HAZARDOUS WASTE GENERATOR PROCEDURE

APPROVAL:

Signature on file  
__________________________  3/3/2020  
Chair, Institution Safety Committee  
Date

Signature on file  
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Director of Environmental, Health & Safety  
Date
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1.0 PURPOSE AND SCOPE

1.1 Purpose:

This Procedure describes the hazardous waste management procedures that must be followed by all Woods Hole Oceanographic Institution (WHOI) personnel (staff, students, contractors, visitors, collaborators, etc) to ensure compliance with Federal and State hazardous waste management regulations.

1.2 Scope:

This Procedure applies to all WHOI personnel and shore-side activities that generate hazardous waste. This Procedure does not apply to marine operations that are addressed by applicable U.S. Coast Guard regulations.

2.0 ROLES AND RESPONSIBILITIES

2.1 Lab/Area Supervisor (a.k.a., SAA supervisor/contact or waste generator):

2.1.1 As necessary, designate an appropriate location within your work area as the Satellite Accumulation Area (SAA).

2.1.2 Manage the hazardous waste in accordance with Federal and State regulations, including:
   - Proper classification of hazardous waste,
   - Container management: selection, marking, and closure,
   - Submitting a waste pickup request when the waste accumulation container is full, and
   - Inspecting your SAAs weekly and ensuring compliance (see Appendix B).

2.2 Waste Contractor (reports to the EH&S Office):

2.2.1 Periodically assess the SAAs, document the results, help resolve problems, and facilitate compliance with hazardous regulations. The SAA assessment frequency will be determined by the EH&S Director.

2.2.2 Provide waste management assistance to waste generators and EH&S Office. Maintain program records and waste tracking systems.

2.2.3 Collect waste from SAAs and transfer to main accumulation areas (MAAs). Inspect and maintain MAAs as per regulations. Supply SAAs and MAAs with required materials, equipment, and containers.

2.3 Environmental Health & Safety (EH&S) Office:

2.3.1 Provide training to the hazardous waste generators on this Procedure.

2.3.2 As necessary or requested, assist the waste contractor and waste generators with unresolved issues, concerns, and questions.

2.3.3 Maintain this procedure and ensure it addresses applicable standards and regulations. Ensure all program records are maintained.
3.0 DEFINITIONS AND TRAINING

3.1 Definitions

**Accumulation:** The holding of hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed of, or stored elsewhere.

**Acutely Hazardous Waste:** Is a waste listed in 310 CMR 30.136 or a waste with EPA Hazardous Waste No. F020, F021, F022, F023, F026, or F027 listed in 310 CMR 30.131. Refer to the EH&S website under the Waste Management tab for the listing of acutely hazardous wastes.

**Corrosive Waste:** As defined in 310 CMR 10.123, corrosive waste is waste material that is aqueous and has a pH less than or equal to 2.0 or a pH greater than or equal to 12.5. It is a liquid and corrodes steel (Type SAE 1020) at a rate greater than 6.35mm per year at 55°C.

**Empty Container:** As defined in 310 CMR 30.106(2).
(a) A container or an inner liner removed from a lined container that has held any hazardous material or hazardous waste, except a waste that is a compressed gas or that is listed or otherwise described in 310 CMR 30.136, is empty if:
   1. all wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container, e.g., pouring, pumping, and aspirating; and
   2. no more than 2.5 centimeters (one inch) of residue remain on the bottom of the container or inner liner; or
   3. no more than 3% by weight of the total capacity of the container remains in the container or inner liner if the container is less than or equal to 119 gallons in size, or
   4. no more than 0.3% by weight of the total capacity of the container remains in the container or inner liner if the container is greater than 119 gallons in size.
(b) A container that has held a hazardous material or hazardous waste that is a compressed gas is empty when the pressure in the container is substantially at atmospheric pressure.
(c) A container or inner liner removed from a lined container that has held a hazardous waste listed or otherwise described in 310 CMR 30.136 (acutely hazardous waste) is empty if:
   1. the container or inner liner has been triple rinsed using a solvent capable of removing the commercial chemical product or manufacturing intermediate; or
   2. the container or inner liner has been cleaned by another method that has been shown in the scientific literature, or by tests conducted by the generator, to achieve equivalent removal; or,
   3. in the case of a lined container, the inner liner that prevented contact of the commercial chemical product or manufacturing intermediate with the container has been removed.
(d) A paper bag which:
   1. has contained a hazardous material or a hazardous waste, except for a waste listed in 310 CMR 30.136, is empty if all wastes have been removed that can be removed by shaking or using equivalent means to ensure that all wastes have been removed to the extent feasible.
   2. has contained a hazardous material or a hazardous waste listed in 310 CMR 30.136 shall never be deemed an "empty container".

