

Hazardous and Universal Waste Program

Santa Clara University 500 El Camino Real Santa Clara, CA 95053

Program Review Record

Revision 1									
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Program Approval

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Hazardous and Universal Waste Program

1. Purpose

The purpose of this program is to ensure that hazardous and universal wastes are managed safely and in compliance with governmental regulations.

2. Applicability

This program covers the minimum requirements for SCU Staff, Faculty, and Student Employees for the management of hazardous and universal wastes.

3. Definitions

NOTE: The most pertinent definitions for all users are contained in <u>Attachment I</u>. Review and use as necessary.

4. Roles / Responsibilities

The following are the SCU Roles and Responsibilities in regards to Hazardous and Universal Wastes:

Group	Responsibilities
Lab Managers and Department Technicians	 Maintain list of hazardous waste streams Ensure hazardous wastes are properly stored, segregated, utilize secondary containment for liquid wastes and good housekeeping. Perform and document weekly hazardous waste storage inspections of their accumulation areas. Spill cleanup equipment is complete and readily available.
EHS Director	 Provide guidance and recommendation to SCU on a reputable hazardous waste disposal company to minimize future liabilities. Responsible in directing hazardous waste vendors the disposal method or site for SCU's waste streams. Responsible for hazardous waste management program and tracking of waste minimization initiatives for the site. Works with Lab Managers to maintain or develop a list of hazardous waste streams and the appropriate waste profiles. Ensure proper disposal of hazardous and universal wastes; Ensure inspections of waste storage areas in Facilities are conducted to provide proper storage, segregation, secondary

	 containment, and good housekeeping. Management of hazardous waste manifests; reviews and signs manifests and sends a copy to DTSC (or ensures delegate is available to accomplish this task). Preparation of reports including hazardous waste biennial report, annual Manifest Fee and Generator Fee and others. Provide hazardous and universal waste training per the EHS Training Program (may be delegated to lab manager in departments where present). Training to include satellite waste labeling, storage of hazardous wastes, segregation, secondary containment, emergency response equipment location, etc. Determines regulatory agency reporting required for emergency incidents.
Faculty, Academic Staff, and Student Employees	 Label waste properly when generated. Store hazardous waste according to their compatibility. Close hazardous waste containers when not in use. Notify Lab Technicians/Managers when waste containers are full. Do not evaporate solvent waste under the hood. Ensures that waste is moved to central storage area or disposed within required period. Know the location of emergency response equipment. Know what to do in the event of an emergency and be prepared to call Campus Safety or 911 if needed.
Hazardous Waste Disposal Contractor	 Consolidates, packages, and ships hazardous wastes. Follow SCU contractor safety procedures when on site All hazardous /universal wastes should be managed in accordance to the SCU contract agreement Prepares hazardous waste manifests or Bill of Lading with no discrepancies

5. Design Requirements

Hazardous Waste 90-Day Storage Areas

The 90-day (accumulation) storage areas must meet the following requirements:

- Containers holding ignitable or reactive wastes must be at least 15 meters (50 feet) from the facility's property line.
- Containers holding a hazardous waste that is incompatible with any waste or other materials transferred or stored nearby in other containers, piles, open tanks, or surface impoundments must be separated from the other materials or protected from them by means of a dike, berm, wall, or other device.

- Waste must be stored in containers that are compatible with the waste.
- Aisle space must be such to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment and decontamination equipment to any area of operation in an emergency.

6. Hazardous Waste Procedures

Hazardous Waste Classification

Hazardous Waste Determination

Each individual generator of waste (e.g., the Laboratory Supervisor) is responsible for determining if their waste(s) are hazardous. The generator will initially review the departmental list to determine if the waste has been previously reviewed and classified. If the waste is not on the list, the generator will consult with their departmental Laboratory Manager/Technician and/or the EHS Director. Ideally, this discussion will occur prior to the waste being generated but must occur within 2 days after a new waste is generated. The following questions are asked to determine if a waste is hazardous:

- Is the waste toxic, reactive, ignitable or corrosive?
- Is the waste listed as a hazardous waste in Article 4 or Appendix X of Chapter 11 of Division 4.5 of Title 22, CCR?

If the answer is yes for any of these questions, then the waste should be managed as a hazardous waste.

Hazardous Waste List

The EHS Director has prepared a list of the types of hazardous wastes for each department (<u>Attachment 2</u>). The list must be reviewed annually and updated as needed.

Hazardous Waste Satellite Accumulation Area Responsibility and Tasks

Up to 55 gallons of laboratory hazardous waste, or one quart of laboratory hazardous waste that is acutely hazardous waste, can be accumulated in the laboratory areas that are located as close as is practical to the location where the laboratory hazardous waste is generated. However, all of the following conditions must be met:

- The laboratory accumulation area is managed under the control of the Laboratory Supervisor who has received training commensurate with their responsibilities and authority for managing laboratory hazardous wastes, and unsupervised access to the laboratory accumulation area is limited to personnel who have received training commensurate with their responsibilities and authority for managing laboratory hazardous wastes;
- The laboratory hazardous wastes are managed so as to ensure that incompatible laboratory hazardous wastes are not mixed, and are otherwise prevented from coming in contact with each other;

- There can only be one container of each type of waste and it can be no larger than 55 gallons in size;
- All waste containers are closed except when adding or removing wastes;
- As per the fire code, the liquid waste containers are located in secondary containment sufficient to contain the volume of the largest single vessel;
- The containers are labeled and dated as per the requirements discussed later in this program document;
- Waste can be stored in the container for up to 10 months from first accumulation or until full, whichever comes first. Once full or once the 10 months are up, the waste must be moved to a 90-day accumulation area or shipped offsite within 3 days;
- The amount of laboratory hazardous waste accumulated in the laboratory accumulation area must be appropriate for the space limitations and the need to safely manage the containers and separate incompatible laboratory hazardous wastes. Once the satellite accumulation area has reached its capacity then the waste must be moved to a 90 day storage area. The laboratory accumulation area may be located in the room in which the accumulated laboratory hazardous wastes are generated or in another onsite location which has controlled access.
- Satellite storage areas will be inspected as part of the Chemical Hygiene Plan inspection process.

