



The University of British Columbia
Department of Health, Safety and Environment

Shop Waste Disposal Procedures



October 2005

Environmental Services Facility

The University of British Columbia Land and Building Services		Shop Waste Disposal Procedures	
Polices and Procedures		I-B-51	
Prepared by: UBC HS&E	Approved by: UBC HS&E	Issue Date: October, 2005	
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Shop Waste Disposal Procedures

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Introduction

This manual has been prepared by the UBC Department of Health, Safety and Environment (HSE) to provide information on the proper methods for the disposal of hazardous waste. Improper disposal of hazardous wastes can be harmful to the environment and humans. The disposal of hazardous waste is also governed by strict local, provincial, and federal regulations. It is important to follow the procedures as stated in order to avoid legal repercussions.

This manual and its Shop Waste Disposal Procedures can also be downloaded from the HSE website (www.hse.ubc.ca). The manual and procedures can be found under the “Procedures” link. (Note: Adobe Reader will be required.)

HSE operates the Environmental Services Facility (ESF) which manages and handles the hazardous waste generated by UBC core research, education and operational activities. The facility will safely manage hazardous waste in accordance with local, provincial and federal regulations. For more information, please contact the Environmental Programs Officer (EPO) at (604) 822-9280.

Disclaimer

This manual is intended for use by those who produce hazardous waste as a result of their work at the University of British Columbia. The material contained in this manual is correct to the best of knowledge of the UBC Department of Health, Safety and Environment. The disposal procedures are compliant with applicable local, provincial and federal legislation.

Updates to procedures are made occasionally. If you have procedures older than two years, please check with HSE for the most current update.

Health, Safety and Environment Contacts

Gail Townsley	HSE Manager – LBS	(604) 822-1885
Tariq Din	Health & Safety Coordinator – LBS	(604) 822-1327
Doug Pasco	Ergonomics Program Coordinator – LBS	(604) 822-6732
Russell English	Supervisor, Asbestos Program - LBS	(604) 822-7206
Guy Champagne	Asbestos Program Coordinator - LBS	(604) 822-8772
Ray Hryciuk	Manager, Environmental Programs	(604) 822-9527
Edward Lee	Environmental Programs Officer	(604) 822-9280
Bang Dang	Technician, Environmental Services Facility	(604) 822-1285
Ivan Leversage	Technician, Environmental Services Facility	(604) 822-6306
John El-Baghdady	Technician, Environmental Services Facility	(604) 827-5389
Andy Trinh	Technician, Environmental Services Facility	(604) 822-1281
Bruce Anderson	Biosafety Officer	(604) 822-7596
Anita MacDonald	Environmental Audit Officer	(604) 822-5890
David Bell	Occupational Hygiene Officer	(604) 822-2643
Ted Sedgwick	Radiation Safety Officer	(604) 822-7052

Environmental Services Facility

Work Order Numbers

All waste delivered to ESF by Plant Ops must have the following information:

- Work Order Number;
- Type of waste;
- Site (or building) where waste was removed from; and,
- Name and phone number of person delivering the waste.

NOTE: Waste will NOT be accepted by ESF without the required information.

Acceptable Waste Types

General waste classifications permitted at the ESF are as follows:

Class 2 – Gases

Class 2.1 – Flammable Gas (Propane, butane)

Class 3 – Flammable and Combustible Liquids

Class 4

Class 4.1 – Flammable Solid

Class 4.2 – Spontaneously Combustible

Class 4.3 – Dangerous When Wet

Class 5 – Oxidizing Substances

Class 5.1 – Oxidizer

Class 5.2 – Organic Peroxide

Class 6 – Poisonous (toxic) substances and infectious substances

Class 6.1 – Toxic

Class 6.2 – Infectious

Class 8 – Corrosive substances

Class 9 – Miscellaneous products

Non-Acceptable Waste Types

There are some wastes that are outside of ESF's mandate or cannot be accepted because of the restrictions in its operating permit.

ESF cannot manage or handle the following, and therefore, this manual does not include procedures for:

- Unknown solid or liquid chemicals;
- Toxic gases;
- Lecture bottles;
- Explosives; and,
- Radioactive chemicals (contact Radiation Safety Officer).

IMPORTANT NOTE: Even though the above mentioned material cannot be accepted, ESF can still provide advice on proper handling and disposal options. The cost of disposal for these wastes must be borne by the generator.

Disposal Costs

Hazardous waste disposal will be charged as per the prices on the following page. The invoice will also include a charge for transportation, chemist and manifest. For an accurate quote, a complete chemical inventory must be faxed to ESF. Due to the nature of the environmental services industry and factors beyond our control, prices may be subject to change without notice.

For more information on the disposal, recycling, treatment or exchange of your biohazardous, biomedical and hazardous waste, please contact an ESF Technician at (604) 822-1285 or (604) 822-6306 at the Environmental Services Facility.