**Hazardous Spill:** A hazardous chemical spill requiring assistance from the emergency response team or outside responders.

**Hazardous Waste:** Any chemical material, that is spent, expired or cannot be used for its intended use and is one or more of the following: ignitable, corrosive, reactive and/or toxic.
Ignitable Waste: It is a liquid, other than an aqueous solution containing less than 24% alcohol by volume, and has a flash point of less than 60°C, which is approximately 140°F, as determined by one of the methods prescribed in 310 CMR 30.152.

Incidental Spills: Any small or low hazard spill that does not pose a threat to human health or the environment. Incidental Spills are spills that the lab/shop personnel feel confident in their knowledge of the material and have the ability, and equipment to safely and easily clean up the spill utilizing personal protective equipment that they commonly employ in their everyday work.

Large Quantity Generator: No limit with on-site accumulation quantity or monthly accumulation rates. The on-site accumulation time limit for hazardous waste is 90 days. Even-year biennial reports are required. The Quissett Campus is a Large Quantity Generator.

Reactive Waste: As defined in 310 CMR 30.124, a waste is a reactive hazardous waste if a representative sample of the waste has any of the following properties:

- It is normally unstable and readily undergoes violent changes without detonating.
- It reacts violently with water.
- It forms potentially explosive mixtures with water.
- When mixed with water, it generates toxic gases, vapors or fumes in a quantity sufficient to present a danger to public health, safety or welfare, or to the environment.
- It is a cyanide or sulfide bearing waste which, when exposed to a pH of between 2 and 12.5, can generate toxic gases, vapors, or fumes in a quantity sufficient to present a danger to public health, safety or welfare, or to the environment.
- It is capable of detonation or explosive reaction if it is subjected to a strong ignition source or if heated under confinement.
- It is readily capable of detonation or explosive decomposition or reaction at a standard temperature and pressure.
- It is a forbidden explosive, a Class A or B explosive, as defined by DOT in 49 CFR 173.

Satellite Accumulation Area (SAA): Accumulation areas that are at or near the point of generation of hazardous waste and are under the control of the operator of the process generating the waste.

Satellite Marking: The labeling placed clearly and visibly on each satellite container upon the first addition of a waste chemical. It must include the following:

- the words, "HAZARDOUS WASTE"
- the name of the waste in English (e.g., "Waste Acetone")
- the hazard of the waste (e.g., ignitable)

Secondary Containment: Any device utilized to contain a release of hazardous waste if the primary container fails, e.g. plastic basins.

Small Quantity Generator: Generates less than 1,000 kg (2,200 lbs) of hazardous waste and less than 1 kg (2.2 lbs) of acutely hazardous waste in a calendar month per EPA ID Number. The on-site accumulation quantity at any given time is less than 6,000 kg (13,200 lbs). The on-site accumulation time limit is 180 days. The Village Campus and Iselin Dock Facility are Small Quantity Generators.

Solid Waste: Any discarded material that is not excluded by 40 CFR 261.4(a) or that is not excluded by variance granted under 40 CFR 260.30 and 260.31.
**Toxic Waste:** A waste is toxic if an extract from a representative sample contains a material at a concentration equal to or greater than the value given in Table 1 under 310 CMR 30.125 for that material.

**Treatment:** Any method, technique, or process, including neutralization, designed to change the physical, chemical or biological character or composition of any hazardous waste so as to neutralize such waste, or as to recover energy or material resources from the waste, or as to render such waste non-hazardous, or less hazardous; safer to transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.