Hazardous Waste 90-day Container Accumulation Area Responsibility and Tasks

Hazardous Waste storage areas have been designated for SCU to store hazardous waste once satellite accumulation containers have been filled or until the end of the satellite accumulation period. Such areas have been designed to minimize the potential for spills. Each storage location is equipped with integral secondary containment and secured areas. These areas are designated as primary storage areas for the various types of wastes that are generated by the campus and particularly the laboratories and are managed by the Biology Laboratory Technician and the Chemistry Laboratory Manager who oversee the proper storage of hazardous waste in these areas. The following conditions must be met:

- The hazardous wastes are managed so as to ensure that incompatible hazardous wastes are not mixed, and are otherwise prevented from coming in contact with each other;
- All waste containers are closed except when adding or removing wastes;
- As per the fire code, the liquid waste containers are located in secondary containment sufficient to contain the volume of the largest single vessel;
- The containers are labeled and dated as per the requirements discussed later in this program document;
- Waste can be stored for 90 days from the date when they are moved to the 90 day storage accumulation area.

• 90-day accumulation storage areas will be inspected weekly by the person designated as being in charge of that area using the form contained in <u>Attachment 3</u>. Forms will be stored in local files for a minimum of 12 months.

Hazardous Waste 90-day Tank Accumulation Area Responsibility and Tasks

Used oil is accumulated in a tank in the vehicle shop. To meet regulatory requirements, the following tasks must be completed:

- The EHS Director must ensure that the tank meets waste regulatory requirements and is certified by a professional engineer at the required frequency;
- The tank must be labeled as "Used Oil" and have the name and address of the generator on the label.
- The tank must be kept closed except when adding or removing waste.
- The Lead Garage Mechanic must inspect the tank each working day that the garage is active, completing the inspection form in <u>Attachment 4</u>.
- The tank must be emptied at least every 90 days and the oil sent for recycling.

Hazardous Waste Labeling

Waste Storage Containers

The generator of the waste is responsible for ensuring that the waste container is labeled within an hour of time of waste generation. An example of a waste container label is shown in <u>Attachment 5</u>. Waste labels can be obtained from the Laboratory Managers/Technicians or the EHS Director. Information to fill out the label is available on the departmental hazardous waste list and must include the following:

- The words "Hazardous Waste" (already printed on the label) and date on which the initial accumulation begins.
- The composition and physical state of the waste;
- The hazardous properties of the waste (e.g. flammable, reactive); and
- The name and address of the generator (already printed on the label).

When a waste container is moved to a 90-day accumulation area, the date on which the container is filled or moved (whichever is earlier) must be entered into the appropriate location on the form.

Empty Containers

Containers that formerly contained hazardous waste are considered empty only when the following is true:

• If the waste is pourable, no hazardous material can be poured or drained from the container or inner liner when the container or inner liner is held in any orientation (e.g., tilted, inverted, etc.);

• If the waste is not pourable, no hazardous material remains in or on the container or inner liner that can feasibly be removed by physical methods (excluding rinsing) which comply with applicable air pollution control laws and which are commonly employed to remove materials from that container or inner liner.

Until these standards are met, the containers must be handled as if they are "full". Once emptied, any container of 5 or more gallons of capacity must be marked as "empty" and with the date that it was emptied. Such containers must be disposed, recycled, or reused within a year. Containers of less than 5 gallons of capacity need not be marked and can be disposed or recycled as solid waste.

Hazardous Waste Manifesting and Disposal

SCU's hazardous waste disposal contractor(s) prepare the waste for shipment, ensuring that the waste is packaged correctly prior to transport and that the remaining parts of the label are correctly completed. Typically, the contractor prepares a draft copy of the manifest for review and approval by SCU.

The EHS Director or their properly trained delegate will do the following:

- Inspect the container(s) to assure that they are in good condition, properly labeled, and closed;
- Uses only transporters, and transfer, treatment, storage and disposal facilities that are registered or permitted and have obtained an ID number;
- Complies with Department of Transportation (DOT) requirements for packaging, labeling and marking;
- Ensures that the transport vehicle is correctly placarded;
- Uses a California Hazardous Waste Manifest; and
- Ships waste only to facilities authorized to accept the waste type.

The SCU EHS Director follows these manifest requirements:

- Completes the generator and waste sections and signs the manifest certification;
- Obtains the handwritten signature of the initial transporter and date of acceptance on the manifest;
- Retains the generator's copy of the manifest and a copy of the manifest (to send to DTSC);
- Submits the appropriate copy of each manifest used to DTSC, within thirty (30) days of each shipment -if a manifest from another state is used to ship hazardous waste to that state, then submits a legible copy of the manifest used to DTSC within thirty (30) days of each shipment;
- Keeps the generator copy of each manifest ant tracks that the signed copy is returned by the designated facility within 35 days; and
- Ensures that if shipping hazardous waste to an out of state non-permitted TSD, that the TSD signs and returns the final copy of the manifest to the EHS Director, who is then responsible for sending the signed copy to DTSC.

The EHS Director contacts the transporter and/or the owner or operator of the designated facility to determine the status of the hazardous waste if the EHS Director

has not received a copy of the manifest signed by the operator of the designated facility within 35 days of the date the waste was accepted by the initial transporter; and files an Exception Report with DTSC if a copy of the manifest signed by the facility operator is not received within 45 days of the date the waste was accepted by the initial transporter. These exception reports are required to be retained for a period of three years by regulation but from a risk point of view should be retained indefinitely.

