



Hazardous Waste Management Program

- 1) Purpose: This program is designed to manage hazardous waste produced by the university and hospital. Environmental Health and Safety – Safety and Risk Management (EHS-SRM) administers this program to handle and dispose of waste according to regulatory requirements, to protect student and employee health, and to protect the environment. Hazardous waste disposal methods employed by EHS-SRM meet or exceed regulatory requirements established by the Virginia Department of Environmental Quality (DEQ) and the U.S. Environmental Protection Agency (EPA). The information in this document details VCU's hazardous waste management program.
- 2) Scope / Applicability: This program applies to all laboratory personnel, principal investigators, core facilities, and any other departments (art studios, Facilities shops, etc.) that produce chemical or hazardous waste as a function of routine work duties. Anyone who produces hazardous waste is called a generator and the place (room, lab, etc.) where this hazardous waste is generated is called the "point of generation". The responsibility to ensure that all hazardous wastes are adequately identified before being offered to EHS-SRM for disposal rests with the generator (PI/Manager/User).
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4. Definitions:



- Acid: An inorganic or organic compound that (1) reacts with a base to form a salt; gives rise to an excess of hydrogen ions in solution. Examples of common laboratory acids include: acetic acid, hydrochloric acid, and sulfuric acid.
- Base: A compound that can ionize in solution and form hydroxide ions. Examples of "basic" compounds common in laboratories include: potassium hydroxide, sodium chloride, and sodium hydroxide.
- Combustible Liquid: Any liquid having a flashpoint at or above 100° F and below 200° F. E.
- Corrosive: Aqueous waste that has a pH less than or equal to 2.0 or greater than or equal to 12.5.
- Flashpoint: The minimum temperature at which a liquid gives off flammable vapors which when in contact with spark or flame will ignite.
- Generator: Any person or entity whose acts or processes produce hazardous waste as identified or listed in 40 CFR Part 261.
- Hazardous Waste: Environmental Protection Agency (EPA) regulations classify a waste as hazardous by either specifically including it on one of four lists or by defining four characteristics that the generator can use to determine whether a waste is hazardous. The four lists containing hazardous materials and definitions of hazardous materials are found in 40 CFR Part 261, Subpart D:
 - Hazardous Wastes from Nonspecific Sources: includes spent solvents common in laboratory operations and the still bottoms from the recovery of these solvents.
 - Hazardous Wastes from Specific Sources: includes primarily industrial wastes not usually associated with laboratory operations.
 - Discarded Commercial Chemical Products.
 - Discarded Off-Specification Chemicals, Containers, and Spill Residues.
 - If a waste is not listed, it is still a hazardous waste if it meets any of the following four characteristics; these characteristics



can be determined by specific tests cited applicable regulations (EPA maintains a list of "hazardous substances in 40 CFR Part 302):

- *Ignitability*
 - *Corrosivity*
 - *Reactivity*
 - *Toxicity*
-
- *Oxidizer: Any substance which readily yields oxygen to stimulate the combustion of organic matter. Examples include chlorate, permanganate, inorganic peroxides, and nitrates.*

 - *Reactive: Any waste that rapidly undergoes violent chemical change, may be explosive, or generate toxic fumes and vapors.*

 - *Satellite Accumulation Area (SAA): a location at or near any point of generation (laboratories, art studios, etc.) where hazardous waste is initially accumulated in containers before consolidating the waste at a designated accumulation area (90 or 180-day) or storage area. Each Laboratory is considered to be an SAA and there should be one defined and labeled area in each lab that is designated as the EHS-SRM pick up area. Shops, Art Studios and other areas where hazardous waste is generated MUST assign specific SAAs within the rooms at the point of generation.*