**Working Container:** Is a two gallon or less container which can be used in conjunction with the SAA containers to manage waste materials during the course of one shift. Container must be labeled “Hazardous Waste” and have wording describing the nature and hazard of the waste and remained closed except when in use. Container must be emptied into the SAA container when full or at the end of the shift, whichever comes first and be under the control of key staff throughout the entire shift.

### 3.2 Training

All WHOI personnel involved in handling, generating or managing of hazardous waste at satellite accumulation areas shall receive initial and annual refresher training on this Procedure. This training is provided by the EH&S Office and the training schedule is located on-line (http://ehs.whoi.edu).

### 4.0 HAZARDOUS WASTE ACCUMULATION

#### 4.1 Designation of the Satellite Accumulation Area (SAA):

4.1.1 Each Lab/Area Supervisor will designate an area, at or near the point where hazardous waste is generated, as a Satellite Accumulation Area (SAA). The area should be large enough to accommodate the waste types generated in that area. It may be possible and advisable to use an SAA that is already established. SAAs do not need to be established for infrequent lab or shop ‘clean-outs’; however, these activities must be coordinated with the EH&S Office (x2242, wastepickup@whoi.edu).

4.1.2 The SAA should be located where it will not pose an environmental or safety issue. Whenever possible and especially for volatile and reactive chemicals, a portion of a lab hood is the preferred location of the SAA.

4.1.3 The Lab/Area Supervisor will designate the SAA by using a WHOI approved sign (see Appendix A), SAA weekly checklist (see Appendix B), and yellow and black tape (see Appendix C). These signs and tape are available through the EH&S Office (send email to wastepickup@whoi.edu).

4.1.4 The colored tape should be used to outline the boundaries of the SAA. The sign should be directly above the SAA and the SAA Procedures should be adjacent to the SAA.

4.1.5 The surface of the SAA must be free of cracks and gaps and must be impervious to contain leaks and spills.

4.1.6 If needed, the Lab/Area Supervisor can ask for assistance from the waste contractor in establishing an SAA.

4.1.7 The phone adjacent to the SAA needs to have emergency information posted or readily available.
4.2 Classification of Waste:

Any chemical material, that is spent, expired or cannot be used for its intended use and is one or more of the following: ignitable, corrosive, reactive and/or toxic is a hazardous waste.

- It is the waste generators responsibility to determine if a waste is hazardous.
- In determining if the waste item is a hazardous waste, the generator can use either process knowledge or testing.
- A Safety Data Sheet (SDS) may be utilized to determine if the material is a hazardous waste.
- If the generator is unable to classify the waste as hazardous or non-hazardous, they should contact the EH&S Office for assistance (wastepickup@whoi.edu or x2242).
- If waste material is determined to be hazardous waste, the waste must be properly labeled and managed in accordance with this Procedure.

4.3 Disposal to Sink/Sewer

- No organic solvents, toxic chemicals, or hazardous waste should be disposed in any sink, sewer, drain, or by any other non-approved disposal pathway. When cleaning glassware with organic solvents, the solvents shall be collected, handled and managed as a hazardous waste.
- Only small quantities of non-hazardous seawater or equivalent sodium solution (< 1 liter per day per lab) may be sink-disposed at Quissett and Village Campuses. See section 4.3.4 for seawater water disposal criteria.
- Only certain corrosive chemicals may be neutralized (pH 6-9) and sink disposed, as described below.
- If you have any questions about sink disposal or how to classify your waste, please contact the EH&S Office, x2242, or email wastepickup@whoi.edu.

4.3.1 Quissett Campus

All lab sinks at the Quissett Campus are connected to the WHOI Quissett Process Wastewater Treatment Plant. The treatment plant discharges the process wastewater directly to a Sole Source Aquifer and WHOI is responsible for compliance with the effluent standards. At 2-3 gallons per minute, the process wastewater flow rate is relatively low and the groundwater discharge is monitored and regulated by the Massachusetts Department of Environmental Protection (DEP). DEP forbids the sink-disposal of hazardous waste and has established extremely low groundwater discharge limits for a variety of drinking water contaminants. Because sodium is included in this list of contaminants, sink disposal of > 1 liter per day per lab could result in violation of DEP regulations.

