Welcome

CASE WESTERN RESERVE UNIVERSITY
ENVIRONMENTAL HEALTH
AND SAFETY DEPARTMENT
PRESENTS

TRAINING OF YOUR SPECIFIC
RESPONSIBILITIES FOR RCRA/SATELLITE
ACCUMULATION

REQUIRED BY
USEPA AND OEPA
Resource Conservation and Recovery Act
(RCRA)

Presented By:

Environmental Health and Safety

1/22/2020
YOUR HELP IS NEEDED

WHY
1. FOR KEEPING YOU, OTHERS IN YOUR WORK PLACE AND THE COMMUNITY SAFE
2. FOR KEEPING THE ENVIRONMENT CLEAN NOW AND IN THE FUTURE

THINK GREEN
THINK TEAM- YOU AND THE CWRU EHS DEPT.

These regulations were put in place when people and companies did not volunteer to do the right thing

DON’T POLLUTE
BE SAFE
DO NOT HURT OTHERS

The EPA Resource and Recovery Act is intended to protect HUMAN HEALTH and the environment from the release of harmful substances into the environment. This training is designed to educate you on your role and responsibilities in this process.

Under the Clean Air Act Section 112(r)(1), the General Duty Clause states: “The owners and operators of stationary sources producing, processing, handling or storing such substances [i.e., a chemical in 40 CFR part 68 or any other extremely hazardous substance] have a general duty [in the same manner and to the same extent as the general duty clause in the Occupational Safety and Health Act (OSHA)] to identify hazards which may result from (such) releases using appropriate hazard assessment techniques, to design and maintain a safe facility taking such steps as are necessary to prevent releases, and to minimize the consequences of accidental releases which do occur.”
WHY YOU NEED TO DO YOUR WORK RIGHT

1. It is vitally important that you do your part to assure that you and all others remain safe, that the environment is protected and that the University remains in compliance with all EPA RCRA Hazardous Waste regulations.

2. Failure to comply may cause a person or facility to be penalized by fines and/or prison- which may include YOU.

3. The regulations state that if you are knowingly and willfully performing a task that injures a person or does harm to the environment YOU ARE RESPONSIBLE.

BY TEAM WORK WE CAN ALL BE SAFE AND KEEP THE ENVIRONMENT CLEAN AND MAKE IT CLEANER IN THE FUTURE.
BY TEAM WORK WE CAN ALL BE SAFE AND KEEP THE ENVIRONMENT CLEAN AND MAKE IT BETTER FOR THE FUTURE

The team is YOU and the Environmental Health and Safety Department. Your help is needed since YOU have the knowledge/information needed for everyone to be kept safe, and protect the environment

IT ALL STARTS WITH YOU.

YOU HAVE THE INFORMATION NEEDED

WITHOUT THIS INFORMATION PEOPLE AND THE ENVIRONMENT CAN BE HURT

 Basically you provide information and the Environmental Health and Safety Department will do their job to properly manage your waste chemicals.
To comply with regulations, keep you/everyone safe as well as the environment- you must know what to do. It is not right to do something wrong and no one identify that it is wrong and provide the correct way along with enabling them to do so, ie provide materials,equipment.

The following training is designed with the intent to show you how and what YOU your responsibilities are to comply with applicable regulations by providing you a basic introduction to EPA RCRA Hazardous Waste regulations. These simple instructions will orient you to what your responsibilities are as you work in the laboratory. A much more detailed treatment can be found on the EHS webpage:

https://case.edu/ehs/waste-disposal/chemical-waste/rcra/

You should take the time to read the EHS EPA RCRA website material and understand it.