 - *Toxicity: Waste characteristic are harmful when ingested or absorbed. Toxic wastes present a concern as they may be able to leach from waste and pollute groundwater. The toxicity of a waste is determined by the Toxicity Characteristic Leaching Procedure (TCLP)*
5. Background: Laboratories are responsible for only 0.1-1.0% of the total hazardous waste that is generated in the United States according to EPA estimates, but this comparatively low volume of waste is characterized by an enormously greater chemical diversity than industrial waste streams. In a university and hospital system such as VCU/VCU Health Systems, chemicals are used in operations of diverse magnitude and complexity and thus amounts and varieties of the wastes vary accordingly. As a generator of hazardous waste, the VCU community has both moral and legal obligations to ensure hazardous waste is handled and disposed of in ways that pose minimal potential harm to health and the environment. Since most lab work which uses chemicals eventually produces hazardous waste, generators the VCU/VCU Health system community needs to ensure that the waste is handled, transported, and disposed of in ways that minimize both short-



term and long-term harm to health and the environment and complies with state and federal regulations. For these reasons, a hazardous waste management program has been established by EHS-SRM to fulfill the following objectives:

- a. Protecting the environment and preserving the health and safety of employees, students, patients, visitors, and the surrounding community.
 - b. Complying with applicable regulations.
 - c. Establishing laboratory practices for reducing types and quantities of hazardous wastes.
 - d. Educating the VCU community in the proper handling and disposal of hazardous wastes.
 - e. Demonstrate outstanding environmental stewardship to the surrounding community.
6. **SAA Procedures and Requirements:**

a. Hazardous Waste Container Labelling Requirements

- **While in the laboratory:** Apply a *Hazardous Waste Satellite Accumulation Area* label to all new waste bottles. The label(s) may be obtained by EHS. It should list the main components of waste stream (ex. Formaldehyde 10%, methanol 20%, etc.) and its general hazard class (Flammable, Corrosive w/pH, Reactive, Toxic). These labels are to remain affixed to the bottle while in the laboratory.





- **Once the waste bottle is full and ready for pick up from EHS-SRM:** Download and affix the following label:
 - **Four-liter or larger waste containers:** this [Chemical Waste Label](#) needs to be attached to the bottle (available on the SRM webpage). Make sure to include the following information:
 - Identify all chemical waste constituents by proper chemical name if the waste is a mixture of chemicals.
 - Indicate the approximate quantity or concentration of each constituent.
 - Avoid the use of obscure chemical acronyms and brand names on chemical waste identification tags. Fill out label completely with:
 - *Generator's name & department,*
 - *Building/Floor/Room*
 - *Date Filled (important) – this is the date when the full capacity of the waste container has been filled.*

- *Example:*



HAZARDOUS WASTE		
Generator's Name <u>Rodney LabRam</u>		
Department & Phone # <u>Chemistry 8-0000</u>		
Bldg./Floor/Room # <u>Temple / 1st / 1022</u>		
Date Filled <u>9/1/17</u>		
Chemical Name	&	volume or % & pH
<u>Xylene</u>		<u>98%</u>
<u>Hydrochloric Acid</u>		<u>1%</u>
<u>Giemsa Stain</u>		<u>1% pH 7.0</u>

Once container is full, place this completed label over Red SAA Waste Label for disposal.

- Smaller Chemical Waste Labels are available for smaller size containers. Example:

HAZARDOUS WASTE	
Generator's Name & Department <u>Rodney Lab Ram - Chemistry</u>	
Bldg./Floor/Room # <u>Temple/ 1st/ 1022</u> Date Filled <u>01/01/2016</u>	
Chemical Name(s)	Percent or Volume, pH
<u>Xylene</u>	<u>98%</u>
<u>Hydrochloric Acid</u>	<u>1%</u>
<u>Giemsa stain</u>	<u>1% pH 7.0</u>

b. Hazardous Waste Container Selection

- Hazardous Waste Container Selection
 - Hazardous waste containers must be compatible with the type of waste that will be stored in them. Ex: Do not use glass containers for Hydrofluoric acid (HF) waste as HF will dissolve glass.
 - Hazardous waste containers must be sturdy and uncompromised in any way.
 - If reusing a four-liter glass bottle for hazardous waste collection (i.e. old methanol or ethanol bottles), make sure that the original labels are either, removed, completely blacked out using a marker, or hidden behind the red hazardous waste labels. Additionally, make



sure that the bottles are completely empty or that any residual chemical will not react with the hazardous waste that will be stored in them.