4.3.2 Village Campus

All lab sinks in the Village Campus are connected to the Falmouth Municipal Wastewater Treatment Plant System and disposal of any chemicals down the sink must comply with the Town of Falmouth Sewer By-Law Regulations. A summary of the Falmouth Sewer By-Law Regulations is given below. Additionally, any waste which meets the definition of a hazardous waste cannot be sink disposed and must be containerized, handled and properly managed as a hazardous waste.

Town of Falmouth Sewer By-Law Regulations:
- No gasoline, benzene, naphtha, fuel oil, or other flammable or explosive liquid, solid or gas
- No wastes containing toxic or poisonous solids, liquids or gases
- No solids or viscous substances capable of causing obstructions
• No wastes with chlorides in concentration greater than 500 mg/L
• No acid pickling or plating waste (neutralized or not)
• No fats, waxes, greases or oils
• No wastes containing iron, chromium, copper, zinc, or similarly toxic substances.
• No wastes containing phenols or other taste or odor producing substances
• The waste solution must have a pH between 6.0 and 9.0 and be less than 150°F.
• No materials that will cause excessive discoloration.

4.3.3 Neutralization of Acidic or Basic Wastes

Certain acids and bases can be neutralized and sink disposed if the pH is 6-9 and they do not contain other hazardous wastes, by following the procedural steps listed below.

Labs on the Quissett Campus can use the automated neutralization system for certain acids by following these instructions: http://ehs.whoi.edu/ehs/envprotection/acidNeutralization.pdf.

Exposure Controls and Safety Precautions:
• Ensure emergency wash water is readily available before starting neutralization process.
• Do not neutralize the following: chromic acid, perchloric acid, hydrofluoric acid, and large quantities of concentrated acids.
• Read the Safety Data Sheet (SDS).
• For safety reasons, no wastes should be neutralized or mixed together without prior knowledge of the composition of the substance.
• Work in a lab hood or area with adequate ventilation.
• Protect exposed body parts with personal protective equipment, such as apron, lab coat (or protective suit), closed toe shoes, appropriate gloves, face shield, and goggles.
• Extreme heat can be produced by this exothermic reaction. Therefore, it should be performed very slowly, using diluted solutions, and with small quantities. As necessary, the temperature should be monitored and an ice bath should be used.

Equipment Needed for Neutralizing Acids and Bases:
• Potassium hydroxide for neutralization of an acid or a diluted inorganic acid for neutralization of a base. Avoid neutralizing acids with sodium carbonate, sodium bicarbonate, or sodium hydroxide, which can impact our sodium discharge limit.
• Use an appropriate container to safely contain the neutralization process.
• Use a reliable and reasonably accurate method for measuring the pH, such as pH indicator strips. Note: pH must be 6-9 before sink disposal.

4.3.4 Seawater (Salt Water) Disposal

Seawater, greater than the de minimus level of 1 liter per day, that is determined to be free of hazardous materials (as described above) and does not meet the definition of hazardous waste can only be disposed in floor trench drains at the following locations:
  o Redfield Aquarium Room - room 1-30
  o Shore Laboratory - main lab
  o Environmental Systems Laboratory - main lab

Contact Distribution Services (ext. 2355) with any questions about the location of the floor trench drains or for assistance with non-hazardous seawater disposal.
4.4 Labeling / Marking

4.4.1 All hazardous wastes must be properly labeled and marked. WHOI has developed specific hazardous waste tags to be used in identifying and labeling hazardous waste (see Appendix D).

4.4.2 Hazardous Waste tags need to be securely attached to each container of hazardous waste.

4.4.3 All items on the tags are to be filled in completely and clearly. The date is to be filled in only when the container of hazardous waste is full and ready for pickup.

Contents: The generator shall identify the chemicals present in the waste. If the waste is a mixture, the generator should give percentages of each constituent in the waste. Chemical name must be spelled out (no formulas or abbreviations).

Hazard: The generator needs to identify one or more of the hazard characteristics that apply to the waste.

Date: Record the date when the container is considered full and ready for pickup.

4.5 Management of Containers

4.5.1 Only one collection container per hazardous waste stream type is allowed in each SAA. There may be no more than 55 gallons of hazardous waste per waste stream type and no more than 1 quart of (any/all) acutely hazardous waste in the SAA.