<u>Attachment 6</u> shows how SCU tracks manifests and the EHS Director sends the final copy of manifests to DTSC by certified mail to ensure that the receipt can be tracked and documented.

Annually, SCU is required to complete the Verification Questionnaire and Manifest Fees Assessment which is usually mailed to the site in June and is required to be returned within 30 days. Also annually, SCU is required to pay Generator Fees (Health and Safety Code sections 25205.5, 25205.22 and 25174.7) if more five tons or more of hazardous waste are generated. The payment is due to BOE at the end of February every year.

Biennial Report

Generators who ship any hazardous waste to a transfer, treatment, storage, or disposal facility within the United States are required to submit a Biennial Report. The report is due by March 1 of each even-numbered year and covers the previous year of hazardous waste activity. Copies must be retained for three years according to regulation but for risk purposed should be retained indefinitely.

Waste Minimization

At such time as when SCU starts to routinely generate, through ongoing processes and operations outside of the research laboratory wastes, more than 12,000 kilograms of hazardous waste in the reporting year, or more than 12 kilograms of extremely hazardous waste in a reporting year then a waste minimization plan will be required per Title 22 Chapter 31 Article 1Section 67100.2.

SCU is voluntarily reducing hazardous waste by reducing the amount of chemicals to strictly what is needed and evaluating alternative less hazardous materials.

7. Universal Waste Procedures

Universal Waste Types and Classification

Universal Wastes are defined in California Code of Regulations, Title 22, Division 4.5, Chapter 23. Below are the types of Universal Wastes and what makes them hazardous:

- Batteries--Includes all batteries, AAA, AA, C, D, button cell, 9-volt, and all others, both rechargeable and single use --Cadmium, Copper and (In older batteries) Mercury
- Cell Phones-- Antimony, Arsenic, Beryllium, Cadmium, Copper, Lead, Nickel, Zinc
- Computers and Computer Monitors-- Arsenic, Cadmium, Lead, PCBs
- Electronic Devices --Lead
- Fluorescent Lamps--Mercury
- Mercury wastes like thermometers and toys-- Mercury
- Non-empty Aerosol Cans -- Propane, Butane, Pesticides
- Televisions-- Arsenic, Cadmium, Lead, PCBs

More details concerning the types of universal wastes and their classification are contained in <u>Attachment 7</u>.

Universal Waste Accumulation & Labeling

Universal wastes may be accumulated in closed containers that are labeled as per the instructions below. Such wastes may not be accumulated for more than a year. To ensure that this deadline is met, each container shall also be dated with the initial date of accumulation. An example label is shown in <u>Attachment 8</u>.

Universal Wastes are labeled as follows:

- "Universal Waste-Battery(ies)"
- "Universal Waste -Mercury-Containing Equipment"
- "Universal Waste-Lamp(s)"
- "Universal Waste-Electronic Device(s)"
- "Universal Waste-CRT(s)"
- "Universal Waste-CRT glass"

In lieu of labeling individual electronic devices, CRTs, and/or containers of CRT glass they may be combined and labeled "Universal Waste-Electronic Device(s)/Universal Waste - CRT(s)/Universal Waste-CRT Glass".

Universal Waste Shipping

SCU currently has All Chemical, their hazardous waste lab pack and transporter, also finalize packing, draft shipping papers (Bills of Lading) and transport the Universal Wastes to the appropriate recyclers.

8. Other Wastes

Waste Tires

If SCU starts to generate more than 10 waste tires for hauling at any one time then they will be subject to the Waste Tire Generator requirements as listed below:

- Generators are required to use only waste tire haulers that hold valid registration certificates issued by CIWMB unless the hauler is exempted by PRC section 42954.
- Obtain Tire Program ID Number. Tire program identification (TPID) numbers are unique numbers assigned by CIWMB to each business or public entity involved in the generation, hauling, and delivery or disposal of waste tires.
- The hauler will complete the Comprehensive Trip Log with the information that the generator provides. The Generator will review the applicable Comprehensive Trip Log receipt to ensure the information is accurate and complete, then initial the receipt, then retain the receipt for 3 years at their place of business.

Used Oil Filters

Used oil filters may exhibit hazardous characteristics for lead, other heavy metals and petroleum-derived compounds and are classified as hazardous waste in California. SCU recycles their used oil filters but it it is decided to not send them for recycling then the used oil filters are assumed to be hazardous waste unless they are proven to be non-hazardous by laboratory analysis.

Summary of Generator Management Requirements for Used Oil Filters and Fuel Filters:

- Drain and collect the free-flowing oil from the filters.
- The collected oil may be managed under the requirements for used oil.
- Properly contain, label and store the used filters.
- Store the filters within the allowed time limits (90 days).

Transport under a bill of lading to an appropriate destination for eventual metal recycling. (A copy of the bill of lading is retained for three years by regulatory requirements but should be kept indefinitely for risk purposes.)

9. Hazardous and Universal Waste Training

Each employee (including Principal Investigators, Laboratory Supervisors, and Student Employees) who generate or manage hazardous waste must be trained in the proper procedures prior to assuming those duties. Similarly, each employee who generates or manages universal waste must be trained in the proper procedures prior to assuming those duties. Until such training is given, they must be supervised in waste management (such supervision cannot extend more than 6 months). Further, each employee must have an annual refresher of that training within one calendar year of

their previous training. If training is more than one month beyond due, the person may no longer be involved in generation or management of hazardous waste until they are current in their training. For those working in laboratories, this training is accomplished through the Chemical Hygiene Program training.