c. SAA and Hazardous Waste Container Maintenance and Rules

- While in the laboratory or room where hazardous waste is generated, all hazardous waste containers must be kept according to the following rules:
 - Liquid Waste Containers must be kept inside a secondary containment system. This can be a polyethylene tray or bin.
 - Hazardous Waste Containers must be kept **closed** unless being actively used during the course of an experiment. This means that they may remain open during an experiment so long as the generator is in the room working on an experiment that is generating waste. All containers must remain closed at all other times, this includes unsupervised containers. A closed container is defined so that any bottle that may accidentally tip over, will not spill any of the contents.
 - Hazardous waste containers in the SAA **MUST** have the red "Hazardous Waste" label at all times as described in section 6.
 - Hazardous waste containers must be used to segregate incompatible waste streams. Incompatible chemicals must NOT be poured into one hazardous waste container (i.e. acids and bases, reactives with chemicals that can cause the release of toxic or flammable fumes, etc).
 - Hazardous Waste spills in an SAA must be cleaned immediately using the laboratory's emergency spill response kit, or by calling EHS-SRM for assistance. Please review the VCU EHS-SRM Contingency Plan for more information (also refer to section 6.d of this plan).
 - Always check to make sure that all hazardous waste containers are not compromised in any way (rusted, dented, cracked, etc.). If they are they must not be used.
 - Only fill up hazardous waste containers to 2/3 capacity. Allow room for gas expansion within the container if needed.



- Hazardous waste containers shall not be moved from one SAA to another SAA. The point of generation is defined by DEQ as the laboratory or room where the SAA is generated. Hazardous waste containers may be moved from a bench to a defined and labeled central collection point in the laboratory but shall not be moved to another lab or room.
- A maximum of 55 gallons of hazardous waste and up to **one quart** (0.95 Kg) of **acute hazardous waste** may be accumulated at each SAA.
 - Acute hazardous waste means hazardous wastes that meet the listing criteria in 40 CFR 261.11(2) and therefore are either listed in 40 CFR 261.31 with the assigned hazard code of (H) or are listed in 40 CFR 261.33(e):
 - **40 CFR 261.31**: Hazardous wastes from non-specific sources (F-listed wastes that contain the hazard code (H) only)
 - **40 CFR 261.33(e)**: Commercial chemical products, manufacturing chemical intermediates or off-specification commercial chemical products or manufacturing chemical intermediates that are listed and identified with hazard code (H). These are all chemicals listed on the EPA P-List Hazardous Waste.
 - Once SAAs reach maximum quantities (55 gallons or one quart of acute hazardous waste), the hazardous waste containers must be dated with the date that maximum quantity has been accumulated and must be removed from the SAA and brought to the 90-day storage facility within 3 days of that date.
 - The definition of three days is three consecutive days, not 3 business days.
 - If a container is full on Friday it must be removed no later than the following Monday.

d. Aisle Space Requirements for SAAs

- SAAs must maintain aisle space to allow the **unobstructed** movement of personnel to respond to an emergency, such as a spill, a fire, or



decontamination and to allow emergency equipment to be used without obstruction.

- SAAs aisle space shall be unobstructed by furniture, equipment, or any trip hazards that would impede access to the SAA in case of an emergency.
- Aisle spaces will be assessed during annual laboratory safety assessments in laboratories and during hazardous waste pick-ups in non-laboratory areas to ensure unobstructed access to the SAA.

e. Hazardous Waste Pickup Protocol

- To schedule a pickup appointment for your Hazardous Waste, complete the online scheduling request form by going to this [link](#) (it is recommended that the URL is bookmarked).
- All hazardous waste will ONLY be accepted in properly sealed disposable containers (reused 4 liter bottles, disposable carboys, etc.) that are properly labelled (see section 6-a).
 - Containers will not be returned to the users unless prior arrangements have been made.
 - All containers must be sealed with the appropriate lids. Any containers with non-fitting lids (even if wrapped with paraffin or tape) or with no lids will not be accepted.
- No more than 20L of hazardous waste will be picked up during one appointment unless prior arrangements have been made.
- For the MCV Campus: Hazardous waste will be picked on Tuesdays and Thursdays between the 6AM and 10AM.
- For the Monroe Park Campus: Hazardous waste will be picked up on Tuesdays and Thursdays between 10AM and 12PM.
- Make sure all containers ready to be picked up are labelled with either the white or yellow label (see section 6a). This indicates those containers that are ready for pick up.