UBC Environmental Services Facility

Price List

(Effective: May 2005)

Hazardous Waste Disposal	Price \$
Class 1 – Explosives	By Quote
Class 2 – Gases Class 2.1 – Aerosols, Flammable	\$75 / lab pack (20 litre pail)
Class 3 – Flammable Liquids Solvents (Methanol, Xylene, Acetone)	\$2.36 / litre
Class 4.1 – Flammable Solids *	\$104.5 / lab pack (20 litre pail)
Class 4.2 – Spontaneously Combustible *	\$115.00 / lab pack (20 litre pail)
Class 4.3 – Dangerous When Wet *	\$115.00 / lab pack (20 litre pail)
Class 5.1 – Non-Chlorinated Oxidizer *	\$135.00 / lab pack (20 litre pail)
Class 5.2 – Organic Peroxide *	\$8.80 / kg
Class 6.1 – Toxic *	\$75/ lab pack (20 litre pail)
Class 6.2 – Pesticides *	\$6.00 / kg
Class 7 – Radioactive	By Quote
Class 8 – Corrosive Class 8 – Acid	\$65 / lab pack (20 litre pail)
Class 8 – Base	\$65 / lab pack (20 litre pail)
Class 8 – Mercury	\$20 / kg
Class 9 – Environmentally Hazardous *	\$75 / lab pack (20 litre pail)
Biohazardous Waste Disposal	Price \$
Risk Group 1	\$1.47 / kg
Risk Group 2	\$1.47 / kg
Pathological (Anatomical Animal) Waste	\$1.00 / kg
Biomedical Waste Disposal	Price \$
Biomedical (Human anatomical, cytotoxics)	\$6.33 / kg
Primate Anatomical	\$6.33 / kg
Sharps and Needle Waste	\$1.47 / kg
Other	Price \$
Batteries:	
- Lithium	\$14.50 / kg
- Mercury	\$13.25 / kg
- Alkaline, NiCad, Wet/Dry	\$5.00 / kg
- Sealed lead acid	\$1.00 / kg
Waste oils (Non-PCB):	
- Pump Oil	\$120.00 / 205 litre drum
- Cutting Oil	\$190.00 / 205 litre drum
- Petroleum/motor oil	\$120.00 / 205 litre drum
- Oil-Contaminated Solids	\$2.58 / kg

Chemist and Transportation Charges	Price \$
ESF Field Chemist	\$65.00 / hr
Special Waste Manifest	\$20.00 / manifest
Pickup and Transportation	\$40.00 / hr

NOTE: * Because of the variability of chemicals, these prices are estimates only and will be quoted upon receipt of completed Chemical Waste Inventory. Please call (604) 822-1285 or (604) 822-9280 for further inquiries.

Emergency Information

Emergency Numbers

UBC Campus

Fire, Police, Ambulance.....	911
First Aid (staff & faculty).....	(604) 822-4444
UBC Hazardous Materials (HAZMAT) Response.....	911
Campus Security.....	(604) 822-2222
Plant Operations Trouble Calls.....	(604) 822-2173
UBC Hospital Emergency Department.....	(604) 822-7222

Common Numbers

UBC Health, Safety and Environment.....	(604) 822-2029
Poison Control.....	(604) 682-5050
Vancouver Fire Department (Non-emergency).....	(604) 665-6010
R.C.M.P. Non-emergency.....	(604) 224-1322
UBC Biosafety Office.....	(604) 822-7596
UBC Emergency Planning Office.....	(604) 822-1237
UBC Radiation Safety Office.....	(604) 822-7052
UBC Occupational Hygiene Office.....	(604) 822-2643

Ensure all relevant emergency information (such as: nature of emergency, building name and address, phone number, and exact location of the emergency in the building) is provided to the operator before hanging up.

Situations requiring immediate emergency response may include:

- ◆ First aid emergency;
- ◆ Hazardous materials spill;
- ◆ Bomb threat;
- ◆ Fire;
- ◆ Civil demonstration; and
- ◆ Natural disaster (such as earthquake, flood).

In the event of an emergency, contact the appropriate response agency (using phone numbers from this manual) and initiate response activities if it is safe to do so.

Emergency Preparedness

Because emergencies, accidents, and various other problems happen without warning, it is essential that all supervisors and employees are prepared for the unexpected. Each individual is responsible for knowing their role in an emergency, and each organization or department must ensure that all employees have received proper training. UBC Safety Policy requires compliance with all relevant legislation. For emergencies, each area or department should have:

- ◆ A Safety Committee;
- ◆ A Fire Safety Plan (posted);
- ◆ An Emergency Evacuation Plan (posted);
- ◆ A designated Emergency Assembly Area;

- ◆ A Fire Safety Director and Floor Wardens for each floor or area; and
- ◆ A local first aid attendant.

Emergency preparedness activities may include emergency preparedness and response training, stockpiling of emergency supplies, practice of building evacuation drills, and/or development and testing of emergency plans. All individuals are encouraged to have personal emergency supplies on hand to sustain their needs for up to 72 hours in the event of a disaster. Emergency supply kits may be purchased pre-packaged at safety stores, or can be assembled from household supplies or goods purchased individually.

Each building or area at UBC must have a Fire Safety Plan. This plan provides a detailed description of all procedures specific to the building or area to be followed in the event of a fire. The Fire Safety Plan includes detailed floor plans, a list of Fire Safety Officers and their responsibilities, procedures for fire drills and evacuations, specific actions for fires, bomb threats and earthquakes, the BC Fire Code and fire extinguisher operation instructions.

Evacuation

Evacuation may be necessary under a variety of circumstances, including fire, hazardous material spill, bomb threat or earthquake. If the fire alarm is sounded, or occupants are told to leave the building, it is important that all occupants stay calm and evacuate immediately. Equipment should be shut down and hazardous materials secured where safely possible. All occupants must exit the building according to instructions given by emergency personnel, giving aid to those with disabilities. Do not use elevators. Once outside, with all evacuated personnel gathered at the designated Assembly Area, take a head count, ensuring all personnel are accounted for. No personnel may re-enter the building until emergency personnel have established that it is safe to do so.

Emergency Response Procedures

There are many resources available through the UBC Department of Health, Safety & Environment that detail specific actions for a variety of emergencies.