Each employee who manages hazardous or universal waste must have a "hazardous waste job description." An example job description is contained in <u>Attachment 9</u>. The EHS Director, working with the departmental Lab Managers/Technicians, will maintain a list of both completed job descriptions and personnel filling those positions. Such lists will be updated at least every six months.

The EHS Director (or delegate) will provide both in-person and/or on-line hazardous waste and universal waste training. Initial training must be in person while refresher training may be taken on line.

10. Record Retention

Record	Location	Duration	Responsible Party
Record of recordable/reportable hazardous waste releases	EHS Files	Indefinitely	EHS Director
Copies of MSDSs	EHS Files	Indefinitely	EHS Director
Bills of Lading	EHS Files	3 years	EHS Director
DTSC Manifest Exception Reports	EHS Files	Indefinitely	EHS Director
Biennial Report	EHS Files	Indefinitely	EHS Director
Annual Generator Fee	EHS Files	Until superseded	EHS Director
Record of hazardous waste storage area inspections	Chemistry Lab Manager Files Biology Technician Files Photo Lab Technician Files Facilities Files	3 years	Chemistry Lab Manager Biology Technician Photo Lab Technician Facilties Director
Hazardous Waste Management Personnel Training and Job Descriptions	EHS Files	3 Years after termination of employment	EHS Director

Completed records will be maintained as follows:

11. Key References and Resources

The following are referenced in this program:

CCR Title 22

Part 261 of Title 40 of the Code of Federal Regulations and appendices

SCU Chemical Hygiene Program

Attachment 1 – Definitions

Accumulation: Generator requirements become applicable as soon as the first drop of hazardous waste begins to accumulate.

Accumulation Labels: The accumulation start date is clearly marked and visible on each satellite container and the end date is placed on the container when 55 gallons is reached or the container is moved to another area, each container is labeled or marked "Hazardous Waste," and is labeled with the composition and physical state of the wastes, the particular hazardous properties of the wastes (toxic, ignitable, reactive, corrosive); the EPA ID numbr and the name and address of the generator.

Acutely/extremely Hazardous Wastes: Extremely or Acutely hazardous wastes are a special category in the waste regulations. The Federal regulations oversee the acutely hazardous wastes while the California regulations oversee the extremely hazardous wastes. Being located in California, we are required to follow both sets of regulations.

Asbestos: The Department of Toxic Substances Control (DTSC) has classified friable, finely and powdered wastes containing more than one percent (1.0%) asbestos as a hazardous waste.

Conditionally Exempt Small Quantity Generators (CESQG's): Generate no more than 100 kg of hazardous waste and no more than 1 kg of acute hazardous waste per month.

CUPA: A Certified Unified Program Agency is the local agency designed by Cal/EPA to be responsible for implementing the State's Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (the Unified Program) within the CUPA's jurisdiction. The CUPA for SCU is the Santa Clara Fire Department.

Characteristic hazardous Wastes: Waste that determined by the generator to be hazardous and exhibit hazardous characteristics such as corrosivity, ignitability, reactivity and toxicity.

DTSC: California Department of Toxic Substance Control The state's lead agency in implementing California Hazardous Waste Control Law (HWCL) and Federal Resource conservation and Recovery Act (RCRA).

Electronic Waste: Obsolete electronic products including computers, televisions, copiers, fax machines, printers, palm pilots, cell phones, etc., that contain or potentially contain high concentrations of lead, mercury, barium and cadmium.

Generator Certification: This is box number 16 on the uniform hazardous waste manifest. According to the Department of Transportation, a manifest is a legal shipping document and is required to be signed by the generator or their representative. This must be a true signature (an example would be the signature that someone would put on a personal check). The representative of the generator can use the words "for", "agent for", or "on behalf of" immediately following the true signature, which denotes that this person is signing only as a representative and that the named generator is ultimately responsible for the waste that is generated from this location.

Hazardous Waste: In California, fall into two major groups, federally regulated (<u>RCRA</u>) or a California regulated (non-RCRA) hazardous waste.

Hazardous Waste Generators: Any person or business, by site, whose act or process produces hazardous waste or whose act first causes a hazardous waste to become subject to regulation.

Incidental Spills or Releases: do not pose a significant safety or health hazard to employees in the immediate vicinity or to the employee cleaning it up, nor does it have the potential to become an emergency within a short time frame. Incidental releases are limited in quantity, exposure potential, or toxicity and present minor safety or health hazards to employees in the immediate work area or those assigned to clean them up. An incidental spill may be safely cleaned up by employees who are familiar with the hazards of the chemicals with which they are working.

Laboratory Accumulation Area: The area where laboratory hazardous wastes are accumulated.

Large Quantity Generators (LQG's): Generate either 1,000 kg or more of hazardous waste or more than 1 kg of acute hazardous waste per month. SCU is a large quantity generator.

Hazardous Waste Manifest: A legal tracking document for shipment of hazardous wastes from a generator to EPA permitted Treatment Storage Disposal Facilities (TSDF) for disposal

Non-RCRA hazardous waste include all federal hazardous wastes that are excluded from regulation under RCRA, and other wastes that exhibit only California hazardous waste characteristics (see 22 CCR 66261 and 66262). In California, the definition of hazardous wastes includes hazardous materials that have become contaminated or unusable for their intended use, but that can be recycled. Certain wastes are exempt, such as household batteries and fluorescent/sodium/mercury lamps.

Personal Protective Equipment Requirement: PPE is required while conducting hazardous waste management operations. The type of PPE is based on the type of waste that is being managed (the original material's MSDS can provide guidance on the types of PPE required and <u>Attachment 10</u> provides additional guidance).

RCRA Hazardous Wastes: Listed as hazardous waste that are regulated under Federal Resource conservation and Recovery Act (RCRA) of 1976.

Recyclable Hazardous Wastes: Hazardous wastes that can feasibly be used or reused without any treatment.