f. Waste Minimization

- Waste minimization is a fundamental method of reducing escalating disposal costs and burden to the environment. There are a number of ways in which those who generate chemical wastes can help in the chemical waste minimization effort.
- Some useful waste minimization practices include the following:
 - Reduce the amount of chemicals ordered to decrease disposal of expired chemicals.
 - One important aspect of a chemical waste management program is implementing the “less is better” concept. This concept is directed at buying only quantities of materials that will be readily consumed.
 - Consolidate compatible chemical wastes.
 - Waste materials should be consolidated to the extent possible to reduce the number of containers to be disposed of.
 - CAUTION: Only chemicals that are compatible with each other may be consolidated into one container.
 - Do not abandon chemicals in laboratories dispose of chemical waste as needed.
 - University guidelines and procedures dictate that departing researchers are responsible for coordinating with their departments to remove and/or recycle any materials remaining in the laboratory.
 - Consult EHS if a new research project requires unusual or especially hazardous chemicals.
 - In order to ensure appropriate disposal of hazardous chemicals, EHS should conduct a review of these chemicals and how they may impact disposal procedures. Some chemicals require special disposal precautions and in order to minimize these wastes, a consultation with EHS would be beneficial.

g. Special Hazardous Waste



- a. Certain chemicals require additional costs to dispose due to their hazardous nature. EHS should be consulted prior to disposal and can provide an estimate for cost and to help coordinate the removal of such chemicals.

- b. The following chemical characteristics are examples of "Special Hazardous Waste":
 - Temperature sensitive chemicals:
 - These are chemicals that are unstable, generate pressure, or may otherwise become hazardous at room temperature following rapid temperature changes.

 - These compounds must be maintained by the investigator at a safe temperature until they are accepted by OEHS for disposal.

 - Temperature sensitive wastes should be managed separately and not mixed with other non-temperature sensitive chemicals.

 - Explosive or Highly Reactive chemicals
 - Containers of highly reactive wastes should not be commingled with other chemical waste containers. They must always be managed separately.

 - Pending removal from the work area, store explosive materials in appropriate noncombustible cushioning material. Do not place metal- sensitive compounds such as picric acid in metal containers or wrap containers in aluminum foil.

 - Certain chemicals such as dinitrophenol hydrazide, picric acid, and other polynitrocompounds may become shock sensitive and dangerous to handle if allowed to dry out.
 - Keep these chemicals in liquid form, do not allow them to dry out during storage.

 - If a container of this material has dried out, do not attempt to touch it, open it, or add water.

 - Peroxide-Forming Chemicals



- Alkali metals, ethers, olefins, dienes, and vinyl-halides are examples of chemicals that are prone to form peroxides when exposed to air over time.
- The peroxides are sensitive to heat, friction, impact, and light and are among the most hazardous chemicals encountered in the laboratory. They can be extremely shock sensitive and violently explosive, and as such, require special care when handling.
- Inventories of peroxide-forming chemicals must be minimized and managed carefully.
- Indicate the date of purchase or receipt and the date opened on all containers of these chemicals.
- Opened containers that are older than six months may need to be tested for peroxide formation. If a significant degree of peroxide formation is indicated by analytic results or by the formation of crystals in the container, the container shall not be moved until EHS coordinates with a consultant as to the disposal procedure.
- Degree of peroxide formation is greatly influenced by the passage of time. Researchers should only order sufficient quantities of peroxide-forming materials as can be reasonably consumed. Hence, control of peroxide formation is a function of effective inventory management. If, due to poor inventory management or laboratory hygiene practices, materials become highly hazardous, the generator (PI/department) will be liable for the cost of disposal.
- Dioxins
 - Chlorinated phenols and phenoxyacetic acids, chemicals derived from these compounds, and wastes containing any detectable concentration of chlorinated dibenzo-p-dioxins or chlorinated dibenzofurans are included in this group.
 - Wastes containing dioxins are difficult and costly to treat and dispose of due to regulatory restrictions and unavailability of permitted disposal facilities. Presently, there are no commercial facilities in the United States accepting dioxin waste.
 - Researchers contemplating the use of dioxin-containing compounds should also plan for the long-term storage costs associated with holding these wastes until disposal means become available.