4.5.2 Containers holding hazardous waste must be in good condition. If a container is not in good condition, the waste needs to be transferred to a suitable container.

4.5.3 Containers holding hazardous waste must have no visible waste residue on the outside of the container. If the containers have visible waste on the outside, then the container needs to be cleaned and the waste residue removed.

4.5.4 Hazardous waste containers and secondary containment bins/trays need to be compatible with the waste that they contain (e.g., no acids in metal containers). If the containers are not compatible with the waste, then the waste needs to be transferred to a new container which is compatible with the waste.

4.5.5 Containers holding hazardous waste must always be closed tightly during storage except when waste is being added to or removed from the container. Funnels must be removed when the generator is finished adding or removing waste. Funnels with leak-tight closeable lids may be acceptable and are subject to EH&S approval.

4.5.6 Containers should be spaced so that each container can be easily inspected to ensure compliance with the regulations and the label easily read.

4.5.7 Hazardous waste containers must be placed in secondary containment. If needed, the EH&S Office can provide the generator with bins/trays to be utilized in the SAA as secondary containment.

4.5.8 Working Containers must be closed except when in use and emptied into the appropriate SAA container once full or at the end of each shift, whichever comes first. Working Containers must be marked with the following: “Hazardous Waste”, waste constituent, hazard, and “working container”.
4.6 **SAA Inspections & Assessments:**

4.6.1 At least weekly, each SAA shall be inspected by the SAA supervisor/contact by using the SAA checklist (Appendix B). This weekly inspection does not need to be documented.

4.6.2 Periodically, the waste contractor will assess the SAA using the SAA checklist (Appendix B).

4.6.3 The waste contractor shall communicate any problems found in the SAA with the SAA supervisor/contact. As necessary, the waste contractor will work with the SAA supervisor/contact to correct any problems in the SAA and bring the SAA into compliance with the regulations.

4.6.4 If the waste contractor cannot correct the issues at the SAA, they should inform the EH&S Director.

4.6.5 The waste contractor will identify any acutely hazardous waste being accumulated in the SAA and ensure it is being properly managed.

4.7 **Pickup Request:**

4.7.1 Once a container of Hazardous Waste is full, the generator must date the Hazardous Waste Tag on the container and submit a Waste Pickup Notification Form using the online form found at [http://ehs.whoi.edu](http://ehs.whoi.edu) (Appendix G) to alert the waste contractor that a pickup is required. If the online form does not work, send the above information to wastepickup@whoi.edu.

4.7.2 If necessary, a generator may request the removal of a container of hazardous waste prior to the container being full.

4.7.3 All applicable fields of the Waste Pickup Notification Form must be completed including:

- Name of person requesting waste to be picked up.
- Building, room, and physical location of waste in the room (if there is no established SAA).
- Name of waste - identify the full chemical name of the waste (no formulas or abbreviations). For mixtures identify each constituent of the waste.
- Number and size of containers - actual size of the container holding the waste.

4.8 **Emergency Actions:**

Each Principal Investigator or Area Supervisor or their designee will determine the definitions of an incidental spill versus a hazardous spill for their areas and hazardous chemicals. The Principal Investigator or Area Supervisor shall communicate the definitions and the requirements for incidental and hazardous spills to affected personnel in that lab/area.

4.8.1 **Incidental Chemical Spills**

Incidental spills in the lab/area SAA may be cleaned by lab/area personnel if they feel confident in their knowledge of the material and have the ability, knowledge and equipment to safely and easily accomplish this task. Spills/releases of hazardous chemicals that do not meet the definition of an incidental spill shall be considered hazardous spills (see step 4.8.2).
Before using any chemical, read the Safety Data Sheet (SDS) to familiarize yourself with the hazards, spill procedures and personal protective equipment that is required. In the event of a spill, consult the SDS again to ensure that you and others follow the recommended cleanup procedure.

Basic spill cleanup steps:
• If safe to do so, attend to any person that has been exposed to the material, utilizing emergency eye washes, showers, and call x2911 if emergency medical assistance is required.
• Warn others in the area to avoid the spill zone.
• If the spill involves a flammable material, shut off all potential ignition sources such as ovens, appliances, burners etc. Lab hood ventilation should be maintained to help remove the flammable vapors.
• Green, wall-mounted spill kits are available in laboratory buildings.
• After the cleanup of the incidental spill, the generator will need to classify the contaminated material used in the clean-up and manage the contaminated materials as hazardous waste.