Satellite Accumulation: A generator may accumulate up to 55 gallons of hazardous waste (or one quart of acutely or extremely hazardous waste) without a permit at the initial point of accumulation for up to one year (Title 22 Cal. Code Regs., section 66262.34(e)).

Treatment: Any method that changes the physical, chemical, or biological character or composition of any hazardous waste.

Universal Waste: A broad term used to identify certain widely generated wastes such as batteries, CRTs, fluorescent lamps, pesticides, and thermostats containing mercury (see 40 CFR 273.6). Universal Wastes remain hazardous waste, and while they are not collected and managed as hazardous wastes, EPA and Cal EPA have determined that

these wastes require special management practices because of their high-generating volume and the waste's potential to be associated with hazardous waste.

Waste: Includes materials that are to be disposed of, recycled, or that are considered inherently waste-like.

Attachment 2 – List of Common Hazardous Waste Streams

Last Updated: <u>12/14/10</u>

Generation Location	Type of Waste	Typical Container Type	Waste Codes	CA Waste Code
Facilities, Theatre	Waste Paint related material, 3, UN1263, PG-II	DF	D001	214
Facilities	Non-RCRA Hazardous Waste Solid, diesel spill cleanup	DF		353
Facilities, Theatre	Non-RCRA Hazardous Waste Liquid, latex paint	DF		291
Chemistry, Biology	RQ Waste Corrosive liquids, n.o.s., (Contains Sulfuric acid and Citric acid), 8, UN1760, PG-II	DF	D002, D007	792
Chemistry, Biology	Hazardous Waste, Solid, n.o.s., (Contains Acetone and Methylene chloride), 9, NA3077, PG-III	DM	F002, F003	353
Chemistry, Biology	RQ Waste Flammable Liquids, n.o.s., (Contains Acetone and Methylene chloride), 3, UN1993, PG-II	DF	D001, F002, F003	214
Facilities	RQ Polychlorinated byphenyls, solid, 9, UN3432, PG-11	DM		261
Chemistry	Waste Ethylene 2.1 UN1962	CY	D001	331
Facilities	Non-RCRA Hazardous Waste solid, toner	DF		331
Facilities	RQ Asbestos, 9, NA2212, PGIII	BA		151
Facilities	Non-RCRA Hazardous Waste Liquid (Oil)	DF		221
Fine Art	RQ Hazardous Waste Liquid n.o.s., (Contains Silver), 9, NA3082, PG-III	DF	D011	541
Chemistry	Waste Nitric Acid, 8, UN2031,PGII	DF	D002	551
Facilities	RQ Waste Mercury, 8, UN2809, PGIII	DF	D009	725
Facilities	Waste Aerosols, Flammable , 2.1 UN1950	DF	D001	214

Attachment 3 – Hazardous Waste Inspection Form

Hazar	lazardous Materials/Waste Aboveground Storage Area Inspection Form										
Area In	rea Inspected:										
	A ST WE AND										
Date	Inspec	Storoo	Contop	pele conto	Firee.	Hazari	he we we	SPO CONTO D	Ing Incourt	Waste	Comments
-					-	-					
				1	1						
				-							
			-								
-		-									
			1								
				1	1						
		1		1		1					

Attachment 4 – Used Oil Tank Inspection Checklist

Mnth/ Year _____ Tank _____

	М	Tu	Wed	Th	Fr	Sat	Sun
Date & Time							
luono eten luitiolo							
inspector initials							
Tank labeled with the words							
"Used Oil"							
Date of initial accumulation is							
clearly visible on the tank or a							
log is kept that shows that							
tank is emptied at least every							
90 days.							
I ank is closed except when							
adding or removing wastes							
Tank and all visible tank							
piping is in good condition							
The area immediately							
surrounding the externally							
accossible portion of the tank							
system including the							
secondary containment							
system (e.g. dikes) shows no							
signs of cracks in or breaks in							
containment, erosion, or signs							
of releases of hazardous							
waste (e.g., wet spots, dead							
vegetation)							
Drainage valve for secondary							
containment is closed.							
Communication device is							
available and working							
Containment has no observed							
spills and/or accumulated							
precipitation (if							
precipitation/spillage is							
present, write date of							
tam area)							
item area)							

Action items and Corrective Actions:

Attachment 5 - Example Waste Container Label, Satellite Accumulation Label



Attachment 6 - Manifest Tracking Form

Date Shipped	Manifest Number/ Bill of	Type of Waste	Containers	Total Quantity	Unit Wt/Vol	Waste Codes	CA Waste Code	Generator Retained Copy	State Copy Mailed	30 Day Copy Rec	Total lbs	Treatment Method Codes
	Lucing									1100.		

Attachment 7 - DTSC Fact Sheet, July 2008

This fact sheet explains California's "Universal Waste Rule" – a set of regulations that simplify how we can manage some very common hazardous wastes.

What are universal wastes?

Common examples of Universal Wastes include Televisions, Computers, Computer Monitors, Batteries, and Fluorescent Lamps. Universal wastes are hazardous upon disposal but pose a lower risk to people and the environment than other hazardous wastes. State and Federal regulations identify which unwanted products are universal wastes and provide simple rules for handling and recycling of them. These regulations are found in the California Code of Regulations, title 22, division 4.5, chapter 23 (all citations in this fact sheet refer to the California Code of Regulations, title 22, division 4.5, unless otherwise indicated.)

Universal wastes are generated by a wide variety of people and businesses. The universal waste rule allows people to handle and transport universal waste under a simple set of rules that are appropriate for the risks posed by the wastes but still protect people and the environment.

What items are designated as universal wastes?

The following items are universal wastes when they are no longer useful or are discarded:

1. Cathode ray tubes (CRTs). Waste (CRTs), also known as picture tubes, are found in devices such as televisions and computer monitors.