- Compressed Gas Cylinders
 - Compressed gas cylinders (both empty and full) present unique problems as components of the chemical waste stream.
 - The disposal cost of empty gas cylinders far exceeds their acquisition costs. All laboratories using compressed gas cylinders should make arrangements with the supplier or vendor to return/recycle the cylinders when they are no longer needed.
 - EHS can coordinate the disposal of gas cylinders if they are no longer accepted by the vendors.

h. Emergency Procedures

- All emergency procedures regarding SAA and hazardous waste must follow the VCU Contingency Plan.

7. 90 Day Storage Facility Management and Maintenance

a. Weekly Facility Inspections

- Both 90-Day Storage Facilities must be inspected on a weekly basis by RCRA trained EHS-SRM personnel and shall include the following:
 - All weekly inspections shall be recorded on the Weekly Inspection Log Sheets located at each facility.
 - Employees must initial next to the day of the month that the inspection was conducted.
 - Employees must mark with a Y (compliant) or N (non-compliant) under the column marked "Containers sealed, labelled and segregated"
 - Employees must mark with a Y (Compliant) or N (non-compliant) under the column marked "Eyewash Check"
 - Containers:
 - Leaks, cracks, deterioration, bulging, corrosion or any other signs that a container has been compromised in any way.



- Appropriate labelling on all containers. The words “Hazardous Waste” shall be written on all containers in the facilities that contain hazardous waste.
- All containers must have the date they arrived at the facility or the date that a 55 gallon drum is full.
- All containers are segregated according to hazard class.
- Eyewash Stations
 - Conduct a 15 minute flush
 - Ensure that caps are on
 - Ensure that they are accessible with at least a 3 foot clearance (front and sides)
- Corrective Actions
 - Corrective actions must be described and recorded in the Weekly Inspection Log Sheets.
 - If a work order is required, the work order number must be recorded in the Weekly Inspection Log Sheets.
- Extended University for Holiday closing (Christmas/New Year)
 - During extended university approved holidays, the hazardous waste facilities must continue to remain in compliance with DEQ regulations.
 - As such either of the following must occur prior or during extended university closings that last over a week:
 - All hazardous waste is removed from each facility prior to the extended holiday, ensuring that no hazardous waste remains in the facility over the holiday break. The hazardous waste pick up by the contractor must be recorded in the Weekly Inspection Log Sheets.



- If hazardous waste will remain stored in either of the 90-day storage facility, the facility must be inspected once per week by a RCRA trained EHS-SRM staff member.
 - Hazardous waste technicians are usually on site at least one day each week the university is closed for the holidays to conduct hospital waste pickups. During those days, the hazardous waste technicians can conduct the weekly inspections at each 90-day storage facility.
- Labelling Requirements
 - Containers shall be labelled at all times with the following information:
 - The words "HAZARDOUS WASTE" shall be written or affixed through a label on all containers.
 - For chemicals that require segregation for lab packing:
 - Each day, labels shall be prepared with the day's date and with the words "Hazardous Waste" and shall be affixed to all chemicals arriving at the facility for the day as part of the processing and segregation of the day's chemical waste pickups.
 - No hazardous waste container shall be left on the shelves without a dated Hazardous Waste label.
 - For 55 gallon drums and bulking of high BTU waste:
 - Each drum shall be labelled with the words "Hazardous Waste" and the corresponding type of waste being bulked in each drum.
 - The drum shall be dated on the initial date it is being filled and shall not remain in the facility more than 90 days thereafter.
 - Prior to any hazardous waste container leaving the facility, each container must be labeled with the appropriate EPA hazardous waste codes. This can be done by the Contractor during processing of hazardous waste containers for transportation and disposal.
 - Bulking Procedures
 - Only compatible hazardous waste can be bulked.
 - For example: High BTU non-chlorinated solvents can be bulked with other high BTU non-chlorinated solvents.