4.8.2 Hazardous Spills

A hazardous chemical spill requires assistance from the WHOI emergency response team or outside emergency responders. If a hazardous spill occurs, follow these steps:
• Report the emergency by calling x2911 or 508-289-2911 from an external phone,
• Warn others in the area,
• Evacuate to a safe location, and
• If it is safe to do so and you are comfortable with the situation, attend to any person that has been exposed to the hazardous material.
• Refer to the WHOI Comprehensive Emergency Management Plan for additional information (http://ehs.whoi.edu/ehs).

4.9 Protocols

The High Performance Liquid Chromatography (HPLC) waste and paint waste protocols are listed below. As additional protocols are developed, they will be added to the EH&S web site or this Procedure.

4.9.1 The HPLC waste protocol is listed in Appendix E.

4.9.2 The paint waste protocol is listed in Appendix F and includes the following waste streams:
• Disposal Protocol for Paint, Epoxy, Thinners and Paint Debris (Flash Point < 140°F)
• Disposal Protocol for Paint, Epoxy, Thinners, and Paint Debris (Flash Point > 140°F)
• Flammable Paint Aerosol Cans and Rust Inhibitor

5.0 WASTE MINIMIZATION

Hazardous waste minimization must be an integral part of working with hazardous chemicals. There are many good reasons to minimize the generation of hazardous waste, including: 1) pollution prevention, 2) cost savings, 3) increased safety, and 4) regulatory compliance. Examples of hazardous waste minimization:
• Minimize both the volume and weight of hazardous waste.
• Hazardous waste generators on the Quissett Campus are encouraged to use the automated acid neutralization system for certain acids: http://ehs.whoi.edu/ehs/envprotection/acidNeutralization.pdf
• Continually identify, implement, and integrate waste minimization methods into all activities that involve hazardous chemicals. Include waste minimization in your research protocols.
• Where possible, substitute non-hazardous chemicals into work processes.
• Avoid mixing hazardous waste and non-hazardous waste by recognizing the hazardous characteristics of the chemicals that you are using (check container label and SDS).
• Minimize disposal of unused chemicals by ordering the minimum quantity of chemicals necessary and implement just-in-time hazardous chemical inventories. For example, try to use your chemicals within 1 year and employ a first-in/first-out process.
• If possible, minimize the hazardous sample size that you prepare and analyze.
• Use equipment that can be easily decontaminated, when feasible.
• Cut out the contaminated portions of any absorbent materials used and dispose them separately from the non-hazardous (uncontaminated) portions.
• Share ideas concerning waste minimization with your associates and the EH&S Office, so that others may benefit.
• Use WHOI’s on-line chemical inventory system for sharing or obtaining excess chemicals.
APPENDIX A

SATELLITE ACCUMULATION AREA SIGN

This sign shall be posted above or near the Satellite Accumulation Area.
APPENDIX B – Satellite Accumulation Area (SAA) Weekly Checklist

Post checklist near Satellite Accumulation Area and inspect weekly against the following:

- SAA is under the control of the generator for the process that generates the waste.
- SAA is at or near the point of waste generation.
- Only one hazardous waste collection container per waste stream type in SAA.
- Less than < 55 gallons of hazardous waste per waste stream type and less then <1 quart of P-listed acutely hazardous waste in SAA.
- When a container is full, it is dated and an on-line pickup request form is submitted http://ehs.whoi.edu/.
- SAA is inspected weekly by generator of hazardous waste. Containers in SAA are spaced and configured such that they can be easily inspected.
- Incompatible wastes are segregated or isolated.
- Each container is properly marked:
  - The words “Hazardous Waste”
  - The full chemical name (e.g., Methanol, Hydrochloric Acid) - no abbreviations
  - The hazard associated with those chemicals (e.g., ignitable, toxic, corrosive, flammable)
- Containers are compatible with waste and are in secondary containment bins/trays.
- Surface underlying the containers must be impervious to leaks, e.g., do not put SAA in a sink.
- Containers must be tightly closed during storage, e.g., cannot leave open containers with funnels.
- Containers must be safely handled to prevent damage and spills.
- SAA sign and this checklist must be posted at the SAA.
- Yellow and black marking tape must identify the SAA dimensions. Only waste collection containers are within the SAA boundaries.
- Contact EH&S Office for help: wastepickup@whoi.edu, x2242, x3347.
APPENDIX C