- ◆ The “Emergency Procedures & Information” flipbook summarizes several emergency situations and how to deal with them;
- ◆ The UBC Safety Program Manual details emergency and first aid procedures, including a section on special first aid procedures for bodily contact with dangerous and potentially deadly chemicals;
- ◆ The UBC Emergency Planning Office has generic Fire Safety Plan templates available to create tailored emergency plans for each worksite or department; and,
- ◆ Emergency response and preparedness training is offered through the UBC Emergency Planning Office. In addition, information on emergency supplies and disaster kits is available through the Emergency Planning Office ((604) 822-1237) or the Disaster Preparedness Resource Centre ((604) 822-5518).

The following is only a brief overview of emergency response procedures:

Fire

As soon as a fire is discovered, sound the alarm, call 911 and evacuate the area. Close doors to isolate the fire. Attempt to extinguish the fire with a fire extinguisher only if it is safe to do so. If the fire alarm sounds, all occupants must immediately follow the fire evacuation procedure (outlined in Evacuation and the Fire Safety Plan). If trapped in a

room by fire or smoke, place damp cloths around and under the door, retreat from the fire and signal from a window. Do not open the window unless absolutely necessary. If caught in a smoky room, stay below the smoke (kneeling or crawling), breathe slowly and stay calm.

Earthquake

a) Before - Individuals should prepare to be self-sufficient for at least three days. It is recommended that individuals stockpile adequate emergency supplies and store them at individual workstations. Heavy objects, sharp items, large hanging plants, and other items that could easily fall should be removed or well secured. Practice emergency procedures and participate in training sessions as necessary.

b) During - Avoid hazards by moving away from windows and potential falling objects. Do not leave the building. Take cover under a desk or any other sturdy object. If outdoors, move away from buildings, trees and power lines.

c) After - Wait until shaking has stopped. Assess damage to immediate area. Evacuate if necessary (e.g., major structural damage, fire, gas leaks, etc.). Give first aid to injured persons and alert emergency personnel. Gather emergency supplies together and assess needs. Initiate Emergency Plan as necessary.

Hazardous Material Spills

Refer to Material Safety Data Sheets, located at every work site, before handling any hazardous materials.

If a chemical, biohazardous material or radioactive material is spilled, evacuate and isolate the area immediately. Call 911 and be ready to provide all relevant information.

Contact Campus Security and ask them to contact HSE.

Contact the Provincial Emergency Program at 1-800-663-3456 if the spill is reportable as defined by Environmental Reporting Procedures. If there is a gas leak, do not pull the fire alarm as it could cause an explosion. Call 911, shut down equipment and evacuate the building, closing all doors.

Refer to Appendix C: Environmental Reporting Procedures.

First Aid Emergency

In the event of a First Aid Emergency for staff or faculty, call (604) 822-4444 or the local First Aid Attendant for immediate assistance. If the injured person is a UBC student, call 911. Ensure that the person has an open airway, is breathing and has a pulse. If necessary, initiate first aid procedures (abdominal thrusts, rescue breathing, CPR, etc). Control bleeding and treat other first aid injuries as necessary.

Bomb Threat

If a bomb threat is received by telephone, it is essential to get as much information as possible. Keep the person on the line as long as possible and do not upset the caller. Be courteous and receptive, and ask questions about the nature of the bomb. Take notes on everything the caller says, and when he or she has hung up, call the RCMP at 911 immediately. Do not touch any unfamiliar objects or packages, and report anything suspicious. Follow instructions of RCMP and evacuate if necessary.

Frequently Asked Questions

1. What types of waste does Environmental Services Facility handle?

ESF only manage and handle the biohazardous and hazardous wastes as listed on its permit. The types of waste that can be accepted and cannot be accepted are listed in this manual. Non-hazardous wastes (such as garbage, glass, scrap metal and wood, packaging, etc.) are handled by UBC Waste Management at (604) 822-3827. If you have any questions, please contact the Environmental Programs Officer ((604) 822-9280) or the ESF Technician ((604) 822-1285).

2. What are the procedures governing the storage of propane tanks?

The procedures regarding the:

- storage, handling, transportation and transfer of propane;
- installation of appliances, equipment, components, accessories and containers when propane is to be used for fuel purposes; and
- installation of containers and equipment to be used for propane in distribution locations, filling plants, and on tank trucks, tank trailers, and cargo liners

are outlined in the UBC's "Procedures for the Use of Compressed Gas Cylinders in UBC Laboratories" and the Canadian Gas Association Propane Installation Code, Standards Council of Canada, 1995. Also, refer to LBS procedure I-B-29 entitled "Storage and Transportation of Compressed Gas Cylinders".

For information on how to dispose of empty propane tanks, please refer to "Propane and Butane Cylinder Disposal Procedure (Reference 06.01.16.R01) or, call an ESF Technician at (604) 822-6306.

3. Can I send "roadkill" to ESF for disposal?

Refer to the LBS procedure I-B-47 entitled "Domestic Dead Animals Disposal Procedure".

4. Do I need a Work Order Number to drop off waste at ESF?

Yes, all waste delivered to ESF by Plant Ops must have the following information:

- Work Order Number;
- Type of waste;
- Site (or building) where waste was removed from; and,
- Name and phone number of person delivering the waste.

NOTE: Waste will NOT be accepted by ESF without the required information.

5. What can I do with dead rechargeable batteries?

Rechargeable batteries can be recycled through ESF free of charge. Contact the ESF Technician (604)822-1285 for more details.