- Appropriate personal protective equipment including respiratory protection must be worn during bulking activities.
 - No bulking shall occur at the Oliver Hall 90 Day Storage Facility.
 - Bulking at the Duvall Storage Facility requires the use of in-line supplied air respirators.
 - All employees engaged in bulking activities must be medically qualified, trained, and fit tested according to OSHA respiratory protection regulations.
 - Respirators must be kept clean and inspected prior to use. The inline hose must also be inspected prior to use to ensure that it is not compromised in any way.
 - Compressed air cylinders must also be checked prior to use to ensure enough air is available.
 - The following shall be checked prior to each use for deterioration or for any anomalies:
 - Pressure gauge
 - Connections
 - Hose
 - Mask (for deterioration)
 - If any of the above show signs of deterioration, the inline air supply system must not be used.
 - A lab coat or disposable chemical resistant overalls must be worn during bulking activities.
 - Nitrile gloves must be worn at all times during bulking.
- Bulking must never be done alone. While one person is in the room bulking another worker must be outside and check in on the person bulking every 5-10 minutes. This can be done by knocking on the door and waiting for a response knock back.
 - If a response is not heard, the door may be opened to check on the worker in the room, however, no one should enter the room unless it is cleared that the room is safe for entry.



- If a worker is not conscious, call VCU emergency number immediately at 828-1234 and request an ambulance.
- The laboratory Safety Officer and/or the Director of EHS-SRM must also be contacted immediately.
- Formalin Neutralization Procedures
 - Formalin neutralization is only conducted at the Duval Facility.
 - Bulking and neutralization shall be conducted under the ductless fume hood.
 - PPE must be worn during bulking and neutralization of formalin:
 - Splash goggles and face shield.
 - Nitrile Gloves
 - Lab coat or disposable chemical resistant overalls
 - The ductless fume hood must be inspected regularly and filters must be changed as per manufacturer's recommendations on a regular basis.
- Hazardous Waste Segregation Procedures
 - Hazardous waste that cannot be bulked shall be segregated and appropriately labeled according to hazard class and placed on the appropriate shelves in preparation for lab packing by the contractor.
 - PPE must be worn during segregation activities
 - Safety Glasses
 - Nitrile Gloves
 - Lab coat or disposable chemical resistant overalls
- Emergency Procedures
 - All emergency procedures must follow the VCU Contingency Plan.



8. Training Requirements

- a. For generators of hazardous waste that manage SAAs (lab staff, art staff, etc.)
 - Must be trained initially within **6 months** of being hired.
 - Training will be taken through the BioRaft EHS Management system by logging in with the VCU eID.
 - The Training module for hazardous waste training is called "Laboratory Hazardous Waste"
 - Must take **annual refresher** training titled "Laboratory Hazardous Waste" for as long as they maintain duties that require them to generate hazardous waste.
 - The following Job Titles and Descriptions require Hazardous Waste Generator Training:
 - **Principle Investigator (PI)**: Lead researcher in a laboratory
 - **Co-Investigator**: Researcher who has laboratory responsibilities similar and equal to the PI.
 - **Research Assistant**: Paid staff, usually under a temporary contract who assists with research in the laboratory.
 - **Research Assistant Professor**: Paid Faculty that also works in a laboratory and helps with research.
 - **Research Fellow**: A researcher with a PhD or equivalent work experience that is conducting research in a laboratory either independently or under the supervision of a PI and is usually a faculty member of the university.
 - **Post Doctorate Fellow**: A recent PhD graduate working in a laboratory under the supervision of a PI. Post Doctorate Fellowships are usually temporary positions that terminate upon the conclusion of a line of research agreed upon by the PI and the Post Doctorate Fellow.
 - **Senior Research Associate**: Senior level staff position in a laboratory working under a PI.
 - **Research Technician**: Paid staff in a laboratory that provides support in lab research and usually maintains and manages laboratory supplies and equipment. Research technicians do not require a higher education degree.