SATELLITE ACCUMULATION AREA MARKING TAPE

This tape is to be used to define the dimensions of the Satellite Accumulation Area.
APPENDIX D

HAZARDOUS WASTE CONTAINER TAG

This (red) tag is to be filled out and attached to each container of hazardous waste.
APPENDIX E

HPLC Waste Collection Protocol

Purpose: This protocol describes how hazardous waste that is generated during the HPLC process must be managed.

Proper waste container and connections:

• Container shall be kept closed during storage.
• The container is attached to the outlet piping of the HPLC machine to collect the waste chemicals.
  o The interface of the collection piping/tube and collection container must be maintained with a tight seal, such that evaporation of waste is avoided.
• Waste container is in secondary containment.
• A hazardous waste tag shall be fixed to the bottle with all chemical constituents listed (no formulas or abbreviations) and all applicable hazards checked on the tag.

Collection procedure:

• The generator (lab personnel) shall monitor the collection of this waste and request a waste pickup before the containers is full. NOTE: the waste contractor is here on Tuesday and Wednesday only.
• The waste contractor will replace the full container with an empty container and attach a new red waste tag.
• If waste contractor is not available to switch out the full container, lab personnel shall follow these steps:
  o The full container must be tightly closed and placed in a SAA. Mark the date on the red waste tag of the full container.
  o Send a pickup request to wastepickup@whoi.edu.
  o Attach a red waste tag to a new container and properly connect it to the HPLC machine.

Please notify the EH&S Office (x2242 or wastepickup@whoi.edu) with any questions.
APPENDIX F

Disposal Protocol for Paint, Epoxy, Thinners, and Paint Debris with a Flash Point at or Below 140°F

Purpose: This protocol describes the proper disposal of the flammable paint products and thinners listed below or products that are chemically similar to those listed below. Paint products and thinners not listed below or that are not chemically similar must be assessed for proper disposal methods by the EH&S Office prior to disposal (x2242 or wastepickup@whoi.edu).

Ameron Bar Rust DV235 Converter, Amercoat 78 Black Resin and Cure, Amercoat 335 Cure, Amercoat 335 Cure and Resin mix, Amercoat 385 Cure and Resins, Amershield Cure and Resins, Amerlock 400 Cure and Resins, Clean Air Lacquer Thinner, Amercoat 911 Thinner; Amercoat 65 ThinnerDeVoe Bar-Ox 450, Bar Rust 235 (oxide red base), Bar Rust 235 (off-white base), Pre-Prime 167 Converter, Devoe T-10 and T-40 Thinner
Dimetcote 3 Liquid
Durabak Protective Coating
Interlux 202 Fiberglass Solvent Wash, Interprotect 2001E Reactor
E Paint No-Foul Paint SN-1, ZDF (now EP21), and Paint Thinner EP13
Painter’s Clean Air Lacquer Thinner, Rapid Cure Epoxy Primer 2000E
Rust-Oleum Allis Chalmers Orange, Low VOC Industrial Enamel, Protective Enamel Oil Base, Protective Coating (Alkyd Resin High Gloss), Thinner #633

Steps:

- Only mix enough two part paint to do the job - minimize leftover paint or epoxy.
- The paint process is defined as mixing paints, cleaning the object to be painted, painting the object, and cleanup of materials.
- Rags, rollers, and brushes which do not produce at least one drop of paint or solvent when rung or squeezed out or are dry by the time the process is finished, may be disposed as solid waste (non-hazardous). Deliberate drying of these waste items is considered treatment and is not allowed.
- Rags, rollers, and brushes which produce at least one drop of paint or solvent when rung or squeezed out must be collected as hazardous waste in a tightly closed container and properly labeled as ignitable waste.
- Solvent or paint containers that have less than 3% of the total container volume left are considered empty and may be disposed as solid waste, e.g., a 1 liter container must have less than 30 ml of residue remaining.
- Paint components, mixed paint, or solvent containers that are dry by the end of the painting process may be disposed as solid waste.
- Unused, unwanted paint products and solvents must be disposed as hazardous waste (ignitable). Keep container tightly closed and label as hazardous waste.
APPENDIX F - Continued