Shop Waste Disposal Procedures – Aerosol Cans

Reference: **06.01.19.R01**

Date: **August 2005**

- Scope** This procedure applies to waste aerosol cans. Disposal of these items is facilitated through the Environmental Services Facility (ESF).
- Purpose** This procedure specifies the method for proper disposal of aerosol cans by UBC personnel, students or faculty.
- Background** The paint/lubricants contained in aerosol cans are potentially flammable, and thus potentially hazardous. Therefore, waste aerosol cans containing paint /lubricants are to be treated as hazardous waste. The BC Environmental Management Act, Hazardous Waste Regulations are legislative restrictions governing the disposal of such hazardous materials. Furthermore, aerosol cans containing propellant are explosive if crushed or incinerated. Aerosol propellant can be flammable. Use away from heat or sparks. Breathing the propellant may be hazardous to human health. Waste aerosol cans must be disposed in accordance with the Environmental Management Act, and Hazardous Waste Regulation.
- Procedure**
1. Collect the waste aerosol cans in a cardboard box. **DO NOT** puncture or tamper with the cans. If an aerosol can is leaking, wrap the individual can in two plastic bags, and seal. The weight of each box of aerosol cans must not weigh more than 10 kg.
 2. Collect at least a garbage can quantity, as there is a minimum charge.
 3. Complete the Chemical Inventory Form (Appendix A). Mark “Aerosol Cans” and estimate quantity.
 4. Also, provide the following required information:
 - Work Order Number;
 - Type of waste;
 - Site (or building) where waste was removed from; and,
 - Name and phone number of person delivering the waste.

NOTE: Waste will NOT be accepted by ESF without the required information.
 5. Send the completed inventory form and the required information to ESF by campus mail or fax ((604) 827-5807). Contact the ESF technician (at (604) 822-6306 or (604) 822-1285) if you have any questions.
 6. Secure and tape the box closed to prevent cans from spilling or falling out during transportation.
 7. With a felt-tipped pen, write on top of each box the generator’s name, department, and telephone number on the top of the box in large letters.
 8. Transport the container of aerosol cans to ESF. **NOTE: Please DO NOT take individual cans to the ESF.**
- Attachment** Appendix A: Chemical Waste Inventory Form
- Revisions** **R01:**
- Updates to recent legislation
 - Included phone number of ESF Technician 4



Shop Waste Disposal Procedures – **Asbestos**

Reference: **06.01.21.R01**

Date: **October 2005**

Scope

This procedure applies to the disposal of asbestos.

This procedure is for Plant Operation workers exclusively.

Disposal of these items are facilitated through the Environmental Services Facility (ESF).

Purpose

This procedure specifies the method for proper disposal of waste asbestos.

For complete information on asbestos handling procedures contact the Supervisor, Asbestos Program in Land Building Services (604) 822-7206.

Background

Microscopic asbestos fibers from friable (loose or crumbling) asbestos can be suspended in air and inhaled. Once inhaled, fibers remain in lungs, potentially causing lung cancer. Asbestos may be found in pipe insulation and insulating boards, textured wall surfaces, electrical equipment, floor and roofing tiles, and certain adhesives. Waste asbestos must be disposed in accordance with the BC Environmental Management Act, and the BC Hazardous Waste Regulation. Refer to I-B-05 Asbestos Policy.

Procedure

1. Double bag the asbestos in the approved yellow bags that display the asbestos sign.
2. The following information must be provided to the ESF staff with each shipment of asbestos:
 - Work order number;
 - The site or building where the asbestos was removed;
 - The number of bags of asbestos for disposal; and
 - The name of person delivering the material to ESF.
3. Send the required information (by campus mail or fax (604 827-5807) to ESF for approval. Contact the ESF technician (at 604 822-6306 or 604 822-1285) or Supervisor Asbestos Program (604 822-7206) if you have any questions.
4. Upon receiving the required information, the ESF Technician will provide the carrier with the keys to the asbestos bin.

Helpful Contacts

In case of additional questions regarding asbestos, please contact the Supervisor, Asbestos Program (604) 822-7206).



<u>Shop Waste Disposal Procedures –</u>		
Waste Batteries		
<i>Reference:</i> 06.01.07.R02	<i>Date:</i> August 2005	

<u>Scope</u>	<p>Waste non-rechargeable batteries include:</p> <ul style="list-style-type: none"> • Lead acid (automotive); • Alkaline batteries (all sizes); and, • Lithium or Mercury. <p>Waste rechargeable batteries include:</p> <ul style="list-style-type: none"> • Nickel-Cadmium (Ni-Cd); • Lithium Ion (Li-ion); • Nickel Metal Hydride (Ni-MH); and, • Small Sealed Lead. <p>If you have any questions, please contact the ESF Technician at (604) 822-1285 or (604) 822-6306.</p>
<u>Purpose</u>	This procedure specifies the procedure for the proper disposal of waste non-rechargeable and rechargeable batteries such that UBC is in compliance with all legislation
<u>Background</u>	<ol style="list-style-type: none"> 1. Because batteries are classified as a special waste, they cannot be disposed of in a landfill according to the BC Hazardous Waste Regulation, 2004. 2. Waste batteries must be properly disposed of in accordance with the BC Environmental Management Act, 2003.
<u>Procedure</u>	<p>NOTE: Please segregate waste non-rechargeable batteries from rechargeable batteries or there will be an additional labour charge.</p> <p>1.0 Waste Non-Rechargeable Batteries</p> <ol style="list-style-type: none"> 9. Collect the waste non-rechargeable batteries in a cardboard box. DO NOT puncture or tamper with the batteries. If a battery is leaking, wrap it in two plastic bags, and seal. Each box must not weigh more than 10 kg. 10. Complete the Chemical Inventory Form (Appendix A). Mark “Waste Batteries” and estimate quantity. 11. Also, provide the following required information: <ul style="list-style-type: none"> ▪ Work Order Number; ▪ Type of waste; ▪ Site (or building) where waste was removed from; and, ▪ Name and phone number of person delivering the waste.