- **Visiting Researcher:** A researcher who is working in a VCU laboratory in collaboration with a PI. The visiting researcher position is usually temporary and may or may not be a paid position.
 - **Instructor:** A paid staff position responsible for teaching undergraduate lab classes in chemistry, biology, etc.
 - **Lab Manager:** A paid staff position responsible for managing the daily activities of a laboratory, such as maintaining inventory of lab equipment, managing training of lab staff, ordering materials, etc. Lab Managers are usually in charge of safety activities in the laboratory.
 - **Lab Coordinator:** A paid staff position in charge of coordinating departmental teaching laboratory schedules and courses OR a position synonymous with Lab Manager.
 - **Staff Scientist:** A paid staff member who helps with laboratory research and works under the PI.
 - **Assistant Scientist:** Synonymous with Staff Scientist.
 - **Graduate Student:** A non-paid student working on a research project in a laboratory under the mentorship of a PI. This can be either a Master's or a Doctoral position.
 - **Undergraduate Student:** A non-paid undergraduate student who is working on a project in a laboratory under the mentorship of a PI in order to fulfill requirements for the completion of a degree program.
 - **Summer Interns/Interns/Students:** Temporary workers (paid or non paid) in a lab that are usually undergraduate students working on a short-term project in a laboratory usually to fulfill the requirements of a degree or to gain experience in their field of choice. Interns work under the mentorship of a PI.
- Description and information of the "Laboratory Hazardous Waste" training module.
 - This training will be provided to all VCU laboratory staff through www.vcu.bioraft.com.
 - Staff must log in with their eID and follow the links to the training.
 - All training records will be maintained in BioRaft.



- BioRaft will send automatic reminders to all laboratory staff requiring initial and yearly updates and is able to track training non-compliance in real time.
- **Course Description:** This course will train laboratory workers on specific requirements for establishing and maintaining a satellite accumulation area for hazardous (chemical) waste generated in the laboratory as part of experimental procedures. Additionally, the course will provide information on VCU's procedures for scheduling hazardous waste pick up from SAAs.
- Course Objectives:
 - Define what Hazardous Waste is
 - Define what a Satellite Accumulation Area is
 - Be able to choose the appropriate hazardous waste containers
 - Be able to properly label containers and segregate hazardous waste in an SAA
 - Be able to properly maintain an SAA according to EPA and DEQ regulations.
 - Know when and how to schedule a hazardous waste pick up using our online scheduling system.
 - Know how to complete a hazardous waste disposal form.

b. Environmental Health and Safety Staff and 90-Day Storage Facility Staff

- Must be trained within **6 Months** of being hired. Training is taken through a third party consultant.
- Must take annual refresher training
 - Training Modules Required:
 - HAZWOPER 40 Hour Initial Course (new employees)
 - HAZWOPER 8 Hour Refresher Course (annual training)
 - Full RCRA Initial and Annual Training
 - DOT Shipping Regulations (Initial and 2-year refresher training)
- The following Job Titles and Job Descriptions will require the training listed above.
 - **Laboratory Safety Officer:** Manages the laboratory safety program and hazardous waste program and contingency plan for the university and hospital.



- **Hazardous Waste Technician:** Picks up hazardous waste from SAAs for transport to the 90 day storage facility. Conducts 90 Day storage facility weekly inspections, segregates, bulks and labels all hazardous waste in the 90-day storage facility. Coordinates with hazardous waste contractor for 90 day pickups and is able to sign hazardous waste shipping manifests. Is also responsible for the overall maintenance of the 90 day facility.
 - **Senior Laboratory Safety Specialist:** Responsible for laboratory safety assessments, emergency response, and is a back-up for signing manifests if the Hazardous Waste Technician and Laboratory Safety Officer are not available.
 - **Laboratory Safety Specialist:** Is only responsible for HAZWOPER training. Main duties include laboratory safety assessments and emergency response.
 - **Laboratory Safety Technician:** Is only responsible for HAZWOPER training. Main duties include laboratory safety assessments and emergency response duties.
- Course Descriptions
 - Course descriptions are provided annually as they are scheduled with the consultants. All courses are in compliance with EPA, OSHA and DOT regulations.

9. References

- *Environmental Protection Agency: Resource Conservation and Recovery Act (RCRA).* www.epa.gov/RCRA
- *Virginia Department of Environmental Quality (VDEQ):* [Virginia Hazardous Waste Management Regulations.](#)