Disposal Protocol for Paint, Epoxy, Thinners, and Paint Debris with a Flash Point Above 140°F

**Purpose:** This protocol discusses the proper disposal of the paint products and thinners listed below or products that are chemically similar to those listed below. These materials may be disposed as non-regulated wastes. Paint products and thinners not listed below or that are not chemically similar must be assessed for proper disposal methods by the EH&S Office prior to disposal (x2242 or wastepickup@whoi.edu).

- Ameron PSX 700 Cure and Resins, Amercoat 335 Resin, Amercoat 220
- BINS Bulls Eye 1-2-3 Primer Sealer
- DeVoe Pre-Prime-167 Clear Base
- Dimetcoat 3LT Powder
- Eccobond 45 Clear Epoxy Resin

**Steps:**

- The unused or unwanted product may be dried and disposed as solid waste (regular trash). A drying agent or absorbent material may need to be added to the container to absorb the free flowing liquid before disposing.
- Only mix enough two part paint to do the job - minimize leftover paint and epoxy.
- The paint process is defined as mixing paints, cleaning the object to be painted, painting the object, and cleanup of materials.
- Rags, rollers, and brushes with only the above products on them may be disposed as solid waste.
Disposal of Aerosol Cans with Flammable Products

**Purpose:** This protocol discusses the proper disposal of aerosol cans with flammable products, e.g., Krylon paint spray, Rust-Oleum paint spray, WD-40, Sili Kroil, and other similar aerosol can products.

**Steps:**

- Empty aerosol cans should be disposed as regular trash. Empty aerosol cans should not be disposed as hazardous waste.
- Cans with unused or unwanted product remaining (i.e., estimated to be greater than 3% by volume) must be collected as hazardous waste by following the steps below:
  - Do not puncture the cans.
  - The container must be labeled with a red hazardous waste tag. Mark ignitable under the hazards classification.
  - The collection container must have a lid that is kept closed when not in use.
Disposal of Corrosive Rust Inhibitors

Purpose: This protocol describes the proper disposal of rust inhibitors, such as GalvaPrep 5 or chemically similar products. Rust inhibitors different than GalvaPrep 5 must be assessed for proper disposal methods by the EH&S Office prior to disposal (x2242 or wastepickup@whoi.edu).

Steps:

- Unused or unwanted product must be disposed as hazardous waste and collected in tightly closed containers and properly labeled as corrosive waste.
- Solvent or paint containers that have less than 3% of the total container volume of product remaining are considered empty and may be disposed of as solid waste (i.e., a 1 liter container must have less than 30 ml of residue remaining).
- The paint process is defined as mixing paints, cleaning the object to be painted, painting the object, and cleanup of materials.
- Rags, rollers, and brushes which do not produce at least one drop of paint or solvent when rung or squeezed out or are dry by the time the process is finished, may be disposed as solid waste (non-hazardous).
- Rags, brushes, rollers, and containers that are dry by the end of the painting process may be disposed as solid waste. Deliberate drying of this debris is considered treatment and is not allowed.
- Rags, rollers, and brushes which produce at least one drop of paint or solvent when rung or squeezed out must be collected as hazardous waste in a tightly closed container and properly labeled as corrosive waste.
APPENDIX G

WHOI Waste Pickup Request - Online Form

This form, found at http://ehs.whoi.edu, should be filled out online and sent electronically.

If the online form does not work, please send the required information to wastepickup@whoi.edu.

To request a hazardous waste pickup, please complete this form and click on the send button at the bottom.

<table>
<thead>
<tr>
<th>Requestor Information</th>
</tr>
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<tbody>
<tr>
<td>Name of requestor:</td>
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<td>Phone extension:</td>
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<tr>
<td>Room:</td>
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<td>Location in room:</td>
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<table>
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<tr>
<td>Size of Container(s)</td>
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<tr>
<td>(Kg or Liters)</td>
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Comments:

Send  Reset