	<p>NOTE: Waste will NOT be accepted by ESF without the required information.</p> <p>12. Send the completed inventory form and the required information to ESF by campus mail or fax ((604) 827-5807). Contact the ESF technician (at (604) 822-6306 or (604) 822-1285) if you have any questions.</p> <p>13. Secure and tape the box closed to prevent batteries from spilling or falling out during transportation.</p> <p>14. Transport waste batteries to ESF.</p> <p>2.0 Waste Rechargeable Batteries</p> <p>1. Collect all waste rechargeable batteries in a specially marked – “Recycle Your Rechargeable Batteries” - box. These special boxes can be obtained from ESF. Contact the ESF Technician at (604) 827-5389.</p> <p>2. The weight of each box must not exceed 10 kg.</p> <p>3. When the box is full, close and securely seal with packing tape.</p> <p>4. Transport the recycle box to ESF.</p>
<u>Attachment</u>	Appendix A: Chemical Waste Inventory Form
<u>Revisions</u>	<p>R02:</p> <ul style="list-style-type: none"> • Updates to legislation. • Added in phone numbers for both ESF Technician 4 and 5. • Included rechargeable batteries. <p>R01:</p> <ul style="list-style-type: none"> • No changes



Shop Waste Disposal Procedures –
Flammable Rags

Reference: **06.01.03.R01**

Date: **August 2005**

Scope

This procedure applies to flammable rags. Disposal of this item is facilitated through the Environmental Services Facility.

Flammable rags include:

- Rags which have been soaked in any chemical solvent.
- Rags soaked in oils.
- Rags, which have been used to absorb spilt solvents, chemicals, and oils.
- For paint rag disposal see Paint and Paint Can disposal procedures.

Purpose

This procedure specifies the method for proper disposal of flammable rags.

Background

Flammable rags pose a threat, not only to the environment but also a substantial risk to life and property. Special attention must be paid to rags containing oils and paint as they tend to self-ignite. Waste Flammable rags must be disposed in accordance with the BC Environmental Management Act, and Hazardous Waste Regulation.

Procedure

1. Place flammable rags in the “HAZCO” Environmental Rag bin located the loading dock, beside the dumpster, in front of the paint shop.
2. Ensure the lid on the bin is securely closed.
3. Contact the ESF Technician (604) 822-1285 when the bin is full.
4. The ESF Technician will arrange for contractor to pickup the full bin, dispose of the rags and replace it with an empty bin.

NOTE: Do not transport rags to ESF.

Attachment

None.



Shop Waste Disposal Procedures – Glue

Reference: **06.01.25.R01**

Date: **August 2005**

Scope

This procedure applies to a variety of glues, which includes:

- Industrial strength glue and adhesives ;
- Epoxy glue;
- Wood floor adhesives;
- Sealants; and,
- Glue used in construction.

Disposal of these items is facilitated through the Environmental Services Facility (ESF).

Purpose

This procedure specifies the method for proper packaging and disposal of waste glue.

Background

Glue especially in its non-solid form constitutes a hazardous waste. In addition to being environmentally hazardous certain solvent based glues pose a fire hazard if inappropriately stored. Waste glue must be disposed in accordance with the BC Environmental Management Act, and Hazardous Waste Regulation.

Procedure

1. Keep the waste glue in its original container. If the glue container is leaking, it must first be double bagged in plastic bags.
 2. Collect the waste glue containers in a cardboard box. **DO NOT** puncture or tamper with the cans. The weight of each box of glue containers must not weigh more than 10 kg.
 3. Complete the Chemical Inventory Form (Appendix A). Mark “Aerosol Cans” and estimate quantity.
 4. Also, provide the following required information:
 - Work Order Number;
 - Type of waste;
 - Site (or building) where waste was removed from; and,
 - Name and phone number of person delivering the waste.
- NOTE: Waste will NOT be accepted by ESF without the required information.
5. Send the completed inventory form to ESF for approval by campus mail or fax ((604) 827-5807). Contact the ESF technician (at (604) 822-6306 or (604) 822-1285) if you have any questions.
 6. Secure and tape the box closed to prevent containers from spilling or falling out during transportation.
 7. With a felt-tipped pen, write on top of each box the generator’s name,

department, and telephone number on the top of the box in large letters. Then tape an envelope with one copy of the coded inventory forms on top of one of the boxes.

8. Transport the waste glue to ESF.

Attachment Appendix A: Chemical Inventory Form.



Shop Waste Disposal Procedures – Mercury Switches

Reference: **06.01.26.R01**

Date: **August 2005**

Scope

This procedure applies to mercury switches, which includes:

- Electrical contact switches;
- Safety sensors;
- Measurement devices; and,
- Tilt switches.

Disposal of these items is facilitated through the Environmental Services Facility (ESF).

Purpose

This procedure specifies the method for proper disposal of mercury switches.

Background

Waste mercury is regulated as Class 6 Toxic Substance of Class 8 Corrosive Substance, as defined by the BC Hazardous Waste Regulation.

GVRD Sewer Use Bylaw No. 164. December 2002 and BC Hazardous Waste Regulation restrict the discharge of waste mercury into the sewer or landfill.

Any spills of mercury into the environment (land, air, water, sewer) must be reported to the Provincial Emergency Program, (contact 582-5200 for more information or see Environmental Reporting Procedures, Reference No. 06.02.01 December 2004, UBC Department of Health Safety and Environment).

Waste Mercury Switches must be disposed in accordance with the BC Environmental Management Act, and Hazardous Waste Regulation.