2. Batteries. Universal waste batteries include rechargeable nickel-cadmium batteries, silver button batteries, mercury batteries, small sealed lead acid batteries (burglar alarm and emergency light batteries), most alkaline batteries, carbon-zinc batteries, and any other batteries that exhibit a characteristic of a hazardous waste.

NOTE: Spent automotive-type lead acid storage batteries are not universal waste. They are hazardous wastes that are managed under a different set of regulatory requirements.

3. Lamps. Universal waste lamps include fluorescent tubes and bulbs, high intensity discharge lamps, sodium vapor lamps, and any other type of lamps that exhibit a characteristic of a hazardous waste. Also, any electric lamp that contains added mercury, whether or not it exhibits a hazardous waste characteristic, is a universal waste.

4. Electronic devices. These include any electronic equipment without a CRT, such as cell phones and telephones, computer CPUs and printers, VCRs and portable DVD players that exhibits a hazardous waste characteristic

5. Mercury thermostats. These thermostats contain small glass capsules with mercury, a shiny liquid metal, to make electrical contact. (Modern electronic thermostats do not contain mercury.)
6. Non-empty aerosol cans. These are universal wastes if they contain an ignitable or toxic propellant or if the contents exhibit any hazardous waste characteristic. For more information, see our fact sheet SB1158 Designates Aerosol Cans as "Universal Waste."

7. Mercury switches. Two different types of mercury switches are universal wastes:

a. Motor vehicle switches that contain mercury. Any mercury switch that is re-moved from a vehicle is a universal waste. When they are to be crushed for scrap, vehicles that

contain mercury light switches are also universal waste until the mercury light switches are removed.

b. Non-automotive mercury switches and products that contain them. These switches include thermostats and tip switches in portable heaters, washing machine out-of-balance switches, silent wall switches, and other mercury-containing switches and products containing them. All discarded products that contain mercury switches are universal wastes.

8. Mercury thermometers, including fever thermometers.

9. Pressure or vacuum gauges that contain mercury such as U-tube manometers, barometers, and sphygmomanometers (blood pressure meters.)

10. Dilators and weighted tubing. These medical devices contain mercury.

11. Rubber flooring that contains mercury. Some older gymnasium floors that were poured in place to form indoor tracks and gymnastic ar-eas contain mercury.

12. Mercury-Added Novelties. This category includes practical joke items, figurines, jewelry, toys, games, cards, ornaments, yard statues and figures, candles, holiday decorations, and foot-wear that contain mercury or mercury batteries. Effective January 1, 2003, the California Mercury Reduction Act banned sale of mercury-added novelties in this state, but some people still have them in their homes.

13. Mercury gas flow regulators. These older gas flow regulators are managed exclusively by natural gas utilities.

14. Counterweights and dampers, including devices that use mercury's high density to dampen shaking on hunting bows and snow skis or to absorb recoil on shotguns.

15. Dental amalgam tooth filling materials including waste amalgam, bits and pieces from chair side traps, and spent wastewater filters.

16. Gauges. Vacuum and pressure gauges that contain mercury, including blood pressure gauges, barometers, and manometers

Where may I send universal wastes?

All generators must send their universal waste to one of three types of destinations. A genera-tor may *not* send universal waste to a municipal solid waste (garbage) landfill or to a non-hazardous waste recycling center. *Disposal at any unauthorized disposal site such as road-sides or ditches is illegal and a serious crime as well as a serious environmental threat.*

Acceptable destinations include:

- another location for consolidation or storage: a business with many locations can designate one location as the consolidation point for the universal wastes from all of its locations
- universal wastes may be sent to a business that specializes in collecting, consolidating, and shipping universal wastes to a destination facility (generally a hazardous waste recycling facility see discussion below)
- a foreign destination that is authorized to handle the universal waste.

Many universal wastes must be recycled in order to be managed under the simple, stream-lined universal waste handler standards. The universal wastes listed below must either be sent directly to

an authorized recycling facility or to a universal waste consolidator for shipment to an authorized recycling facility.

Universal wastes that must be recycled: cathode ray tubes (TV and computer glass) lamps mercury thermometers mercury switches mercury gauges dilators and weighted tubing gas flow regulators counterweights and dampers

If you do not plan to recycle these wastes, you must manage them as hazardous waste rather than as universal waste. This includes notifying DTSC, using a manifest and a registered hazardous waste hauler, complying with shorter accumulation times, and shipping only to an authorized destination facility.

What rules must I follow to manage my universal wastes?

Unless you are a household or a conditionally-exempt small quantity universal waste generator, you must follow the rules for either *small quantity handlers of universal waste* or for *large quantity handlers of universal waste*.

Most households and businesses are small quantity handlers of universal waste. The rules they follow are in sections 66273.10 through 66273.21. A summary of the requirements is be-low; however, small quantity handlers of universal waste must comply with the full regulations, not just this short summary.

If you are a small quantity handler of universal waste:

- Send all universal waste to a facility authorized to collect, recycle or dispose of universal waste.
- Like everyone else, you can **not** dispose of universal waste in the trash
- Do not store universal waste for longer than one year after generating or receiving the waste. If you think you need more time, contact your Certified Unified Pro-gram Agency (CUPA) well before your oldest universal waste will be held for one year.
- Document the length of time you have accumulated universal waste from the date you accepted it from someone else, discarded it yourself after it was "used up," or decided to discard it. The regulations contain several options for documenting accumulation time.
- Label or mark universal wastes, or containers or packages of universal waste, to identify their types. The regulations pro-vide several options for labeling. The purpose of labeling is to ensure that emergency response personnel or an inspector can identify the universal waste.
- Do not "treat" universal waste except when cleaning up releases or managing specific wastes as provided in the regulations (for example, removing mercury ampoules from thermostats or removing electrolyte from batteries) (Treatment includes any activity that changes the characteristics of the waste.)
- Clean up any releases such as leaking batteries or broken fluorescent tubes. Re-package the damaged universal waste and manage it as universal waste. Manage any other materials

generated, such as cleanup supplies and contaminated soil, as hazardous wastes if they are identified as hazardous waste.

