (3)	0.13
D033	Hexachlorobutadiene	87-68-3	0.5
D034	Hexachloroethane	67-72-1	3.0
D008	Lead	7439-92-1	5.0
D013	Lindane	58-89-9	0.4
D009	Mercury	7439-97-6	0.2
D014	Methoxychlor	72-43-5	10.0
D035	Methyl ethyl ketone	78-93-3	200.0
D036	Nitrobenzene	98-95-3	2.0
D037	Pentrachlorophenol	87-86-5	100.0
D038	Pyridine	110-86-1 (3)	5.0
D010	Selenium	7782-49-2	1.0
D011	Silver	7440-22-4	5.0
D039	Tetrachloroethylene	127-18-4	0.7
D015	Toxaphene	8001-35-2	0.5
D040	Trichloroethylene	79-01-6	0.5
D041	2,4,5-Trichlorophenol	95-95-4	400.0
D042	2,4,6-Trichlorophenol	88-06-2	2.0
D017	2,4,5-TP (Silvex)	93-72-1	1.0
D043	Vinyl chloride	75-01-4	0.2

(1) Hazardous waste number.
(2) Chemical abstracts service number.
(3) Quantitation limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level.
(4) If o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used. The regulatory level of total cresol is 200 mg/l.
[55 FR 11862, Mar. 29, 1990, as amended at 55 FR 22684, June 1, 1990; 55 FR 26987, June 29, 1990; 58 FR 46049, Aug. 31, 1993; 67 FR 11254, Mar. 13, 2002; 71 FR 40259, July 14, 2006]

A-2 Listed Hazardous Waste

40CFR 261.31, 32, & 33

The U.S. EPA and State of Oregon have already predetermined that certain wastes are hazardous and these hazardous wastes have been incorporated into published lists. The hazardous waste lists are available on EPA's online site and are kept current:
http://www.epa.gov/wastes/hazard/wastetypes/listed.htm

- K-Listed Hazardous Wastes: K-listed hazardous wastes are source-specific wastes that are generated by specific industries such as iron and steel production facilities. K-listed hazardous wastes are not likely to be found in a laboratory.
- F-Listed Hazardous Wastes: F-listed hazardous wastes are non-specific source wastes that are generated by particular industrial processes that can occur in various industries. Industrial processes that generate F-listed hazardous wastes include wood preservation, electroplating and other metal finishing processes, plus processes that generate waste solvents.
- P- and U-Listed Hazardous Wastes: The P- and U-listed hazardous wastes are pure and commercial grade formulations of specific unused chemicals that are considered wastes. Unused chemicals may be considered wastes because they are no longer needed, they are spilled, or they are off-specification. A complete list of the P- and U-listed wastes may be found at the link provided above.

Acutely Toxic Hazardous Wastes

Certain listed hazardous wastes are considered to be acutely toxic to human health and the environment and are further defined as "acute hazardous wastes."

Note: ***Acute hazardous wastes include F-, K-, and P-listed hazardous wastes described above.***

Listed Hazardous Wastes in Laboratories

F-, P-, and U-listed hazardous wastes are the most likely listed hazardous wastes to be found in laboratories. F-listed hazardous wastes may be found in laboratories where electroplating or metal finishing operations are conducted that utilize solutions containing cyanides. Other F-listed wastes that may be found in laboratories include the following solvents or mixtures containing 10 percent or more of the solvent when spent:

Table A-2 Typical F-Listed Hazardous Wastes That May Be Found in Laboratories

Tetrachloroethylene	Trichloroethylene	1,1,1-trichloroethane	1,1,2-trichloroethane	Chlorinated fluorocarbons
Ortho-dichlorobenzene	Trichlorofluoromethane	Methylene chloride	Carbon tetrachloride	Cresols
2-nitropropane	Cresylic acid	Nitrobenzene	Toluene	Methyl ethyl ketone
Carbon disulfide	Isobutanol	Pyridine	Benzene	2-ethoxyethanol

Xylene	Acetone	Ethyl acetate	Ethyl benzene	Ethyl ether
Methyl isobutyl ketone	n-Butyl alcohol	Cyclohexanone	Methanol	

There are over 300 U-listed hazardous wastes. A complete list is available at the link provided above. The U-listed hazardous wastes most commonly found in laboratories include the following:

Table A-3 Typical U-Listed Hazardous Wastes That May Be Found in Laboratories

Acetaldehyde	Ethanol	2-Propanone	Acetone	Acetonitrile
Acetophenone	Acrylamide	Acrylonitrile	Aniline	Benzene
1-Butanol	Chlorobenzene	Chloroform	o-Chlorophenol	Cresol
Cyclohexane	Cyclohexanone	o-Dichlorobenzene	Ethylene dichloride	1,2-Dichloroethylene
Methylene chloride	2,4-Dichlorophenol	1,4-Dioxane	Ethyl acetate	Ethyl ether
Trichloromonofluoromethane	Formaldehyde	Formic acid	Hydrazine	Isobutyl alcohol
Lead acetate	Mercury	Methanol	Methyl ethyl ketone	Methyl isobutyl ketone
Methyl ethyl ketone peroxide	Methyl methacrylate	Naphthalene	Phenol	Resorcinol
1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	Tetrachloroethylene	Carbon tetrachloride	Tetrahydrofuran
Thallium acetate	Thiourea	Toluene	Methyl chloroform	Trichloroethylene

There are over 100 P-listed hazardous wastes. A complete list is available at the link provided above. The P-listed hazardous wastes most commonly found in laboratories include the following:

Table A-4 Typical P-Listed Hazardous Wastes That May Be Found in Laboratories

Acrolein	Allyl alcohol	Ammonium vanadate	Arsenic acid	Brucine
Carbon disulfide	Chloroacetaldehyde	Chloroaniline	Cyanides	Diisopropylfluorophosphate
2,4-Dinitrophenol	p-Nitroaniline	Phosgene	Potassium cyanide	Sodium azide
Sodium cyanide	Thallium oxide	Vanadium pentoxide		

Table A-5 Typical Darkroom Hazardous Wastes – listed as D002 wastes

Potassium Ferricyanide	Selenium Toner	Sepia Toner	Colored Toners	

APPENDIX B

Environmental Protection Agency (EPA) Chemical Compatibility Table

EPA has published a list of potentially incompatible wastes, waste components and materials along with the harmful consequences of mixing those materials together. This list does not include every possible hazardous chemical reaction but should be used as a guide in packaging and storing these materials.

For example, mixing any Group 2-A waste, which includes reactive metals and metal hydrides, with a Group 2-B waste, which includes the Group 1-A alkaline and the Group 1-B acidic wastes, may produce a fire or explosion and the generation of flammable hydrogen gas. Mixing a Group 3-A waste, which includes alcohols and water, with a Group 3-B waste, which encompass Groups 1-A, 1-B and Group 3-B listed chemicals, may produce a fire, explosion or heat and the generation of flammable or toxic gases.

These compatibility listings and packaging guides should not be the only information used when packaging or accumulating waste chemicals. RCRA regulations require that wastes should be adequately analyzed by TSD facilities so uncontrolled substances or reactions do not occur. Pay close attention to any waste characterization data you receive on material reactivity and compatibility. There are also other sources of data that may be helpful in determining waste compatibility. Safety Data Sheets (SDS's) contain a section devoted to chemical reactivity and incompatibility. The National Fire Protection Association (NFPA) publishes a manual of hazardous chemical reactions that contains over 3,500 documented dangerous chemical reactions.

Table C-1 Potential Consequences of Mixing a Group A Material With a Group B Material

Group 1-A	Group 1-B
Acetylene sludge	Acid sludge
Alkaline caustic liquids	Acid and water
Alkaline cleaner	Battery acid
Alkaline corrosive liquids	Chemical cleaners
Alkaline corrosive battery fluids	Electrolyte, acid
Caustic wastewater	Etching acid liquid or solvent
Lime sludge and other corrosive alkali	Pickling liquor and other corrosive acids
Lime wastewater	Spent acid
Lime and water	Spent mixed acid
Spent caustic	Spent sulfuric acid
** Potential consequences: Heat generation; violent reaction*	

Group 2-A	Group 2-B
Aluminum	Any waste in Group 1-A or 1-B
Beryllium	
Calcium	
Lithium	
Magnesium	
Potassium	
Sodium	
Zinc powder	
Other reactive metals and metal hydrides	
** Potential consequences: Fire or explosion; generation of flammable hydrogen gas*	

Group 3-A	Group 3-B
Alcohol's	Any concentrated waste in Groups 1-A or 1-B
Water	Calcium
	Lithium
	Metal Hydrides
	Potassium
	SO_2Cl_2, $SOCl_2$, PCl_3, CH_2SiCl_2
	Other water-reactive waste
** Potential consequences: Fire, explosion, or heat generation; generation of flammable or toxic gases.*	