Procedure

1. Dismantle the switches from the panel or apparatus to which it is attached.
2. Only the mercury switches should be packaged for disposal by ESF.
3. The following information must be provided to the ESF staff with each shipment of switches:
 - Work order number;
 - The site or building where the switches was removed;
 - The number of bags of switches for disposal; and
 - The name and phone number of person delivering the material to ESF.
4. Package the mercury switches in a cardboard box. **DO NOT** puncture or tamper with the switches. The weight of each box of switches must not weigh more than 10 kg.
5. Complete the Chemical Inventory Form (Appendix A) with Generator information and clearly identify all the material(s) in the box.
6. Send the completed inventory form to ESF for approval by campus mail or fax ((604) 827-5807). Contact the ESF technician (at (604) 822-

6306 or (604) 822-1285) if you have any questions.

7. Secure and tape the box closed to prevent switches from falling out during transportation.
8. With a felt-tipped pen, write on top of each box the generator's name, department, and telephone number on the top of the box in large letters. Then tape an envelope with one copy of the coded inventory forms on top of one of the boxes.
9. Place the boxes in the building's designated area for pickup by ESF.

Attachment **Appendix A: Chemical Inventory Form.**



UBC
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Shop Waste Disposal Procedures –

Waste Oil

Reference:
06.01.08.R02

Date: **August 2005**

Scope

Waste oil is defined as a special waste if it is a “refined petroleum product that has become unsuitable for its original purpose owing to the presence of impurities, or a loss of its original properties”.¹ This disposal procedure applies to the disposal of waste oil, or a non-hazardous material containing more than 3% by weight of oil.

Types of waste oil include the following:

- Automotive lubricating oil;
- Cutting oil;
- Fuel oil;
- Gear oil;
- Hydraulic oil;
- Refined petroleum based oil;
- Synthetic oil;
- Emulsion;
- Crude oil; and,
- Vacuum-pump oil.

IMPORTANT NOTE: Waste oils must not be contaminated with PCBs (Polychlorinated Biphenyl) or solvents.

Purpose

This procedure specifies the requirements for the packaging and disposal of oil or material contaminated with oil, such that UBC is in compliance with all legislation

Background

1. Before it was proven that contaminants in oil were dangerous to human health, oil was disposed of in sewers, burned, and used as a dust suppressant on pavement. Today, oil can be used in the manufacture of pavement and for fuel only with strict adherence to guidelines imposed by the BC Hazardous Waste Regulations, 2004.
2. Waste oil is not permitted in sanitary or storm sewers in accordance with the GVRD Sewer Use Bylaw No. 164, June 2002.
3. Waste oil is not permitted in landfills in compliance with BC Hazardous Waste Regulations, 2004.
4. Any spills that exceed 100 litres and which are discharged to the environment must be reported to Ministry of Environment. Contact Health, Safety and Environment (604) 822-2029.

Procedure

1. Collect the waste in either:
 - a) The supplier's original disposable plastic container if it is in good condition (i.e. not leaking); or,
 - b) 205 litre metal drums.
2. If you require empty oil containers, please contact the Environmental Technician at (604) 822-6306 or (604) 822-1285. Do not use solvent cans for oil.
3. Complete the required information on the Flammable Liquid Disposal Tag (Blue) as shown in Appendix E and affix the generator barcode sticker. Write the type of oil in the container (as defined in the Scope) in the line entitled "Other".
4. Make sure that all waste oil containers are properly tagged and identified.
5. Place the containers in the building's designated area for pickup by ESF.

Do not mix waste oil with other solvents.

Do not overfill containers.

Attachment

Appendix B: Flammable Liquid Disposal Tag (Blue)

Revisions

R02:

- Updates to recent legislation
- Included phone number of Technician 4

R01:

- None



Shop Waste Disposal Procedures – ***Paint and Paint Cans***

Reference: **06.01.28.R01**

Date: **October 2005**

Scope

This procedure applies to the disposal of waste paint (latex, oil-based), paint cans and rags generated only by the Land and Building Services.

Disposal of most of these items is facilitated through the Environmental Services Facility (ESF).

Purpose

This procedure specifies the method for proper disposal of waste paint cans and paint.

Background

Proper disposal of waste paint keeps this hazardous product out of our groundwater and streams. The typical paint mixture is 5-25% pigment (heavy metals) and 75-95% solvent. The type of pigment and solvent used largely defines the toxicity of the paint. Paints may become hazardous if fumes are inhaled or if paint is ingested. Another hazard associated with some paints is flammability. With the exception of latex paint, which has water as a solvent, solvents commonly used in paints include mineral spirits (naphtha), toluene, xylene, and other petroleum distillate solvents. Waste Paint and Paint Cans must be disposed in accordance with the BC Environmental Management Act, and Hazardous Waste Regulation.

Procedure

Paint Cans (Empty)

1. All the paint/paint cans for disposal must first be taken to the Paint Shop located in University Services Building.
2. The emptied can, should be wiped out with a brush to remove all the paint, and must be kept open to allow the paint residue to dry. Caution: These cans must be kept away from the rain, preferably in a well-ventilated room.
3. The emptied cans can then be placed in the garbage to be disposed as solid wastes through UBC Waste Management.

Paint Cans (Full or Partially Full)

1. All the paint/paint cans for disposal must first be taken to the Paint Shop located in University Services Building.
2. Any paint can, which is less than ¼ full, should be emptied into a “collection can.” This “collection can” should be a designated five-gallon plastic pail. **DO NOT** mix latex with oil-based paints.
3. The cans that are greater than ¼ full or that contain a mixture of paints must be disposed through ESF.
4. Package the paint cans in a cardboard box. **DO NOT** puncture or tamper with the cans. The weight of each box of paint cans must not weigh more than 10 kg.
5. Complete the Chemical Inventory Form (Appendix A) with Generator

information and clearly identify all the material(s) in the box.