This material is very important. We are a TEAM and if you have questions please call the EHS office for help.
YOUR GUIDELINES/RESPONSIBILITIES FOR SATELLITE WASTE:

1. ALL SATELLITE WASTE CONTAINERS NEED TO BE LABELED AS HAZARDOUS WASTE
   - EACH CONTAINER MUST HAVE ITS SPECIFIC CASE WESTERN ID NUMBER ON THE LABEL/CONTAINER
   - COLLECT EACH WASTE STREAM BY COMPATIBILITY USING DOT GUIDELINES (EHS DEPT TO HELP TEAM)
   - ONLY IDENTIFY CONTENTS- ALL OTHER LABELS/MARKINGS NEED TO BE DEFACED
   - place ONLY LIKE/COMPATIBLE chemicals together

2. A SATELLITE CONTAINER MAY ONLY BE OPEN WHEN ADDING TO AND REMOVING WASTE THE CONTAINER

3. WHEN YOU ADD A WASTE CHEMICAL TO A SATELLITE WASTE CONTAINER THE SPECIFIC CHEMICAL (BY NAME NOT FORMULA) AND THE AMOUNT (L or KG) NEEDS TO BE PLACED ON THE CONTAINER LABEL

4. ACUTELY (P-LISTED BY EPA) CAN NOT EXCEED 1 QUART IN QUANTITY

5. ALL ACUTELY(P-LISTED) RCRA WASTES MUST HAVE THEIR CONTAINERS TRIPLE RINSED AND THE RINSATE ADDED TO THE P-LISTED COLLECTION CONTAINER —— DO NOT RINSE INTO ANY DRAIN
   - ALL P-LISTED CHEMICALS WILL BE IDENTIFIED ON A LIST AND PROVIDED TO THE LABORATORY BY THE EHS DEPT.

6. The containers you use to accumulate hazardous waste must be in good condition. If the container being used to accumulate hazardous waste is not in good condition, or if it begins to leak, you must transfer the contents to a container that is in good condition.
   Note: EHS Dept to help..

7. The containers you use to accumulate hazardous waste must be compatible with the waste, or lined with a material which will not react with the hazardous waste being accumulated.
   Note: EHS Dept to help..

NOTE: A SATELLITE ACCUMULATION STORAGE AREA MAY ONLY HOLD UP AND NOT EXCEED 55 TOTAL GALLONS OF HAZARDOUS/RCRA WASTE AND ONLY 1 QUART OF ACUTELY (P-LISTED) HAZARDOUS WASTE
   - WHEN CAPACITIES ARE MET EHS TO BE CONTACTED
   - NO DATES ON CONTAINERS UNTIL THE CONTAINERS REACH THE REGULATORY CAPACITY OR WHEN BEING MOVED FROM A SATELLITE ACCUMULATION AREA TO A STORAGE LOCATION (72 HOURS TO MOVE)

NOTE: NO UNKNOWN CHEMICALS WASTE CAN BE Managed CONTACT EHS DEPT

NOTE: The following training will provide more specific details
What is a hazardous waste? 

INFORMATION EXPLAINING REGULATIONS

A hazardous waste is defined by EPA by a process of steps and is ONLY designated for materials that are destined for disposal.

1) Is it on any lists specifically called out by EPA?
2) Does it exhibit a characteristic as defined by EPA or is it on an EPA RCRA list?

Many materials will not fit the definition of a hazardous waste. Consult with CWRU EHS if the material you have might present a hazard. Even if the material doesn’t turn out to be a hazardous waste, proper responsible management is needed. CWRU EHS will help you decide. If in doubt send it to CWRU EHS for handling.
EPA divides hazardous waste into several categories. The description you provide is used to categorize the waste for proper treatment and disposal by RCRA Codes.

1) Characteristic Wastes
   A. Ignitable D001
   B. Corrosive D002
   C. Reactive D003
   D. TOXICITY D004-D043 39 specific chemicals wastes specifically listed

2) Listed wastes (F,K,P,U coded wastes)
   A. F wastes are a list of solvents used in GENERAL PROCESSES such as degreasing.
   B. K wastes are a list of SPECIFIC process wastes. You are unlikely to have one.
   C. P Listed wastes are acutely toxic wastes. If you collect more than 1 kg of a P waste in your laboratory, you must notify EHS so that it can be removed within three days.
   D. U wastes are a list of chemicals called off spec products. This would be a stock chemical container that is unused and still in the manufacturers container.