Group 4-A	Group 4-B
Alcohol's	Concentrated Group 1-A or 1-B wastes
Aldehydes	Group 2-A wastes
Halogenated hydrocarbons	
Nitrated hydrocarbons	
Unsaturated hydrocarbons	
Other reactive organic compounds and solvents	
** Potential consequences: Fire, explosion or violent reaction*	

Group 5-A	Group 5-B
Spent cyanide and sulfide solutions	Group 1
** Potential consequences: Generation of toxic hydrogen cyanide or hydrogen sulfide gas*	

Group 6-A	Group 6-B
Chlorates	Acetic acid and other organic acids
Chlorine	Concentrated mineral acids
Chlorites	Group 2-A wastes
Chromic acid	Group 4-A wastes
Hypochlorites	Other flammable and combustible wastes
Nitrates	
Nitric acid, fuming	
Perchlorates	
Permanganates	
Peroxides	
Other strong oxidizers	
** Potential consequences: Fire, explosion, or violent reaction*	

Source: 40 CFR 264, Appendix V

University of Portland

APPENDIX D

Hazardous Chemical Waste Tags and Labels

University of Portland Hazardous Chemical Waste Tags

Print Your Name:_____ Building and Department: _____Phone:_____

Total Amount in Container: _____ (Include weight units) Container Type/Size: _____ (Include volume units)

Complete Chemical Composition:
(List % or amount of each constituent including water/solvent, include units if amount)

1.	%	6.	%
2.	%	7.	%
3.	%	8.	%
4.	%	9.	%
5.	%	10.	%

Check if applicable:
_____Flammable
_____Corrosive pH_____
_____Oxidizer
_____Highly Toxic
_____Reactive/Explosive

I certify this information is true and that I have done my best to reduce the volume and toxicity of this waste.

Signature: _____Date:_____
Printed Name: _____

Note: *Follow Hazardous Waste Plan procedures.*
Contact the EHS Officer at ehs@up.edu
See page 2 of this Tag for guidance and instructions.

INSTRUCTIONS:

1. All waste must be stored and transported in closed, tightly sealed containers, in containers capable of holding the waste and compatible with the waste. The container size should fit the amount of waste inside the container as dead air takes up space when packed in lab-pack drums.
2. As a general rule different waste types (solids vs. liquids, solvents vs. aqueous) should be accumulated in separate waste containers.
3. Abbreviations and structure symbols are not accepted. Spell out each chemical constituent. Record the approximate percentage of each chemical including trace amounts.
4. Accumulate solid waste (gloves, pipettes, paper towels, etc.) in containers separate from liquid waste.
5. Use ballpoint pen and press hard.
6. Every container needs a tag. Securely attach a tag to each container in a manner so it may be removed for documentation during off-site removal.
7. Do not put liquid waste in plastic containers, as they tend to degrade and leak.
8. While accumulating waste, list the contents of the waste container on this tag to keep a running total.
9. Store all waste containers closed.
10. Keep this tag on all waste containers at all times up until final removal from the site.

Hazardous Waste Labels

What is commonly referred to as a hazardous waste label is a self-adhesive label designed by label manufacturer or the user. Neither the DOT nor the U.S. Environmental Protection Agency (EPA) requires or specifies a hazardous waste label design. EPA's Resource Conservation and Recovery Act (RCRA) hazardous waste regulations require that a container of 110 gallons or less capacity that contains a hazardous waste be marked with the following information:

"HAZARDOUS WASTE -- Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency.

Generator's Name and Address _____.

Manifest Document Number _____."

Some state-run RCRA programs require a variation of this notice. Because hazardous waste is also regulated under the DOT regulations, when in transport, the container must also display the appropriate DOT markings and labels. A typical hazardous waste label combines the required DOT and waste markings plus provides space for the user to enter additional mandatory and voluntary information.

APPENDIX E

Waste Packing Instructions

Hazardous Chemical Waste Tag

All waste must be stored and brought to a campus Accumulation Point in a securely closed screw top container capable of containing the waste inside. All containers must be clean and free of contaminants on the outside. The container size should fit the amount of waste inside the container as nearly as possible to help reduce cost.

All waste containers must be accompanied with a completed “Hazardous Chemical Tag”. These are available from the Public Safety Office, from the Swindells Hall, and from the EHS Officer. As a general rule, different wastes, i.e. solids vs. liquid wastes, solvents vs. aqueous wastes, should be accumulated in separate waste containers. This simplifies cataloging of all waste constituents in a particular container and avoids the costly disposal of complex mixtures. Separating waste streams also prevents potentially incompatible waste streams from reacting with each other and causing a fire or explosion. This guideline does not preclude the mixing of wastes that could obviously be mixed together such as dilute acids and bases to form a neutral waste that, if sufficiently nontoxic, can actually be poured down the drain.

The Hazardous Chemical Tag must have each chemical constituent present in the waste container spelled out completely (no abbreviations or structures) on the waste tag with the appropriate percentage or amount of each constituent listed including trace amounts of toxic chemicals (these can be listed as "trace"). Use more than one tag if describing a mixture containing more than eight constituents. Any additional descriptions or hazard notes are very helpful and are appreciated, i.e., poison, oxidizer, stench, etc. If the waste is an aqueous mixture, or has a layer of aqueous components, a pH must accompany the description. Please write legibly and in ink.

While accumulating waste, list the contents of the waste container on the Hazardous Chemical Waste Tag to keep a running total. Keep all waste containers closed while not in use.

Accumulate solid waste (gloves, pipettes, paper towels, etc.) in separate containers from liquid waste.

Do not put liquid waste in plastic containers, as the containers tend to degrade and leak.

Date and tag when the container becomes full and notify Public Safety EHS Officer or Chemical Hygiene Officer for pickup within three days.

APPENDIX F

Management of Specific Waste Types

The following are the techniques and requirements for the management of specific types of hazardous waste. Please adhere to these guidelines. If you have any questions, contact the EHS Officer immediately.

> **Note:** See Appendix G for Guidelines to laboratory Sink/Sewer Disposal of Wastes.

Chemically Contaminated Items (CCIs)

Chemically contaminated items (CCIs) can only be put into the normal trash if they are non-reactive, non-ignitable, non-infectious, non-radioactive, and the contaminant is not highly toxic. This category includes such disposable lab ware as gloves, bench top coverings, pipettes, test tubes, aprons, etc.

If the normal trash is not an appropriate disposal route for CCIs, package them in a 5-gallon plastic bag (obtained through the Chemistry or Biology, or Environmental Health and Safety), which can be placed conveniently inside a 5-gallon plastic bucket. Label the *Hazardous Chemical Waste Tag* as "Chemically Contaminated Items" and list chemical contaminants. Consult the EHS Officer if there are any questions.

Radioactive or biologically contaminated CCIs must be handled separately. Refer to the Radiation Safety Manual, as appropriate.

Note: All lab ware contaminated with PCBs at 3 to 50 ppm or greater must be packaged separately and given to EHS Officer for disposal. Reference Section 11 PCB Waste Management.

Empty Containers

Bottles are considered "empty" when you have removed all contents possible by normal means (pouring, scooping, etc.). These may be placed in the normal trash. However, some buildings provide a glass dumpster for disposal. Consult building policies or your EHS Officer.

Note: The Chemistry department requires triple rinsing of empty reactive containers.

Punch a hole in 5-gallon metal containers or safety cans that are no longer needed, and place directly in the normal trash dumpster. This will prevent their reuse. ***A non-sparking pick must be used.***

Potentially Explosive Chemicals

Package each container of potentially explosive chemicals separately from other chemicals. Follow the packaging instructions in Appendix E and be sure to note on the Hazardous Chemical Waste Tag the waste's characteristics and any special handling precautions. If you do not feel comfortable handling the chemical, or are unsure of its shock sensitivity, call EHS Officer for assistance. Potentially explosive chemicals include:

Reference Section ** Explosive Waste Disposal

Ammonium nitrate	Peroxide forming agents (10.0)
Diazo compounds	Dry picric acid
Hydrazine compounds	Nitrocellulose

Metallic Mercury

The EHS Officer collects and recycles free-flowing metallic mercury. Package it in a tightly sealed and leak-free container. Place broken mercury thermometers in a one-gallon over-pack (obtainable from EHS Officer) or a secured plastic bag and arrange for pickup.

If you use mercury it is imperative that you have a mercury spill kit available.

Non-Hazardous Liquid Waste

Most liquid chemical waste will need to be handled by the EHS Officer. However, you might have some non-hazardous waste that can be flushed to the sewer after 20X dilution with water. These non-toxic chemicals can be flushed to the sanitary sewer because they are:

- Water soluble;
- Degradable in the sanitary sewer system; ***and***
- Non-hazardous.

Non-hazardous, water-soluble solid chemicals can also be dissolved in water and disposed in this manner. All chemicals poured into the sewer must be followed by at least 20 parts water.

Note: If you intend to dispose of more than one liter of any of these materials, or if you are unsure whether or not you should dispose of a certain material, please contact the EHS Officer.