- Train employees in proper universal waste management including handling, packaging, storing and labeling the universal waste, as well as how to respond to releases. This training may be accomplished by simply giving employees writ-ten instructions or posting these instructions in the universal waste management areas of the building.
- Determine whether the universal waste is a hazardous material under the United States Department of Transportation (U.S. DOT) rules. For U.S. DOT hazard-ous materials, properly mark the packaging and placard the transportation vehicle. The applicable U.S. DOT regulations are in Title 49 Code of Federal Regulations, Parts 171 through 180.
- Prepare proper shipping papers such as a bill of lading. A Uniform Hazardous Waste Manifest is not necessary for universal waste shipments. You may transport universal waste in your own vehicle or may use any common carrier allowed by U.S. DOT and California law to transport non-hazardous waste. You are not required to use a registered hazardous waste hauler to trans-port universal waste.
- Ship the universal waste to another small quantity handler of universal waste, a large quantity handler of universal waste, or a destination facility. When shipping or receiving universal waste, specific rules apply regarding accepting shipments containing hazardous wastes that are not universal wastes and shipments that are rejected.
- Keep records of all shipments and receipts of universal waste for three years.
- When sending universal waste outside the country, comply with regulations ad-dressing universal waste export.

A large quantity handler of universal waste is a person who accumulates 5,000 kilograms (5.5 tons conversion factor) of universal waste or more at one place at one time. A large quantity handler is required to provide more comprehensive training to employees than a small quantity handler and must obtain an EPA identification number. Generally, only a universal waste collection business will accumulate that much universal waste at once.

Disclaimer

This fact sheet does not replace or supersede statutes or regulations. All universal waste handlers must follow the hazardous waste control statutes and regulations, including the universal waste regulations, and must comply with the detailed standards applicable to their activities.

Attachment 8 - Universal Waste Label



Attachment 9 - Example Job Descriptions

Job Description for Hazardous Waste and Universal Waste Handlers

All SCU hazardous and universal waste handlers will have an appropriate level of training and experience or education to adequately perform the tasks described below.

Basic Function

To manage the SCU's Hazardous and Universal wastes in accordance with applicable state and federal regulations.

Duties/Responsibilities

- Manage hazardous waste storage areas and satellite storage areas.
- Label and store wastes in accordance with all applicable local, state and federal regulations.
- Assemble waste for pick up.
- Call for emergency response for chemical spills and releases.
- Maintain hazardous waste inspection records.

Title: Environmental Director

Job Description: Provide regulatory and technical oversight for hazardous waste/universal waste operations and coordinate emergency response to chemical spills and releases. Serves as liason to regulatory agencies and maintains manifests and other waste documentation.

Title: Laboratory Technician or Manager

Job Description: Manages hazardous and universal waste storage areas in their departments. Properly assembles waste for pickup. Provides annual training for their departments. Calls Campus Safety in the event of a spill or release of hazardous waste.

Title: Campus Safety Officer

Job Description: Secures site in the event of a spill or release of hazardous waste until emergency response personnel arrive on the scene.

Attachment 10 - A Guide to Personal Protection and Glove Selection

Personal Protective Equipment (PPE)

Hazardous materials may enter the body though inhalation, ingestion or skin/eye contact. All staff must wear proper PPE in order to prevent injuries and illnesses caused by known workplace hazards. Wearing proper PPE is everyone's responsibility. Substituting or eliminating hazardous chemicals should be considered first, but when that is not feasible PPE should be used. PPE is often used concurrently with engineering controls for maximum protection. In order to determine the appropriate PPE, the hazards and reduction methods must be evaluated and selection made based on the risks identified from the initial evaluation.

Evaluation

- Survey areas and identify potential hazards.
- Evaluate the exposure risk to individuals performing the tasks.

• Evaluate alternate means of reducing the hazard (substitution, engineering controls, or administrative controls). If not possible, then PPE is necessary.

Hazard Reduction

• Substitution: some materials may be substituted with a less hazardous alternative. This is always a primary means of addressing a risk.

- Engineering Controls: substitution is not feasible, then engineering controls must be evaluated. These include ventilation, local exhaust ventilation, and chemical fume hoods.
- Administrative Controls: if substitution and engineering controls are not adequate to reduce a risk, then administrative controls must be assessed. These include reducing the amount of time an individual performs a task, or changing the person's job duties.

• Personal Protective Equipment: if substitution, engineering controls or administrative controls do not reduce the risk, then PPE must be used.

Selection

• Select PPE based on the identified hazards, the specific task, the duration of exposure, regulatory exposure limits, and the individual worker.

• PPE should be appropriate for the particular hazard.

Types of PPE Available

- Hand protection (gloves).
- Eye and face protection (safety goggles, face shields, and splash-guards).
- Skin protection (lab coats, scrubs, aprons, tyvek suits, etc.).
- Respiratory protection (half-face or full-face respirators, personal air purifying respirators).

For more detailed information, refer to your Chemical Hygiene Plan, or call the EHS Director.

Choosing the Right Glove

Gloves are used to protect your skin from contact with hazardous materials. There are a variety of glove materials (e.g., latex, nitrile, and neoprene) that offer different levels of protection depending on the chemicals that you use in the course of your work. There is no universal glove that is appropriate for all chemicals, and all chemicals eventually penetrate all common glove materials. A glove you are wearing may appear to be intact even when it is not. Therefore, it is important to choose the right type of glove to wear when using a particular substance so you will not be unknowingly exposed to a hazardous material. Glove manufacturers rate their gloves for use with

specific chemicals. These ratings are based on breakthrough or permeability tests that determine the amount of time it takes for a chemical to penetrate the glove. A breakthrough test is generally a worst-case scenario,

involving full exposure of the glove material to the chemical. A "chemical compatibility chart" is generated as a result (see example).