3) Copies of these lists are available on the EHS website at https://jr.chemwatch.net/chemwatch.web/home
4) All containers of hazardous waste must be treated the same as any other chemical in the laboratory. They are still dangerous

A. If the waste is flammable, it must be stored as such.
B. If the waste is corrosive, it must be stored as such and so on.
C. The material must be put into a compatible container.
   • Do not put water based waste in a metal container it will rust.
   • Chlorinated solvents make small amounts of acid that can corrode a non lined METAL can.
   • If you make a waste like Pirrahna that release pressure make sure to have a vented cap This is the ONLY exception to a closed container because it is for safety.
   • Do not put Hydrogen Fluoride in a glass container (it will dissolve).

5) All empty containers must be:

A. Acutely Toxic EPA P-listed wastes- MUST BE Triple rinsed and the RINSATE collected. CWRU EHS Dept will help identify.
B. Completely defaced and the word EMPTY written on the container.
C. If the container is truly cleaned and empty don’t put the top (cap) back on.
D. Dispose of glass containers as sharps. See waste chart for details
EMPTY CONTAINER CLEANING

Most RCRA hazardous wastes (“D”, “F” & “U”) can be triple rinsed and the rinsate can go into the sanitary sewer- when in doubt ask CWRU EHS Dept.

“P” Wastes must have all of the rinsate collected in the appropriate RCRA waste container for disposal.

Examples: nicotine, cyanides

Note: CWRU EHS Dept. will help with specific chemicals

Some items are treated as chemical waste because even though they are not RCRA Hazardous Wastes, We are aware of the dangers and mostly toxicity-Ethidium Bromide, Antibiotics, rules are coming, We need to show that we are good stewards of the environment.
ALL containers holding a chemical must be closed/capped and secured.

All containers of chemicals need to be labeled of ONLY CURRENT CONTENTS to comply with EPA, OSHA, and GHS.

NO chemical can go into the sanitary sewer for disposal.

Due to:

1. regulatory issues and
2. many chemicals may generate problems in the sewer, such as fires, toxic fumes/gases and explosions, ie chorine gas, - ferric chloride toluene and other flammable solvents reactive metals, lithium, l.

Note: EHS can authorize sanitary sewer disposal. The CWRU EHS Dept. will help manage with you- please ask when in doubt.

Note: Staying “Green”- The disposal of chemicals by throwing them either in the trash or in the sewer is not a good idea because of the appearance being generated that CWRU is not a good environmental citizen.

Protecting the environment with proper chemical management. Begins with YOU.

There are other regulations that help protect the environment such as the Clean Air Act, Clean Water Act and local Sewer Regulations (NEORSD),
Definition of Empty Container

The emptiness of a container is regulatory defined by EPA and DOT as follows:

EPA Empty
All labels and markings are removed

All material has been removed from the container that can be removed by normal means and the container has been triple rinsed with a suitable solvent usually water. If solvent is used to clean the container, it must again purged with water to remove any vapors and the solvent collected for waste. If the water rinse is suspected of being contaminated it also must be collected for disposal.
Practicality-Empty Container

If you have a bottle of solvent and it is empty, there is no reason to think anything more remains than vapor. Simply fill the bottle with water to push the solvent vapor out and dump the water in the sink. NOT P-LISTED WASTE.

If you have a bottle that contains a residual you may need to collect the rinse from the container. P-Listed Waste needs to be collected.

If you have a container with a sticky, waxy, hard crusted material, don’t bother cleaning the container JUST offer it up for hazardous waste disposal. The amount of time you will spend to clean the container is not worth the effort.
Labeling

1) EPA requires that all containers of hazardous waste be marked with the words “HAZARDOUS WASTE.” This marking must be on the container at all times. EHS provides tags you can put around the neck of the container for this purpose. You may also print your own labels.

2) EPA, OSHA and all other agencies require that the container be labeled clearly **BY NAME** and without abbreviation or **CHEMICAL FORMULAS** in regards to the content of the container
   A. You must keep track of exactly what goes into a container.
   B. You must not use generalizations like Acid or Aqueous waste.
   C. The total must add up to 100%. The solvent even water counts toward the total.
   D. Materials like pump oil or column waste that have been exposed to other chemicals must include a mention of those chemicals as trace contamination. This is particularly important for metals.