Non-Hazardous Solid Waste

Most waste chemicals will need to be handled by the EHS Officer, but you might have some non-hazardous waste listed that can be disposed of in the normal trash. These are solid chemicals that have very low toxicity and no positive determination of carcinogenicity. Assume all other chemicals are hazardous waste.

If you plan to dispose of any one of these non-hazardous chemicals, please make sure that it is placed in a tightly sealed container.

Note: If you are unsure whether or not you should dispose of a certain material in this manner, please contact EHS Officer. Only non-hazardous solid materials can be placed in the trash.

Peroxide-Forming Agents

Peroxides are low power explosives and are very sensitive to shock and heat. A variety of organic compounds react with oxygen from the air to form unstable peroxides. Common examples include:

Aldehydes	Miscellaneous ethers
Compounds with benzylic hydrogens	Isopropyl ether
Compounds with allyl groups	Tetrahydrofuran
Diethyl ether	Vinyls
Dioxane	

One of the following conditions must be met before peroxide formers may be accepted by the EHS Officer for disposal. These are requirements enforced by the disposal company, as well as good laboratory safety practices.

- The material must be **less than twelve months old**. This information must be marked clearly on the Hazardous Chemical Waste Tag.
- If the material is **greater than twelve months old but less than two years old**, check for peroxide formation by using peroxide paper. If peroxide formation is less than 100 ppm, add 1 tsp. of hydroquinone per pint of material to prevent the formation of additional peroxides. Mark this information on your waste tag (e.g., "<100 ppm, hydroquinone added") and request a pickup from the Public Safety Department. If peroxide formation is greater than 100 ppm, call the EHS Officer or Chemical Hygiene Officer for technical assistance.
- If the material is **greater than two years old but less than five years old**, it should be assessed for other factors such as: duration of exposure to sunlight, volume of container (i.e., "Is it full?"), security of the seal, exposure to changes in temperature, etc. If you do not know the answer to any of these questions, find someone who does. **Do not open the container to check for peroxide formation**, as the material could be shock-sensitive.
- If the container is **more than five years old**, do not move the container at all. Post a sign reading "DANGER: possible shock-sensitive chemical" and call the EHS Officer for technical assistance.

Safety Tips for Peroxide Formers

Date new containers when opened and request pickup from Public Safety department within three months of this date for Category I compounds and within 12 months for Category II and III compounds. Refer to the National Safety Council's recommendations for labeling of peroxidizable liquids.

- Exposure of any peroxide-forming agent to light or air increases the rate of peroxide formation. Store these agents in full, light-resistant containers.
- Refrigeration does not prevent peroxide formation.
- As is the case with all hazardous chemicals, order only those amounts that you need in order to decrease storage time.
- Be particularly cautious with materials of unknown age! Do not attempt to remove caps from containers that may cause shock or sparks. Call EHS Officer for advice or assistance when such containers are found.
- Never distill peroxide-forming solvents unless they are known to be free of peroxides. Peroxides concentrated in still residue can be a serious explosive hazard.

Sharps

Several categories of sharps are generated on campus, such as needles, razors, and sharp glassware. Although most are not considered hazardous waste, they do require special handling for safety reasons. **Regardless of contamination**, sharps should be placed in **puncture-resistant**, cardboard or plastic containers and labeled as "sharps."

Chemically contaminated sharps (CCIs): Metal and glass sharps that are grossly contaminated with hazardous chemicals should be collected in puncture-proof containers and marked as "sharps" and "CCI" (see Section 5.0 for additional requirements). CCI sharps should then be delivered to the EHS Officer for disposal.

Biohazardous sharps: Contaminated metal and glass sharps should be placed in red, biohazardous sharps containers, labeled as "sharps" and affixed with a biohazard waste tag. Consult the Biohazardous Waste Disposal policy for further instructions.

Radioactive sharps: Consult the Radiation Safety Manual issued by the Radiation Safety Officer for further instructions.

Uncontaminated metal sharps: Containers should be labeled as "sharps" and "solid waste." They may then be disposed of through the EHS Officer or in a biohazard collection drum.

Uncontaminated glass sharps: At some buildings, these may be placed directly in glass dumpsters with no special labeling or container requirements. If no glass dumpster is available, package in a puncture proof container, label as "glass sharps" and "solid waste" and place in the normal trash.

Note: Sharps containers are sold in chemistry stores, lab supply catalogues and found in the biology stock room. Red biohazard sharps containers are to be used ONLY for biohazardous waste because regulatory requirements prohibit disposal of them by the same means as chemically contaminated sharps.

Table F-1 Labeling and Handling of Sharps

Type	Package	Labeling	Disposal
Biohazardous metal and glass	Puncture proof biohazard container (red)	"Sharps" and use a biohazard waste tag	See instructions for disposal through EHS Officer
Radioactive	Puncture proof container	See the *Radiation Safety Manual* for labeling procedures	Susan Lair Radiation Safety
Chemically contaminated		"Sharps" and "CCIs"	EHS Officer
Uncontaminated metal sharps		"Sharps" and "Solid Waste"	EHS Officer or a biohazardous waste container
Uncontaminated glass *		"Glass sharps" and "Solid Waste"	Normal Trash

** No labeling or special container is required if disposed of directly in a glass dumpster.*

Organic Solvents

Place organic solvents in a safety can. (Very Small Quantity Generators can use other containers if a safety can is not practical.) Label your safety can or containers as contents are added so that you will be able to account for 100% of the chemical composition of the can. Do not depend on your memory when it is time to fill out your Hazardous Chemical Waste Tag! Waste must have a pH of no less than 3 and no more than 12 or it will be rejected.

Note: All safety cans should be labeled with the words "Hazardous Waste."

Substances Which Should NOT Be Put into Safety Cans

Safety cans are to be used for solvents, only. The following substances are inappropriate for incineration and should NOT be placed in your safety cans in any concentration:

- Acid and base solutions
- Aqueous solutions of toxic organic chemicals
- Metals (e.g., Sb, As, Ba, Cd, Cr, Pb, Hg, Ni, Se, Ag)
- Vacuum pump oil
- Sulfides or inorganic cyanides
- Strong oxidizers or reducers
- Water reactive substances
- Unknowns
- Water
- Stench compounds
- Any materials which react with organic solvents

Strong Oxidizers and Reducers

Arrange for pickup of all oxidizers and reducers, such as those listed below.

Strong oxidizers:	**Strong reducers:**
Chromic acid (fresh)	n-Butyl lithium
Metallic chlorates	Calcium hydride
Metallic nitrates	Metallic sulfides
Metallic perchlorates	Sodium hydride
Metallic permanganates	Stannous chloride
Perchloric acid	

Unknown Chemicals

You must make every effort to provide an accurate description of all waste chemicals being accumulated, handled, and shipped off-site for disposal. Unknown chemicals present serious legal and safety problems for the University. Without an accurate description, it is difficult to handle and dispose of the chemical safely. Disposal companies will not accept chemical waste without an analysis, and an analysis of one sample could cost $1,000 or more.

Often you can deduce the contents of an unknown container by locating the original Generator, even if he or she is in another part of the country. If this is not successful, a fellow researcher may be familiar with the kinds of chemicals used in a particular research lab.

You can reduce the occurrence of unknown chemicals by being thorough in maintaining chemical container labels. Make periodic reviews of chemical stock and be sure to label all waste containers as they are filled using the Hazardous Chemical Waste Tag.

Lab Cleanout or Decommissioning

Unknown and unwanted chemicals show up during turnover of personnel, changes to laboratories, classes and procedures. To alleviate this problem, it is the principal investigator/ researchers' responsibility to sort through their chemical inventory, exchange what you can with other researchers, and arrange for pickup of the rest. Give the EHS Officer a call if special pick-up arrangements are needed.

If a faculty member is going to retire, this process should be stated before they leave the service of the University to ensure proper management of the waste, and not trigger a change in the University's regulatory status.

Vacuum Pump Oil

Uncontaminated vacuum pump oil can be recycled and should be picked up for consolidation and management as "Used Oil" (See Section 8) by the Physical Plant.

Disposal of Embalming Fluid into Sewer System

The following process should be followed with disposing of the embalming material in accordance with our agreement with the City of Portland Bureau Of Environmental Services and Water Bureau.