6. Send the completed inventory form to ESF for approval by campus mail or fax ((604) 827-5807). Contact the ESF technician (at (604) 822-6306 or (604) 822-1285) if you have any questions.
7. The following information must be provided to the ESF staff with each shipment of paint:
 - Work order number;
 - The site or building where the switches was removed;
 - Estimate quantity for disposal; and
 - The name and phone number of person delivering the material to ESF.
8. Secure and tape the box closed to prevent cans from spilling or falling out during transportation.
9. With a felt-tipped pen, write on top of each box the generator's name, department, and telephone number on the top of the box in large letters. Then tape an envelope with one copy of the coded inventory forms on top of one of the boxes.
10. Transport the waste paint to ESF.

Paint Rags:

5. Place flammable rags in the "HAZCO" Environmental Rag bin located the loading dock, beside the dumpster, in front of the paint shop.
6. Ensure the lid on the bin is securely closed.
7. Contact the ESF Technician (604) 822-1285 when the bin is full.
8. The ESF Technician will arrange for contractor to pickup the full bin, dispose of the rags and replace it with an empty bin.

NOTE: Do not transport to the ESF.

Attachment Appendix A: Chemical Inventory Form.



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Shop Waste Disposal Procedures –		
Polychlorinated Biphenyls		
Reference: 06.01.11.R02	Date: August 2005	

Scope

This disposal procedure is only applicable to PCB material handled by the UBC Electrical Shop. For other users, contact Environmental Services Facility (ESF) for disposal procedures.

This procedure applies to all solids or liquids containing Polychlorinated Biphenyls (PCB), including:

- Ballasts
- Transformers with contaminated oil
- Contaminated oil in barrels
- Capacitors
- Electrical cables
- Spill clean-up material

For further detail on the identification, handling of PCB ballasts, refer to the LBS Work Procedure I-B-09 entitled “Disposal of Ballasts (PCB and Non-PCB) issued January 10, 2000.

Purpose

This procedure specifies the requirements for the disposal of PCB-contaminated materials, to ensure that UBC is in compliance with all relevant legislation.

Background

1. Disposal of PCB contaminated material in the sewer or landfill is prohibited by GVRD Bylaw 164, 2002 and by the BC Hazardous Waste Regulation, 2004.
2. PCB waste is considered a special waste under the BC Environmental Management Act, 2003.

Procedure

PCB Ballasts

Please Note: This procedure **only** applies to PCB material handled by the UBC Electrical Shops. Contractors working for UBC in renovation or development projects are required to dispose of PCB waste as part of their projects.

After ballasts have been removed by UBC Electricians, they must be brought to the electrical shop and sorted into PCB-containing and non-PCB-containing ballasts using the protocol set in the Technical Guidelines (Section 16502).

Non-PCB containing ballasts should be placed in a container marked “Non-PCB Ballasts” and disposed of through UBC Waste Management.

Ballasts containing PCB’s must be packaged in 20-litre (5-gallon) metal cans marked with the PCB symbol.

Place full cans into the metal cage at the dock area of UBC Electrical Shop. Keep cage locked at all times.

When the cage is near full, inform the ESF Technician at (604) 822-6306 or (604) 822-1285.

Environmental Services Facility will make arrangements for a contractor to pick-up and dispose of the PCB-containing ballasts.

Other PCB contaminated waste

Contact the ESF Technician (604) 822-6306 or (604) 822-1285 for a disposal quote. The ESF Technician can also arrange for disposal of this waste.

Attachment None

Revisions

R02:

- Updates to recent legislation
- Included phone number of ESF Technician 4

R01:

- Updated procedure



Shop Waste Disposal Procedures – ***Pesticides and Germicides***

Reference: 06.01.29.R01

Date: August 2005

Scope

This procedure applies to pesticides and germicides. Disposal of these items is facilitated through the Environmental Services Facility (ESF).

Purpose

This procedure specifies the method for proper disposal of waste pesticides and germicides.

Background

Pesticides that are more than two years old since the date of manufacture are generally regarded as unusable. Active ingredients in date expired pesticides or pesticide waste may have broken down into their byproducts, which can sometimes be more toxic than the original substances. Organophosphate pesticides are classified as persistent organic pollutants (POPs), considered to be particularly toxic because of their tendency to accumulate in increasingly greater concentrations in the body fats of predators that eat contaminated animals lower down the food chain. Waste Pesticides and Germicides must be disposed in accordance with the BC Environmental Management Act, and Hazardous Waste Regulation.

Procedure

1. Keep or collect the waste pesticide or germicide in its original container.
2. The contents of each container ***must be identified and clearly marked.***
NOTE: If the pesticide or germicide is not identified, there will be a charge to identify this unknown.
3. Collect all the containers in a designated area.
4. Package the containers in a cardboard box. **DO NOT** puncture or tamper with the containers. The weight of each box of containers must not weigh more than 10 kg.
5. Complete the Chemical Inventory Form (Appendix A) with Generator information and clearly identify all the material(s) in the box.
6. Send the completed inventory form to ESF for approval by campus mail or fax ((604) 827-5807). Contact the ESF technician (at (604) 822-6306 or (604) 822-1285) if you have any questions.
7. The following information must be provided to the ESF staff with each shipment of pesticides and germicides:
 - Work order number;
 - The site or building where the material was removed;
 - Estimate quantity for disposal; and
 - The name and phone number of person delivering the material to ESF.
8. Secure and tape the box closed to prevent containers from spilling or falling out during transportation.
9. With a felt-tipped pen, write on top of each box the generator's name,

department, and telephone number on the top of the box in large letters. Then tape an envelope with one copy of the coded inventory forms on top of one of the boxes.

10. Transport the packaged pesticides and germicides to ESF.

Attachment Appendix A: Chemical Inventory Form.