3) For waste streams you make frequently that don’t change make up labels in advance. For example it is OK to make a label using a ratio as long as it doesn’t change over time. If it does change you need a log that tracks it so it can be determined once full.

**Note:** This is also for your safety so that if exposed someone can provide you help.
Example Label

Please identify how much of each chemical is being placed in the collection container, L or KG. Percentages are just extra. This is needed for accuracy when for Case on generators annual reports.

NOTE: The waste containers MUST be easily found for collection.

<table>
<thead>
<tr>
<th>CONSTITUENT (Ingredient)</th>
<th>QUANTITY (L or Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>0.10L</td>
</tr>
<tr>
<td>Hydrochloric Acid</td>
<td>0.90L</td>
</tr>
</tbody>
</table>

BOTTLE #: 2

PI: Ellis Dee

CONTACT NAME: Ann Tracks

PHONE #: 368-0000
Storage of RCRA Waste

1) Containers must remain sealed at all times unless you are adding or removing from the container.

2) NEVER leave a bottle with a funnel in it.

3) All containers of flammable waste must be put away at the end of each work shift. Do not leave them in the fume hood.

4) No more than a total of 10 gallons of flammable material can be left out that is not in direct use in a whole laboratory.

5) Keep your bottles clean and clean up spills promptly
   A. A spill is considered an uncontrolled release and must be attended to immediately.
   B. If you have a spill that leaves a stain or needs additional attention tell your supervisor.
Full containers

1) Once your WASTE container is full you must date it with the full date. This starts a clock and CWRU must remove the waste from the campus in 90 days. As soon as your waste is ready to go send in a request form to have it removed. Tags and forms are available from EHS. **The full container MUST be taken from the satellite accumulation location to a storage location within 72 hours.**

2) If you elected to use a separate log to keep track of the contents, once full, summarize the contents and permanently affix a label with this information to your container. **REMOVE ANY OTHER LABELS AND MARKINGS FROM USED CONTAINERS THAT NO LONGER CONTAIN THOSE CHEMICALS.** Keep your logs in a book as proof of your efforts. Your container should now have the following markings:
   A. The words “Hazardous Waste.”
   B. The date the container is full.
   C. The full description of what is in the container **CLEARLY accounting for only 100% only of what it currently contains.**
   D. The name of the Laboratory it was generated in and the Building/Room.
   E. A phone number of someone who knows about the container and what it contains.
   F. The tags EHS provides has space for this information preprinted but you can make your own labels, please write clearly and do not use chemical formulas or abbreviations.

3) The container is now ready for removal. Send in a hazardous waste request to EHS and store the container according to the type of hazard it presents. For example, flammable in a flammables cabinet. You may find it easier to print a label and affix it to the waste request form rather than write it out. Just print three. One for the bottle and one for each part of the form. We leave you a copy as a receipt.
Waste Forms

1) THE EHS Hazardous waste Request Form is available from the EHS office located at 2220 Circle Drive Service Building First Floor.

2) The form is two part so we can leave you a receipt. The top section is for basic information such as who you are and where you are located. The lower half is for listing the containers you want to dispose from the laboratory.

3) The bottle number is each individual bottle. If you have multiple chemicals in a container list them on each line and use the same bottle number. Only use a new number for a new bottle.

4) If you have a large number of containers say over 100, contact EHS rather than fill out the request. We will arrange for the material to be lab packed directly from the laboratory. They will make a packing list used in place of the request form.

5) The EHS Department will use the information you provide to evaluate the waste, properly classify/code, arrange proper management/disposal, transportation and help assure compliance with applicable regulatory authorities- and it all starts with and depends on YOU.

6) This form is used as a chain of custody to PROVE to the EPA how your waste is managed/tracked. EPA laws are written so that you are assumed GUILTY and you must PROVE your case- unlike other laws.
   a. what the chemical is
   b. Where the chemical originated from
   c. Where the chemical is disposed
<table>
<thead>
<tr>
<th>BOTTLE#</th>
<th>DESCRIPTION</th>
<th>QUANTITY (L or Kg)</th>
<th>OFFICE USE ONLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>formaldehyde</td>
<td>0.010 L</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>water</td>
<td>0.090 L</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Water</td>
<td>0.100 L</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Hydrochloric Acid</td>
<td>0.900 L</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Sodium Chloride</td>
<td>1.0 Kg</td>
<td></td>
</tr>
</tbody>
</table>

I certify the above information to be true and correct.