- Collect embalming fluid in 1 gallon containers in our cadaver lab, in a concentration (volume) of no more then 5-gallons.
- Dispose of 1 Gallon at a time with running water,
- Turn on the sink faucet and allow water to run into the drain for 1 minute
- Slowly pour/release the embalming fluid into a laboratory sink drain 1 gallon at a time
- Keep the water running at all times when the fluid is being released down the drain in order to start the dilution process.
- Triple rinse the embalming container while the sink is still running
- Keep the water running for 5 minutes after the gallon of embalming solution container is empty to aide the dilution process and prevent build up in the pipes.
- Wait 1 hour wait before starting the next gallon.
- This process should occur at most, once a year; however if there is a need to do this more frequently, we will need to revisit this agreement with the City of Portland. UP'S CADAVER LAB HAS SET THE DATE OF **THE FIRST WEEK OF MAY EACH ACADEMIC YEAR** AS THE DATE FOR EMBALMING FLUID RELEASE INTO THE SEWER SYSTEM THROUGH THE CADAVER ROOM SINK

NOTE: The information on the embalming fluid was given to the City of Portland Water Bureau and Environmental Services (by the University of Portland's Safety Officer) to review. Both human tissue (in small amounts) and the chemicals were discussed and both were approved for disposal through the method that is listed above. The concentration of the chemicals is the reason they would like it diluted at the same time as you dispose of down the drain. Their processing plant can handle the material when it gets to them. This is a process that other institutions do for the embalming fluid, and we did get acceptance from the City to proceed.

The disposal procedure has been accepted and approved by the City of Portland Water Bureau and Bureau of Environmental Services. If the embalming solution is changed or altered from the below concentrations, then a new procedure will be required. Contact EHS for updates to this procedure.

EMBALMING Fluid SOLUTION

Phenol (89%) % by volume 27.8

Formaldehyde	(36%)	% by volume 5.6
Methanol	(95%)	% by volume 33.3
Glycerine	(99.5%)	% by volume 33.3

APPENDIX G

University of Portland Guide to Laboratory Sink/Sewer Disposal of Wastes

Introduction

University of Portland is required to comply with sewer disposal restrictions established by the City of Portland wastewater treatment plant and all applicable State and Federal regulations. This guide is designed to assist laboratories with the identification of waste streams that are prohibited or limited from sink/sewer disposal. Wastes must NOT be intentionally diluted to comply with sink/sewer disposal requirements. Please note that application of some regulatory requirements to laboratory waste streams is extremely complicated. Contact the EHS Officer in the Public Safety Department for assistance in applying these guidelines to your specific waste streams.

Wastes forbidden from sink/sewer disposal

The following wastes must ***NEVER*** be discharged to the sanitary sewer in ***ANY*** concentration. These wastes must be collected and managed as ***Hazardous Waste***.

1. **Raw Chemical Waste.**
   Unused, pure, or concentrated chemicals.
2. **Chlorinated Hydrocarbon Waste.**
   Chlorinated hydrocarbons are compounds that contain chlorine, hydrogen, and carbon. Examples of chlorinated hydrocarbons include but are not limited to:
   a. Chloromethanes:
      Specific examples:
      - Methylene chloride
      - Trichloromethane (chloroform)
      - Trichlorofluoromethane

   b. Chloroethanes:
      Specific examples:
      - 1,1-Dichloroethane
      - 1,1,1-Trichloroethane
      - 1,1,2-Trichloroethane
      - Hexachloroethane

   c. Chloroethylenes:
      Specific examples:
      - Vinyl chloride
      - Trichloroethylene
      - Tetrachloroethylene

d. Chloropropanes, chlorobutanes, chlorobutenes:
   Specific examples:
   - Dichlorobutadiene
   - Hexachlorobutadiene

e. Chlorinated paraffins;

f. Chlorinated pesticides
   Specific examples:
   - Aldrin
   - Heptachlor epoxide
   - Chlordane
   - Hexachloride
   - DDT
   - Hexachlorobenzene
   - 2,4-D
   - Lindane
   - Dieldrin
   - Methoxychlor
   - Endrin
   - Mirex
   - Heptachlor
   - Toxaphene

g. Nucleus-chlorinated aromatic hydrocarbons
   Specific examples:
   - Dichlorobenzene
   - Dichlorotoluene
   - Chlorobenzene
   - 1,2-Dichlorobenzene
   - 1,4-Dichlorobenzene
   - Chlorinated biphenyls (including PCBs)
   - Chlorinated naphthalenes
   - Pentachlorophenol
   - 2,4,5-Trichlorophenol
   - 2,4,6-Trichlorophenol

h. Side-chain chlorinated aromatic hydrocarbons
   Specific examples:
   - Chloromethyl benzene (benzyl chloride)
   - Dichloromethyl benzene (benzal chloride)
   - Trichloromethyl benzene (benzotrichloride).

3. **Chlorofluorcarbon Waste**
4. **Brominated Hydrocarbon Waste**
   Specific examples:
   a. Bromoform
   b. Bromomethane

5. **Cyanide Waste.**
   Includes cyanide, cyanate (OCN-), and thiocyanate (SCN-) compounds.
   Specific examples:
   a. Potassium cyanide
   b. Sodium cyanide
   c. Hydrogen cyanide
   d. Zinc cyanide
   e. Copper cyanide
   f. Nickel cyanide.
6. **Heavy Metal Waste.**
   Specific examples:
   a. Antimony
   b. Mercury
   c. Arsenic
   d. Nickel
   e. Barium
   f. Selenium
   g. Cadmium
   h. Silver
   i. Chromium
   j. Thallium
   k. Copper
   l. Zinc
   m. Lead
7. **Corrosive Waste.**
   Corrosive wastes are wastes that could cause corrosive structural damage to the sink/sewer piping. All wastes with a pH lower than 5.0 Standard Units (S.U.) or higher than 9.0 S.U. are considered corrosive wastes. Laboratories must not neutralize corrosive wastes to comply with this requirement unless it is part of a written protocol for the laboratory process generating the waste and the neutralization process is carried out by trained, qualified personnel.
8. **Solvent Waste.**
   Wastes containing any of the following solvents in any concentration:
   a. Acetone
      Please note that acetone used to wash glassware falls into this category.
   b. Ethyl Ether
   c. Benzene
   d. Isobutanol
   e. n-Butyl Alcohol
   f. Methanol
   g. Carbon Disulfide
   h. Methyl Ethyl Ketone (MEK)
   i. Carbon Tetrachloride
   j. Methyl Isobutyl Ketone
   k. Cresols
   l. Nitrobenzene
   m. Cyclohexanone
   n. 2-Nitropropane
   o. Cresylic Acid
   p. Pyridine

q. 2-Ethoxyethanol
r. Toluene
s. Ethyl Acetate
t. Xylene
u. Ethyl Benzene

9. **Oil and Grease Wastes.**
   Waste oils and grease, including vacuum pump oil, must be collected and managed as "Used Oil". Wastes that are contaminated with oil or grease in concentrations greater than 50 mg/L must also be collected and managed as hazardous waste.
10. **Ignitable Wastes.**
    Ignitable wastes are: 1) Liquid wastes with a flashpoint less than 60 degrees C (140 degrees F); 2) Non-liquid wastes that are capable of causing fire through friction, reaction with moisture, or spontaneous chemical changes; 3) Ignitable compressed gases; or 4) Oxidizers. Ignitable wastes include most waste solvents found in laboratories, ignitable compressed gases such as hydrogen, and oxidizers such as nitrates/nitrites (sodium nitrate, potassium nitrite, etc.) and chlorates and perchlorates (magnesium perchlorate, etc.). Ignitable wastes include mixtures of ignitable chemicals with other materials if the mixture still exhibits the ignitability characteristic (i.e., flashpoint less than 60 degrees C).
11. **Reactive Wastes.**
    Reactive wastes: 1) Are normally unstable and readily undergo violent change; 2) React violently or form explosive mixtures with water; 3) Can generate toxic gases, vapors or fumes when mixed with water or exposed to extreme pH conditions; or 4) Are capable of detonation or explosive reaction under certain conditions. Common reactive wastes found in laboratories include certain cyanides, sulfides, and silanes or any mixtures of multiple wastes that exhibit reactivity characteristics.
12. **Solid or Viscous Wastes.**
    Solid or viscous wastes that may coat, clog, or otherwise cause obstruction to the flow of sewer pipes must never be discharged to the sewer. Examples of prohibited solid or viscous waste include sand, animal tissues, bones, plastics, rubber, glass, wood chips, wood shavings, plaster, paint, etc. in such quantity, concentration, or form that may cause interference with proper sewer flow. Depending on the nature of the waste, it may be discharged to the normal trash or collected and managed as hazardous waste.
13. **Nuisance Waste.**
    Wastes that may cause a discoloration or that may cause interference in the Metro wastewater treatment plant must not be discharged to the sewer. Wastes that are noxious or malodorous to the extent that a nuisance may be created at the Metro wastewater treatment plant or in other laboratories must not be discharged to the sewer.
14. **Untreatable Waste.**
    Wastes that contain any element or compound that cannot be adequately treated or removed by the Metro wastewater treatment plant (biological activated sludge treatment) and that is known to be an environmental hazard must not be discharged to the sewer.
15. **Hot Liquid or Vapor Wastes.**
    Liquid or vapor wastes with a temperature above 65.5°C (150°F) must not be discharged to the sewer.
16. **Ethidium Bromide and Acrylamide Waste.**
    Buffer solutions and other solutions containing ethidium bromide or acrylamide in any concentration and ethidium bromide and acrylamide gels.
17. **Table G-1 Priority Pollutant Wastes.**
    All wastes containing any of the following priority pollutant compounds in any concentration must be collected and managed as hazardous waste:
    a. **Volatiles**