Glove Materials

Butyl Rubber : good choice for aldehydes, ketones, and esters Latex: good choice for biological materials Natural Rubber : resists acids and caustics Neoprene: wide range of resistance to solvents, acids, caustics, and alcohols Nitrile: good choice for biological materials, as well as a wide range of applications along with puncture and abrasion resistance Poly-Vinyl Chloride (PVC) : resists acids but not petroleum solvents Viton: excellent resistance to chlorinated and aromatic solvents

Things to Consider When Choosing a Glove

- What substance(s) will be used?
- How long will you be in contact with a substance (e.g., minutes vs. hours)?
- Will your contact with a substance be intermittent or constant (light vs.heavy exposure)?
- Is dexterity important for your work (thin vs. thick gloves)?

How to Choose the Best Glove

- Review the manufacturer's chemical compatibility chart for specific glove types
- Refer to the attached permeability chart
- Refer to the glove recommendations in your Chemical Hygiene Plan
- Check the Material Safety Data Sheet for the chemical
- Contact your EHS Director

Some substances do not have a glove that offers a high level of protection. Examples are chloroform and methylene chloride. In the case where glove choices are limited, you may need to wear two pairs of gloves and/or change your gloves frequently. As always, when performing work in a laboratory environment, be sure to adhere to safe laboratory practices including wearing lab coats, goggles, and gloves at all time, changing gloves frequently, no eating or drinking in the laboratory, and washing hands whenever leaving the area. If you have any questions, please contact your EHS Director.

CHEMICAL RESISTANCE CHART

The degree of protection required on a given job is known only by you. This chemical resistance or permeation chart developed by our laboratory or from data published by manufacturers of resins, rubber or polymers can only

serve as a guide. Degradation or permeation will OCCUr at some time depending on the degree of exposure. You must determine this by testing. That is why we offer our Performance Rated Order (PRO) Program. Ask your distributor for complete details.

CHEMICAL

Acetaidehyde Aceto.Acid Acetone Acrylonitrie

Acrycontine Ataminium Chionde Ammonium Fluonde 40% Ammonium Hydroxide Amyt Acchol Amyt Acchol Anime Anime Fats Aqua Recia Battery Acid Benzene

Benzene Benzyl Alcohol Benzyl Chloride Bulanc Butyl Acetate

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Chloroacetone

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Select the coating with the highest rating in the Physical Properties Chart on the right, then check the Chemical **Besistance** Charts below.

Key to chart: E G F Blank (-) Enart: Excellent Good Fair Poor Insufficient data Not recommended

NŘ

PHYSICAL PROPERTIES	NTRILE	NATURAL RUBBER	PVC	NEOPREME
Abrasion Resistance	E	a	G	G
Cut Resistance	E	E	p	E
Puncture (snag) Resistance	E	E	6	Ε
Flexibility	E	E	G	G
Heat Recistance	G	F	Р	Q
Ozone Resistance	F	Ρ	E	ε
Tensile Strength	E	E		E
Dry Grip	ε	Ε	Ē	E
WetGrip	G	Ł	Ε	F

	NURLE	NATURAL RUBBER	PVC	NEOPRENE		CHEMICAL	NITRILE	NATURAL RUBBER	PVC	NEOPRENE
	F	F	F	E		Electroless Nickel		-	-	-
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	F	Ġ	-	F		Insecticides	S	E	Ε	E
	G	Ē	-	Ē		Isobury Alcohol	G	E	G	E
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1	Ρ	P	Р	NB		Mineral Spints, Rule 66	E	NR	F	G
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CHEMICAL	NTPALE	RUBBER	DVC	NEOPRENE
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Nitrie Acid - Diluted 10%	F	F	G	E
Nitric Acid - Red Furning	Р	P	P	NR
Nitric Acid - White Furning	NR	NR	Ρ	NR
Nitrobenzene	L.	9	۴	NB
Niromethane	Р	G	Р	G
Nitropropane 95.5%	NA	E	NR	G
Octyl Alcahol	6	0	F	E
OleicAcid	F	P	F	E
Olive Oil	E	Р	F	G
Oxalic Acid	0	0	G	E
PCBS	1	"		-
Paint Remover	G	F	P	F.
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Phenol	P	6	9	5
Phosphonic Acid	6	6	P	5
Pickling Solution	P	P	G	<u> </u>
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Pine Oil	12	10		۴
Plating Solutions - Chrome	10	G	E	Ē
Polassium Hydroxole 50%	6	6	5	5
Printing ink	15	6	12	
Propane	5	15	12	5
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Steand Acid	G	G	G	G
Stoddard Solvent	E	P	F	E
Styrene	P	P	P	NR
Sulfunc Acid (diuted)	0	Ġ	G	G
Sulfuric Acid (conc.) 95%	P	P	F	F
Tannic Acid 65%	E	E	E	E
Tetrahydrofuran	P	P	P	NR
Toluene	F	P	P	NR
Toluene Di-Isocyanate	P	р	P	NR
Trichlorethylene	F	р	P	NR
Triathanai Amas	F	G	G	E
Instrumental Adminic	P	P	F	G
Trinitrotoluene	1.0	P	F.	E
Trinitrotoluene Tung Oli			P	G
Trinitrotoluene Tung Oil Turbine Oil	G	P		
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Trinitrotoluene Tung Oli Turbine Oli Turpentine Vegetable Oli	GE	P P P	F	NR E
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