Propane and Butane Cylinders

Reference:
06.01.16.R01

Date: **August 2005**

Scope This procedure applies only to the disposal of propane and butane cylinders. This procedure does not apply to other gas cylinders and lecture bottles.

Purpose This procedure specifies the safe and proper disposal of the propane and butane gas cylinders for staff and disposal workers.

Background Compressed gas cylinders are not accepted at local landfills. As a result many of the university's compressed gas cylinders for disposal (empty or full) remain in the buildings creating a safety hazard for explosions.

Gas cylinders should be disposed/recycled in a safe manner. When purchasing compress gas cylinders, ensure that cylinders are refillable or can be returned to the supplier.

Procedure

Propane/ Butane Containers (Empty)

1. Empty non-reusable propane/butane containers can be placed in the garbage to be disposed as solid wastes through UBC Waste Management.
2. Empty reusable containers should be aired out, valve removed and can be recycled as scrap metal through UBC Waste Management.

Propane/ Butane Containers (Full or Partially Full)

1. All propane and butane containers for disposal must be listed on a Chemical Waste Inventory Form. (Please contact the Environmental Technician at either (604) 822-6306 or (604) 822-1285 if you have any questions.)
2. Send the completed inventory form to ESF for approval by campus mail or fax ((604) 827-5807). Contact the ESF technician (at (604) 822-6306 or (604) 822-1285) if you have any questions.
3. The following information must be provided to the ESF staff with each shipment of pesticides and germicides:

- Work order number;
- The site or building where the material was removed;
- Estimate quantity for disposal; and

The name and phone number of person delivering the material to ESF.

Procedure

Con't

4. Package containers in strong cardboard boxes.
5. The weight of each box must not exceed 10 kg.
6. Once the box is full, tape the box closed.
7. With a felt-tipped pen, write on top of each box the department, contact and telephone number. Then tape an envelope with one copy of the coded Chemical Waste Inventory form on top of one of the boxes.
8. Transport the containers to ESF.

Lecture Bottles and Other Gas Cylinders

NOTE: Environmental Services Facility (ESF) cannot dispose of lecture bottles.

For disposal of lecture bottles and other gas cylinders, please return them to the supplier.

If unable to return bottles, ESF can make arrangements for disposal through an approved waste contractor at your expense.

If there are any questions about the disposal procedure, please contact ESF Technician at (604) 827-5389.

Attachment

Appendix A: Chemical Waste Inventory Form

Revisions

R01:

- Included: the following: Non-reusable containers should be re-packaged and put into the garbage, those that are re-usable and have them aired out.
- Included: Non-reusable containers should be re-packaged and put into the garbage, those that are re-usable and have them aired out.
- Included: Ivan Leversage at (604) 827-5389.



Shop Waste Disposal Procedures – **Roofing Tar**

Reference: **06.01.30.R01**

Date: **July 2005**

Scope

This procedure applies to Roofing tar in a liquid form. Disposal of these items is facilitated through the Environmental Services Facility (ESF).

Purpose

This procedure specifies the method for proper disposal of waste roofing tar.

Background

Roofing tar in liquid form is classified as a (flammable) hazardous substance and must be disposed through ESF. Waste roofing tar must be disposed in accordance with the BC Environmental Management Act, and Hazardous Waste Regulation.

Roofing tar in its solid form is non-hazardous and may be disposed of as solid waste.

Procedure

1. The waste liquid roofing tar must be contained in its original container.
2. Package the containers in a cardboard box. **DO NOT** puncture or tamper with the containers. The weight of each box of containers must not weigh more than 10 kg.
3. Complete the Chemical Inventory Form (Appendix A) with Generator information and clearly identify all the material(s) in the box.
4. Send the completed inventory form to ESF for approval by campus mail or fax ((604) 827-5807). Contact the ESF technician (at (604) 822-6306 or (604) 822-1285) if you have any questions.
5. Secure and tape the box closed to prevent containers from spilling or falling out during transportation.
6. With a felt-tipped pen, write on top of each box the generator's name, department, and telephone number on the top of the box in large letters. Then tape an envelope with one copy of the coded inventory forms on top of one of the boxes.

Attachment

Appendix : **Chemical Inventory Form.**



Shop Waste Disposal Procedures – **Smoke Alarms**

Reference: **06.01.31.R01**

Date: **August 2005**

Scope

This procedure applies to smoke alarms. Disposal of these items is facilitated through the UBC Radiation Safety Office.

Purpose

This procedure specifies the method for proper disposal of unusable smoke alarms containing a radiation source.

Background

Smoke alarms contain a radioactive component. Unlike other hazardous materials, radioisotopes are invulnerable to degradation by external chemical and physical processes. Dilution of these atoms into the air, landfills, or bodies of water simply moves them from one location to another. The only mechanism whereby radioisotopes can be eliminated from the environment is by radioactive decay. Therefore, in order to minimize the environmental impact of radioisotope disposal, it is incumbent on all users of radioactive materials to strictly follow the guidelines for radioactive waste management set forth in this procedure.

Only the radioactive component of the smoke alarms is environmentally hazardous. These components must be disposed in accordance with the BC Environmental Management Act, and Hazardous Waste Regulation.

Procedure

1. Package the smoke alarms in a cardboard box. **DO NOT** puncture or tamper with the components. The weight of each box of components must not weigh more than 10 kg.
2. Contact the UBC Radiation Safety Office at (604) 822-7052 if you have any questions.
3. Secure and tape the box closed to prevent containers from spilling or falling out during transportation.
4. With a felt-tipped pen, write on top of each box the generator's name, department, and telephone number on the top of the box in large letters.
5. Transport the box of smoke alarms to the UBC Radiation Safety office.

Attachment