Acrylonitrile	Benzene	Bromoform
Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane
Chloroethane	2-Chloroethylvinyl ether	Chloroform
Dichlorobromomethane	Dichlorodifluoromethane	1,1-Dichloroethane
1,2-Dichloroethane	1,1-Dichloroethylene	Dichloromethane
1,2-Dichloropropane	1,2-Dichloropropylene	1,3-Dichloropropylene
2,4-Dichloropropylene	Ethylbenzene	Methyl bromide
Methyl chloride	Methylene chloride	1,1,2,1-Tetrachloroethane
1,1,2,2-Tetrachloroethane	Tetrachloroethylene	Tetrachloromethane
Toluene	Trans-dichloroethylene	1,2-Trans-dichloroethylene
1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethylene
Trichlorofluoromethane	Trichloromethane	Vinyl chloride

b. **Base/Neutral**

Acenaphthene	Acenaphthylene	Anthracene
Benzidine	Benzo(a)anthracene	Benzo(a)pyrene
3,4-Benzofluoranthene	Benzo(ghi)perylene	Benzo(b)fluoranthene
Benzo(k)fluoranthene	Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether
Bis(2-chloroisopropyl)ether	Bis(2-chloromethyl)ether	Bis (2-ethylhexyl)phthalate
4-Bromophenyl phenyl ether	Butylbenzyl phthalate	2-Chloronaphthalene
4-Chlorophenyl phenyl ether	Chrysene	Dibenzo(a,h)anthracene
1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene
3,3'-Dichlorobenzidine	Di-n-ethyl phthalate	Diethyl phthalate
Di-c-methyl phthalate	Dimethyl phthalate	Di-n-butyl phthalate

2,4-Dinitrotoluene	2,6-Dinitrotoluene	Di-n-octyl phthalate
1,2-Diphenylhydrazine	Fluroranthene	Fluorene
Hexachlorobenzene	Hexachlorobutadiene	Hexachlorocyclopentadiene
Hexachloroethane	Indeno(1,2,3-cd)pyrene	Naphthalene
Nitrobenzene	N-nitrosodimethylamine	N-nitrosodi-n-propylamine
N-nitrosodiphenylamine	Phenanthrene	Pyrene
1,2,4-Trichlorobenzene		

c. **Pesticides**

Acrolein	Aldrin	BHC, alpha
BHC, beta	BHC, delta	BHC, gamma
Chlordane	4,4'-DDT	4,4'-DDE
4,4'-DDD	Dieldrin	Endosulfan, alpha
Endosulfan, beta	Endosulfan sulfate	Endrin
Endrin aldehyde	Heptachlor	Heptachlor epoxide
Isophorone	PCB-1016	PCB-1221
PCB-1232	PCB-1242	PCB-1248
PCB-1254	PCB-1260	TCDD (Dioxin)
Toxaphene		

d. **Inorganics, Metals, Phenols, and Cresols**

Antimony	Arsenic	Asbestos
Beryllium	Cadmium	Chromium

Copper	Lead	Mercury
Nickel	Selenium	Silver
Thallium	Zinc	Cyanide
2-Chlorophenol	Cresols	2,4-Dichlorophenol
2,4-Dimethylphenol	4,6-Dinitro-o-cresol	2,4-Dinitrophenol
2-Nitrophenol	4-Nitrophenol	P-chloro-m-cresol
Pentachlorophenol	Phenols	2,4,6-Trichlorophenol

18. **Rinseate**
    Empty containers that are being rinsed should be triple rinsed with a minimal amount of liquid and the rinseate collected and managed as hazardous waste if the container held any of the wastes described in items 1, 2, 3, 4, 5, 6, 8 or 10 on the above list of priority pollutant wastes. Subsequent rinses may be discharged to the sewer. Depending on the waste, fewer rinses may be required to be collected. Contact the EHS Officer for evaluation of specific waste containers. Rinseate from empty containers that held other types of waste may be discharged to the sewer if the rinseate does not exhibit the hazardous characteristic of the waste. (For example, rinseate from a container that held ignitable waste may be sewer disposed if the rinseate is not ignitable.)

Wastes with limited sink/sewer disposal

1. **Radioactive Wastes.**
   A radioactive waste that is water soluble or readily dispersible in water and not prohibited from sewer disposal based on the criteria described in the previous section may be disposed via the sanitary sewer system. The disposal limit is 200 µCi per laboratory per day. Records of sewer disposal must be maintained on the Radioactive Material Usage Log.
2. **Biological Materials.**
   Biological waste must not be discharged to the sewer unless it has been properly treated. Please refer to Proper Disposal of Biological Waste in the Guide to Bio-Safety through the EHS Officer. Biological waste intended for sewer disposal must not be prohibited from sewer disposal based on the criteria described in the previous section.
3. **Specific Organic Chemicals in Concentrations of One Percent or Less.**
   Organic chemicals suitable for sink/sewer disposal are described below. Only those organic compounds that are reasonably soluble in water are suitable for sink/sewer disposal. A compound is considered water soluble if it dissolves to the extent of at least three percent. Chemicals listed below must be in concentrations of approximately one percent or less to be suitable for sink/sewer disposal. If the total volume of waste to be disposed is greater than four liters per day, approval by EHS Officer is required. Sewer discharges of these chemicals must not be prohibited in the previous section. Any chemicals that fall into categories described below and are specifically prohibited from sink/sewer disposal in the previous section must ***NOT*** be discharged to the sewer.
   a. Alkanols with 4 or fewer carbon atoms.
      Specific examples:

- 2-Butanol
- 2-Propanol
- Tert-butanol
- Ethanol 1-Propanol

b. Alkanediols with 7 or fewer carbon atoms.
Specific examples:
- Butanediol and isomers
- Butylene glycol
- Ethylene glycol
- Heptamethylene glycol
- Heptanediol and isomers
- Hexanediol and isomers
- Hexylene glycol
- Pentanediol and isomers
- Pentylene glycol
- Propylene glycol

c. Sugars and sugar alcohols (polyols).
Specific examples:
- Dithioerythritol
- Dithiothreitol
- Erythritol
- Glycerol
- Lactitol
- Maltitol
- Mannitol
- Molasses
- Sorbitol
- Xylitol

d. Alkoxyalkanols with 6 or fewer carbon atoms.
Specific examples:
- Butoxyethanol
- Ethoxyethanol
- Methoxyethanol

e. Aliphatic aldehydes with 4 or fewer carbon atoms.
Specific examples:
- Acetaldehyde
- Butyraldehyde (butanal)
- Formaldehyde
- Glutaraldehyde
- Isobutyraldehyde
- Propionaldehyde (propanal)

f. RCONH2 and RCONHR with 4 or fewer carbon atoms and RCONR2 with 10 or fewer carbon atoms.
Specific examples:
- Acetamide
- Butanamide
- Butyramide
- Formamide
- Isobutyramide
- N,N-Diethyl formamide

- N,N-Dimethyl acetamide
- N,N-Dimethyl propionamide
- N-Ethyl acetamide
- N-Ethyl formamide
- N-Methyl acetamide
- N-Methyl formamide
- N-Methyl propionamide
- Propionamide

g. Aliphatic amines with 6 or fewer carbon atoms.
Specific examples:
   - Amylamine
   - Isobutylamine
   - Butylamine
   - Dimethylpropylamine
   - Ethylamine
   - 1-Ethylpropylamine
   - Hexylamine
   - Isobutylamine
   - Isopropylamine
   - Methylamine
   - Methylbutylamine
   - N-Ethylbutylamine
   - N-Ethylmethylamine
   - N-Methylpropylamine
   - Trimethylamine
   - Iso-amylamine
   - Diethylamine

h. Aliphatic diamines with 6 or fewer carbon atoms.
Specific examples:
   - Ethylene diamine
   - Hexamethylene diamine and isomers
   - Pentamethylenediamine and isomers
   - Piperazine
   - 1,2-Propanediamine
   - 1,3-Propanediamine
   - Triethylenediamine

i. Alkanoic acids with 5 or fewer carbon atoms and the ammonium, sodium, and potassium salts of these acids with 20 or fewer carbon atoms.
Specific examples:
   - Acetic acid
   - Butyric acid
   - Formic acid
   - Isobutyric acid
   - Isovaleric acid
   - Propionic acid
   - Valeric acid

j. Alkanedioic acids with 5 or fewer carbon atoms and the ammonium, sodium, and potassium salts of these acids with 20 or fewer carbon atoms.
Specific examples:

- Fumaric acid
- Glutaric acid (1,5-pentanedioic acid)
- Malic acid
- Malonic acid (1,3-propanedioic acid)
- Oxalic acid (1,2-ethanedioic acid)
- Succinic acid (1,4-butanedioic acid)
- Tartaric acid

k. Hydroxyalkanoic acids with 5 or fewer carbon atoms and the ammonium, sodium, and potassium salts of these acids with 20 or fewer carbon atoms.
   Specific examples:
   - Glycolic acid
   - 3-Hydroxybutyric acid
   - 2-Hydroxyisobutyric acid
   - Lactic acid (2-hydroxypropanoic acid)

l. Aminoalkanoic acids with 6 or fewer carbon atoms and the ammonium, sodium, and potassium salts of these acids with 20 or fewer carbon atoms.
   Specific examples:
   - 3-Amino butyric acid
   - 4-Amino butyric acid
   - Amino isobutyric acid
   - 5-Amino pentanoic acid and isomers
   - 3-Amino propanoic acid

m. Esters with 4 or fewer carbon atoms.
   Specific examples:
   - Ethyl formate
   - Isopropyl acetate
   - Isopropyl formate
   - Methyl acetate
   - Methyl formate
   - Methyl propionate
   - Propyl formate

n. Nitriles.
   Specific examples:
   - Acetonitrile
   - Butyronitrile
   - Isobutylnitrile
   - Propionitrile

o. Sulfonic acids and sodium and potassium salts of the acids.
   Specific examples:
   - Methane sulfonic acid
   - Ethane sulfonic acid
   - 1-Propane sulfonic acid
   - 1-Butane sulfonic acid
   - 1-Pentane sulfonic acid
   - 1-Hexane sulfonic acid
   - 1-Heptane sulfonic acid
   - 1-Octane sulfonic acid
   - 1-Decane sulfonic acid
   - 1-Dodecane sulfonic acid

- 1-Tetradecane sulfonic acid
- 1-Hexadecane sulfonic acid

4. **Specific Inorganic Chemicals in Concentrations of One Percent or Less.**
   Inorganic chemicals suitable for sink/sewer disposal are described below. Only those inorganic compounds that are reasonably soluble in water are suitable for sink/sewer disposal. A compound is considered water soluble if it dissolves to the extent of at least 3 percent. Chemicals listed below must be in concentrations of approximately 1 percent or less to be suitable for sink/sewer disposal. If the total volume of waste to be disposed is greater than four liters per day, approval by the EHS Officer is required. Sewer discharges of these chemicals must not be prohibited in the previous section. Any chemicals that fall into categories described below and are specifically prohibited from sink/sewer disposal in the previous section must ***NOT*** be discharged to the sewer.
   a. **Table G-2 Inorganic Salts Cations and Anions:**

Cations	**Anions**
Aluminum, Al3+	Borate, BO33-, B4O72-
Ammonium, NH4+	Bromide, Br-
Calcium, Ca2+	Carbonate, CO32-
Cesium, Cs+	Chloride, Cl-
Hydrogen, H+	Bisulfite, HSO3-
Lithium, Li+	Hydroxide, OH-
Magnesium, Mg2+	Oxide, O2-
Potassium, K+	Iodide, I-
Sodium, Na+	Nitrate, NO3-
Strontium, Sr2+	Phosphate, PO43-
Tin, Sn2+	Sulfate, SO42-
Titanium, Ti3+, Ti4+	
Zirconium, Zr2+	

References

1. Prudent Practices for Handling Hazardous Chemicals in Laboratories, National Academy Press, Washington, D.C., 1981.
2. Prudent Practices for Disposal of Chemicals from Laboratories, National Academy Press, Washington, D.C., 1983.

3. Prudent Practices in the Laboratory: Handling and Disposal of Chemicals, National Academy Press, Washington, D.C., 1995.

Table G-3 Summary of Specific Chemicals Forbidden for Sewer Disposal

The following chemicals must not be discharged to the sanitary sewer in any concentration. This list contains examples of specific chemicals and does NOT include ALL chemicals that are forbidden from sewer disposal. For more information on whether a chemical not listed below can be discharged to the sewer, refer to the detailed sections in this guide or contact EHS Officer.

Acenaphthene	Acenaphthylene
Acetone	Acrolein
Acrylamide	Acrylonitrile
Aldrin	Anthracene
Antimony	Arsenic
Asbestos	Barium
Benzene	Benzidine
Benzo(a)anthracene	Benzo(a)pyrene
Benzo(b)fluoranthene	Benzo(ghi)perylene
3,4-Benzofluoranthene	Benzo(k)fluoranthene
Beryllium	BHC, alpha
BHC, beta	BHC, delta
BHC, gamma	Bis (2-ethylhexyl)phthalate
Bis(2-chloroethoxy)methane	Bis(2-chloroethyl)ether
Bis(2-chloroisopropyl)ether	Bis(2-chloromethyl)ether
Bromoform	Bromoform
Bromomethane	4-Bromophenyl phenyl ether
Butylbenzyl phthalate	Cadmium

Carbon Disulfide	Carbon Tetrachloride
Chlordane	2-Chloroethylvinyl ether
Chlorinated biphenyls (including PCBs)	Chlorinated naphthalenes
Chlorobenzene	Chlorodibromomethane
Chloroethane	Chloroform
Chloromethyl benzene (benzyl chloride)	2-Chloronaphthalene
2-Chlorophenol	4-Chlorophenyl phenyl ether
Chromium	Chrysene
Copper	Copper cyanide
Cresols	Cresylic Acid
Cyanide	Cyclohexanone
2,4-D	DDT
4,4'-DDD	4,4'-DDE
4,4'-DDT	Dibenzo(a,h)anthracene
Dichlorobenzene	1,2-Dichlorobenzene
1,3-Dichlorobenzene	1,4-Dichlorobenzene
3,3'-Dichlorobenzidine	Dichlorobromomethane
Dichlorobutadiene	Dichlorodifluoromethane
1,1-Dichloroethane	1,2-Dichloroethane
1,1-Dichloroethylene	1,2-Trans-dichloroethylene
Dichloromethane	Dichloromethyl benzene (benzal chloride)
2,4-Dichlorophenol	1,2-Dichloropropane
1,2-Dichloropropylene	1,3-Dichloropropylene

2,4-Dichloropropylene	Dichlorotoluene
Di-c-methyl phthalate	Dieldrin
Diethyl phthalate	2,4-Dimethylphenol
Dimethyl phthalate	2,4-Dinitrophenol
Di-n-butyl phthalate	Di-n-ethyl phthalate
Di-n-octyl phthalate	4,6-Dinitro-o-cresol
2,6-Dinitrotoluene	1,2-Diphenylhydrazine
Endosulfan sulfate	Endosulfan, alpha
Endosulfan, beta	Endrin
Endrin aldehyde	Ethidium Bromide
2-Ethoxyethanol	Ethyl Acetate
Ethyl Benzene	Ethyl Ether
Ethylbenzene	Fluorene
Fluroranthene	Heptachlor
Heptachlor epoxide	Hexachloride
Hexachlorobenzene	Hexachlorobutadiene
Hexachlorocyclopentadiene	Hexachloroethane
Hydrogen cyanide	Indeno(1,2,3-cd)pyrene
Isobutanol	Isophorone
Lead	Lindane
Mercury	Methanol
Methoxychlor	Methyl bromide
Methyl chloride	Methyl Ethyl Ketone (MEK)

Methyl Isobutyl Ketone	Methylene chloride
Mirex	Naphthalene
n-Butyl Alcohol	Nickel
Nickel cyanide	Nitrobenzene
2-Nitrophenol	4-Nitrophenol
2-Nitropropane	N-nitrosodimethylamine
N-nitrosodi-n-propylamine	N-nitrosodiphenylamine
PCB-1016	PCB-1221
PCB-1232	PCB-1242
PCB-1248	PCB-1254
PCB-1260	P-chloro-m-cresol
Pentachlorophenol	Phenanthrene
Phenols	Potassium cyanide
Pyrene	Pyridine
Selenium	Silver
Sodium cyanide	TCDD (Dioxin)
1,1,2,1-Tetrachloroethane	1,1,2,2-Tetrachloroethane
Tetrachloroethylene	Tetrachloromethane
Thallium	Toluene
Toxaphene	Trans-dichloroethylene
1,2,4-Trichlorobenzene	1,1,1-Trichloroethane
1,1,2-Trichloroethane	Trichloroethylene
Trichlorofluoromethane	Trichloromethane (chloroform)

Trichloromethyl benzene (benzotrichloride)	2,4,5-Trichlorophenol
2,4,6-Trichlorophenol	Vinyl chloride
Xylene	Zinc
Zinc cyanide	

Table G-4 Summary of specific chemicals with limited sewer disposal

The following chemicals may be discharged to the sewer in concentrations of approximately 1 percent or less. If the percentage is greater than 1 percent, approval by the UP EHS officer is required. If the total volume of waste to be disposed is greater than 4 liters per day, approval by the EHS officer is required. Sewer discharges of these chemicals must not be prohibited for any other reason. Specifically, solutions containing these chemicals must not also contain chemicals specifically forbidden from sewer disposal. This list contains examples of specific chemicals and does NOT include ALL chemicals with limited discharge to the sewer. For more information on whether a chemical not listed below can be discharged to the sewer, refer to the detailed sections in this guide or contact EHS Officer.