Ann Tracks

Signature Required

STAGING AREA: Mills Science Center—OH 00812330 / DOA 990—OH 98703669
Wolstein—CHR 000120147 / The Greenhouse—CHR 000112482 / Cedar—OH 004174660

Picked up by:

Date:
Tracking Form used for the tracking and identification of each chemical/waste collected from the satellite accumulation sites - now pre-approved and using the proper outbound DOT container being transported to the applicable disposal facility.

Tracking:
1. Case Chemical List
2. Container Tracking Form
3. Hazardous Waste Manifest

This process now is proving the Tracking of Waste from “cradle to the grave”
The manifest system is a “cradle to grave” hazardous waste tracking system.

Manifest forms are required each time a generator of hazardous waste ships hazardous waste off-site.
Final Points

1) Hazardous waste is not a glamorous activity and it does not add to your research. It is however very important to keeping **YOU AND OTHERS SAFE**, the environment clean and the university operating **SAFELY and MEETING REGULATORY REQUIREMENTS**. Do your part to keep up on what you have learned here and ask questions. CWRU EHS is always available to you at anytime.

2) Check out the CWRU EHS website. We have a lot more detail for you should you like to go further.

3) **IT IS YOUR RESPONSIBILITY TO COMPLY WITH THESE REGULATIONS AND WITH YOUR HELP WE CAN BE SAFER AND KEEP THE ENVIRONMENT CLEANER.** Enjoy your time here and we look forward to working with you.
REGULATORY COMPLIANCE/INSPECTIONS

OEPA has on May 23, 2017 inspected a portion of Case Western University and will again perform these periodic inspections to see if regulatory compliance is being met.

Note: In the May, 2017 OEPA several locations were inspected and found some in non-compliance of RCRA regulations. These violations can be subject to various levels of penalties including fines and shutting down operations.

The following were several violations identified and corrected which after this training. The responsibility of these violations is the applicable laboratory staff working in these areas.

VIOLATIONS:

1. Un-marked and improperly labeled waste containers
   - how is anyone to properly manage to keep the environment clean or properly identify for transportation
   - how is any medical response made to something that is not identified???
   - how can you keep yourself and others safe????

2. Open satellite waste containers
   - is it good to have open containers of chemical wastes releasing vapors?? Possibly toxic, flammable, corrosive???

Note: All violations were immediately corrected but are a public record but do NOT represent good practices representing YOU and CWRU. We ALL can do better.
CWRU Team:: You and CWRU EHS Dept.

TEAM GOALS WORKING TOGETHER

KEEP EVERYONE SAFE

KEEP the ENVIRONMENT CLEAN

COMPLY WITH REGULATIONS

NEED GOOD COMMUNICATIONS—no one can respond without knowing the problem

In the near future CWRU EHS Dept representatives will be meeting with each laboratory staff leader and work together to identify the specific needs for safety and RCRA regulatory compliance. The plan is to identify the needs/requirements and make a specific/mutually agreeable resolution that satisfies the regulations with as much ease to the laboratory staff. These procedures will be documented by the CWRU EHS Dept and provided back to that department for easy application of the requirements. GO TEAM!
The following are photos of your facility and actual examples of practiced found and in violation of OEPA waste management regulations subject to fines and penalties.

The purpose of this training and showing you these issues is to help you recognize them, and eliminate these practices in the future.

You can not correct something if you do not know it is wrong.

Now after being trained/informed to do something right and it is done wrong and unsafe- and not in compliance with regulatory standards makes the person doing it RESPONSIBLE and may be subject to penalties.
YOU HAVE THE KNOWLEDGE

YOU HAVE THE POWER:

- To perform the correct/safe work practices
- To help keep you and co-workers/fellow students/staff safe
- TO HELP KEEP THE ENVIRONMENT CLEAN

ANY QUESTIONS???