Acetaldehyde	Acetamide
Acetic acid	Acetonitrile
3-Amino butyric acid	4-Amino butyric acid
Amino isobutyric acid	5-Amino pentanoic acid and isomers
3-Amino propanoic acid	Amylamine
Butanamide	Butanediol and isomers
1-Butane sulfonic acid	2-Butanol
Butoxyethanol	Butylamine
Butylene glycol	Butyraldehyde (butanal)
Butyramide	Butyric acid
Butyronitrile	1-Decane sulfonic acid
Diethylamine	Dimethylpropylamine
Dimethyl sulfoxide (DMSO)	Dithioerythritol
Dithiothreitol	1-Dodecane sulfonic acid
Erythritol	Ethane sulfonic acid
Ethanol	Ethoxyethanol
Ethyl formate	Ethylamine

Ethylene diamine	Ethylene glycol
1-Ethylpropylamine	Formaldehyde
Formamide	Formic acid
Fumaric acid	Glutaraldehyde
Glutaric acid (1,5-pentanedioic acid)	Glycerol
Glycolic acid	Heptamethylene glycol
Heptanediol and isomers	1-Heptane sulfonic acid
1-Hexadecane sulfonic acid	Hexamethylene diamine and isomers
1-Hexane sulfonic acid	Hexanediol and isomers
Hexylamine	Hexylene glycol
3-Hydroxybutyric acid	2-Hydroxyisobutyric acid
Iso-amylamine	Isobutylamine
Isobutylamine	Isobutylnitrile
Isobutyraldehyde	Isobutyramide
Isobutyric acid	Isopropyl acetate
Isopropyl formate	Isopropylamine
Isovaleric acid	Lactic acid (2-hydroxypropanoic acid)
Lactitol	Malic acid
Malonic acid (1,3-propanedioic acid)	Maltitol
Mannitol	Methane sulfonic acid
Methoxyethanol	Methyl acetate
Methyl formate	Methyl propionate
Methylamine	Methylbutylamine
Molasses	N,N-Diethyl formamide
N,N-Dimethyl acetamide	N,N-Dimethyl propionamide
N-Ethyl acetamide	N-Ethyl formamide
N-Ethylbutylamine	N-Ethylmethylamine
N-Methyl acetamide	N-Methyl formamide
N-Methyl propionamide	N-Methylpropylamine
1-Octane sulfonic acid	Oxalic acid (1,2-ethanedioic acid)

Pentamethylenediamine and isomers	Pentanediol and isomers
1-Pentane sulfonic acid	Pentylene glycol
Piperazine	1,2-Propanediamine
1,3-Propanediamine	1-Propane sulfonic acid
1-Propanol	2-Propanol
Propionaldehyde (propanal)	Propionamide
Propionic acid	Propionitrile
Propyl formate	Propylene glycol
Sorbitol	Succinic acid (1,4-butanedioic acid)
Tartaric acid	Tert-butanol
1-Tetradecane sulfonic acid	Triethylenediamine
Trimethylamine	Valeric acid
Xylitol	

APPENDIX J

University of Portland Regulated Waste Tracking System

(Copies of the Excel sheets for the Tracking System are available on the EHS Pilots UP Page.

APPENDIX K

Small Quantity Generator

Weekly Hazardous Waste Inspection Form

Date: _____ **Inspector: _____**

Department Inspected: _____

Satellite Accumulation Area or Accumulation Area? _____

Small Quantity Generators (SQGs) Inspection Checklist

Requirement	To-Check	Comments:
General		
1) SQGs that generate, transport, or handle hazardous wastes must obtain an EPA identification number (40 CFR 262.12(a) and 262.12(b); 40 CFR 265.11).	Examine documentation from EPA for the facility's generator identification number. Verify that correct identification number is used on all appropriate documentation (i.e., manifests).	

Requirement	To-Check	Comments:
2) Generators of more than 100 kg (220.46 lb.) but less than 1,000 kg (2,204.62 lb.) of hazardous waste per month may qualify as an SQG which can accumulate hazardous waste on-site for 180 days (or 270 days) without a permit if specific conditions are met (40 CFR 262.34(d)(1), 262.34(d)(4), 262.34(e) and 262.34(f)).	Inspect containers, storage, and records. Verify that no more than 1,000 kg (2,204.62 lb.) of hazardous waste is generated in any calendar month. Verify that the on-site accumulation time does not exceed 180 days. (NOTE: For an SQG the accumulation start date begins when the first waste is poured/placed into the waste container, except at satellite accumulation points.) (NOTE: The 180 day time period is extended to 270 days if the waste must be transported more than 200 miles to a TSDF. This extension does not apply if a TSDF is available within 200 miles and the facility chooses to transport the waste to a more distant TSDF.) Verify that no more than 6,000 kg (13,227.73 lb.) is allowed to accumulate at the facility. Verify that containers are marked with the date that accumulation began and the words HAZARDOUS WASTE. Verify that the containers and the areas where containers are stored meet the requirements outlined in the subsections pertaining to SQG.	

Requirement	To-Check	Comments:
3) An SQG must not offer its hazardous waste to transporters or to TSDFs that have not received an EPA identification number (40 CFR 262.12(c)).	Verify that all transporters of hazardous waste and TSDFs utilized by the facility have an EPA identification number by examining facility records pertaining to these services. Examples of such records could include vendor contracts or sales agreements. Auditors could also contact the state regulatory agency or the local EPA regional office to confirm that these vendors have the appropriate EPA identification number.	
4) SQGs of hazardous waste are required to use manifests and keep records of hazardous waste activity (40 CFR 262.20, 262.42(b) and 262.44).	Verify that signed copies of returned manifests are kept for three years from the date the waste was accepted by the initial transporter. Verify that exception reports were submitted to the regulatory agency when a signed manifest copy was not received within 60 days of the waste being accepted by the initial transporter. Verify that exception reports are kept for at least three years. (NOTE: The requirement to prepare a manifest does not apply if: - The waste is reclaimed under contractual agreement and:	

Requirement	To-Check	Comments:
	-- the type of waste and frequency of shipments are specified in the agreement; -- the vehicle used to transport the waste to the recycling facility and to deliver regenerated material back to the generator is owned and operated by the reclaimer; and -- the generator maintains a copy of the reclamation agreement for at least three years after termination of the agreement.) (NOTE: Period of retention of records is extended automatically during the course of any unresolved enforcement action or as requested by the regulatory agency.)	
5) SQGs are required to keep records of waste analyses, tests, and waste determinations (40 CFR 262.40(c)).	Verify that appropriate records are kept for at least three years from the date the waste was last sent to an on-site or off-site TSDF. (NOTE: Period of retention of records is extended automatically during the course of any unresolved enforcement action or as requested by the regulatory agency.)	

Requirement	To-Check	Comments:
6) SQGs are required to have an emergency coordinator and emergency response planning (40 CFR 262.34(d)(5)).	Verify that the facility has at least one emergency coordinator who is either on the premises or on call. Verify that the following emergency information is posted next to the telephone: - Name and telephone number of emergency coordinator - Location of fire extinguishers and spill control materials - Location of fire alarms (if present) - Telephone number of fire department.	
Personnel Training		
7) SQG personnel are required to be thoroughly familiar with proper waste handling and emergency procedures (40 CFR 262.34(d)(5)(iii)).	Verify that personnel are thoroughly familiar with waste handling and emergency procedures relevant to their responsibilities during normal facility operation and emergencies.	
8) Training records should be maintained for all SQG staff who manage hazardous waste.	Examine training records and verify they include the following: - Job title and description for each employee by name	

Requirement	To-Check	Comments:
	- Written description of how much training each position will obtain - Documentation of training received by name. Determine if training records are retained for three years after employment at the facility.	
Containers		
9) Empty containers at SQGs previously holding hazardous wastes must meet the regulatory definition of empty before they are exempted from hazardous waste requirements (40 CFR 261.7).	Verify that for containers or inner liners holding hazardous wastes: - Wastes are removed that can be removed using practices commonly employed to remove materials from that type of container (e.g., pouring, pumping, and aspirating), and - No more than 2.5 cm (1 in.) of residue remains, or - If the container is less than or equal to 110 gal. (416.40 L), no more than 3 percent by weight of total container capacity remains, or - When the container is greater than 110 gal. (416.40 L), no more than 0.3 percent by weight of the total container capacity remains. Verify that for containers that held a compressed gas, the pressure in the container approaches atmosphere.	

Requirement	To-Check	Comments:
	Verify that for a container or inner liner that held an acute hazardous waste listed in Appendix A, one of the following is done: - It is triple rinsed - It is cleaned by another method identified through the literature or testing as achieving equivalent removal - The inner liner is removed.	
10) Containers used to store hazardous waste at SQGs must be in good condition and not leaking (40 CFR 262.34 (d)(2) and 40 CFR 265.171).	Verify that containers are not leaking, bulging, rusting, damaged or dented. Verify that waste in leaking containers is transferred to a new container or managed in another appropriate manner when necessary.	
11) Containers used at SQGs must be made of or lined with materials compatible with the waste stored in them (40 CFR 262.34(d)(2) and 40 CFR 265.172).	Verify that containers are compatible with waste; for example, check that strong caustics and acids are not stored in metal drums.	
12) Containers of hazardous waste at SQGs must be closed during storage and handled in a safe manner (40 CFR 262.34(d)(2) and 40 CFR 265.173).	Verify that containers are closed except when it is necessary to add or remove waste (check bungs on drums, look for funnels).	

Requirement	To-Check	Comments:
	Verify that handling and storage practices do not cause damage to the containers or cause them to leak.	
13) The handling of incompatible wastes or incompatible wastes and materials in containers at SQGs must comply with safe management practices (40 CFR 262.34(d)(2) and 40 CFR 265.177).	Verify that incompatible wastes or incompatible wastes and materials are not placed in the same containers unless it will not: - Generate extreme heat or pressure, fire, explosion, or violent reaction - Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health - Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions - Damage the structural integrity of the device or facility - Threaten human health by any other like means. (NOTE: Incompatible wastes as listed in Appendix C should not be placed in the same drum.) Verify that hazardous wastes are not placed in an unwashed container that previously held an incompatible waste or material. Verify that containers holding hazardous wastes incompatible	

Requirement	To-Check	Comments:
	with wastes stored nearby in other containers, open tanks, piles, or surface impoundments are separated or protected from each other by a dike, berm, wall or other device.	
14) Containers of hazardous waste at SQGs should be managed in accordance with specific management practices (MP).	Determine the following by inspecting containers and storage areas: - Containers are not stored more than two high and have pallets between them - Containers of highly flammable wastes are electrically grounded (check for clips and wires and make sure wires lead to ground rod or system) - At least 3 ft. (0.91 m) of aisle space is provided between rows of containers.	
Satellite Accumulation Points		
15) All SQGs may accumulate as much as 55 gal. of hazardous waste or 1 qt. of acutely hazardous waste in containers at or near any point of initial generation without complying with the requirements for on-site	(NOTE: This type of storage area is often referred to as a satellite accumulation point.) Verify that the satellite accumulation point is at or near any point of generation where	

Requirement	To-Check	Comments:
storage if specific standards are met (40 CFR 262.34(c)).	wastes initially accumulate and is under the control of the operator of the waste generating process. Verify that the containers are in good condition and are compatible with the waste stored in them and that the containers are kept closed except when waste is being added or removed. Verify that the containers are marked HAZARDOUS WASTE or other appropriate identification. (NOTE: See Appendix A for a guidance list of hazardous and acute wastes.) Interview the shop managers to identify when waste is accumulated in excess of quantity limitations, the following actions are taken: - The excess container is marked with the date the excess amount began accumulating - The waste is transferred to a storage area within three days where it will be stored for 180 days or less.	

Requirement	To-Check	Comments:
Container Storage Areas		
16) Containers of hazardous waste at SQGs should be kept in storage areas designated in the management plan (MP*).*	Verify that all containers are identified and stored in appropriate areas. (NOTE: Any unidentified contents of solid waste containers and/or containers not in designated storage areas must be tested to determine if solid or hazardous waste requirements apply.)	
17) SQG storage areas must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned release of hazardous waste or constituents which could threaten human health or the environment (40 CFR 262.34(d)(4) and 40 CFR 265.30 through 265.37).		
18) SQGs must conduct weekly inspections of container storage areas (40 CFR 262.34(d)(2) and 265.174).		
Disposal of Restricted Wastes		
19) SQGs must test their wastes or use process knowledge to determine if they are restricted		

Requirement	To-Check	Comments:
from land disposal (40 CFR 268.7(a)(1)).		
20) When an SQG is managing a restricted waste, a written notice must be issued to the TSDF of the appropriate treatment standards and prohibition levels (40 CFR 268.7(a)(2) through 268.7(a)(4), 268.7(a)(10)).		
22) SQGs that are managing prohibited wastes in tanks, containers, or containment buildings and treating the waste to meet applicable treatment standards, must develop and follow a written waste analysis plan (40 CFR 268.7(a)(5) and 268.7(a)(10)).	Verify that the plan describes the procedures that the generator will follow in order to comply with treatment standards. (NOTE: SQGs treating hazardous debris under the alternative treatment standards are not required to conduct waste analysis.) Verify that the plan is kept on-site and: - The plan is based on a detailed chemical and physical analysis of representative sample of the prohibited waste being treated - The plan contains all information necessary to treat the wastes in accordance with regulatory requirements including the selected testing frequency	

Requirement	To-Check	Comments:
	- The plan must be kept in the facility's on-site files and made available to regulatory inspectors. (NOTE: SQGs with tolling agreements are required to comply with notification and certification requirements for the initial shipment of waste subject to the agreement. The SQG will retain an on-site copy of the notification and certification along with the tolling agreement for at least 3 years after the termination or expiration of the agreement.)	
23) SQGs are required to keep specific documents pertaining to restricted wastes on-site (40 CFR 268.7(a)(4) through 268.7(a)(7) and 268.7(a)(10))	Verify that if the facility is using generator knowledge to determine whether a waste or contaminated soil meets land disposal restriction requirements, the supporting data used in making this determination is retained on-site in the facility operating files. Verify that if the facility has determined whether a waste is restricted using appropriate test methods, the waste analysis data is retained on-site in the files.	

Requirement	To-Check	Comments:
	Verify that if the facility has determined that it is managing a restricted waste that is excluded from the definition of a hazardous waste or solid waste or exempt from RCRA Subtitle C, a one-time notice is placed in the facility's files stating that the generated waste is excluded. Verify that a copy of all notices, certifications, waste analysis data and other documentation is kept for at least three years from the date that the waste was last sent to on-site or off-site treatment, storage, or disposal. Verify that SQGs with tolling agreement retain the agreement and copies of notification and certification for at least three years after the agreement expires.	
24) The storage of hazardous waste that is restricted from land disposal is not allowed unless specific conditions are met (40 CFR 268.50).	Verify that land disposal restricted waste is not stored at the facility unless the SQG is storing the wastes in tanks, containers, or containment buildings on-site only for the purpose of accumulating enough quantity of hazardous waste to facilitate proper recovery, treatment, or disposal and all appropriate standards for containers, tanks, and containment buildings are met.	

Requirement	To-Check	Comments:
	(NOTE: The prohibition on storage does not apply to hazardous wastes that have met treatment standards.) Verify that liquid hazardous wastes containing PCBs at concentrations greater than 50 ppm are stored at a site that meets the requirements of 40 CFR 761.65(b) (see Toxic Substances Control Act (TSCA)) and is removed from storage within one year of the date it was first placed into storage.	

University of Portland

APPENDIX L

Hazardous Waste Pre-Removal Checklist

Waste Description: _____

Waste Hazard Type: _____

Waste Codes: _____

Container Type: _____

Container Size: _____

Quantity of Waste (in Pounds): _____

(1) _____ Each waste has been properly characterized using procedures outlined in the "Regulated Waste Management Plan." (i.e: waste is either a hazardous waste according to the Plan, or is declared a hazardous waste after consultation with the EHS Officer).

(2) _____ The Generator of the waste has confirmed that no further possible use of the substance exists within the department or in other University of Portland departments.

(3) _____ A completed Hazardous Waste Tag/ Label is attached to each container. All the information is complete, accurate and dated correctly. The EPA waste codes are correct and complete.

(4) _____ There is no radioactive waste or PCB in these waste containers.

(5) _____ Each container is labeled as a Hazardous Waste and with other warnings as appropriate and relevant.

(6) _____ Each waste container is appropriate for the waste it contains, it is properly sealed to contain the waste safely, the container is in good condition, and there are no signs of leakage.

(7) _____ The Generator has notified the EHS Officer prior to movement of the waste to the appropriate Accumulation Point.

(8) _____ The person moving the waste is properly trained and equipped with appropriate personal protective equipment to move the waste safely.

(9) _____ The person prepared to move the waste is trained and prepared to log the waste into the Accumulation Point area and properly date and enter the waste into the University of Portland Hazardous Waste Tracking System database.

(10) _____ A copy of this form is being submitted to the EHS Officer and the department files for each waste moved to the Accumulation Point.

(11) _____ The person moving the waste is trained and familiar with the safety requirements related to the waste, including but not limited to the emergency procedures, spill procedures, and contingency procedures related to movement, handling, and transferring of the waste hazardous chemicals being moved.

Comments:

I attest that the above is true and correct.

Printed Name

Person Filling Checklist: _____

Department: _____

Signature: _____

Date: _____