

# HAZARDOUS WASTE STORAGE

Satellite Accumulation Areas

# EPA'S FIVE MOST COMMON SATELLITE ACCUMULATION VIOLATIONS IN UNIVERSITIES

- **Unlabeled Containers.**
- **Open Containers.**
- **No “Accumulation Start” date.**
- **No Secondary Containment.**
- **No Weekly Inspections.**

# CHEMICAL WASTE MANAGEMENT

- “Hazardous Material” is any liquid, solid, or gas having properties requiring special handling due to hazardous chemical characteristics.
- “Hazardous waste” is a used or discarded hazardous material. “Discarded” includes abandoned, recycled, or inherently waste-like materials.

# YOU MIGHT HAVE A HAZARDOUS WASTE IF ...

- The compound or solution is:
  - Ignitable.
  - Corrosive.
  - Reactive.
  - Toxic.



- The Waste Chemical is one of over 400 listed by the EPA as a Hazardous Waste
- See EH&S Website for a list of these chemicals.

# WHAT IS AN IGNITABLE WASTE?

- It is a liquid and is capable of burning or causing a fire.
- This material will have a flash point below 140° F.
- Examples: Acetone, gasoline, industrial alcohols.



# WHAT IS A CORROSIVE WASTE?

- The material is a liquid or solid and is capable of eroding materials and human tissue.
- These materials have a pH of 2 or less or 12.5 or greater
- Examples: Alkaline cleaners, some chlorides, fluorides, and acids & bases.



# WHAT IS A REACTIVE WASTE?

- Capable of reacting dangerously with air and water.
- When mixed with water could cause an explosion.
- Could release poisonous fumes,
- Shock sensitive.
- Examples: Peroxides, isocyanates, cyanides, sulfides, and chlorine.

# WHAT IS A TOXIC WASTE?

- Material is capable of poisoning humans.
- Includes arsenic, barium, cadmium, chromium, lead, mercury, selenium, or silver.
- Contains a pesticide or other EPA toxin.
- Wastes are determined to be “**Toxic**” if they fail the **TCLP Test**.





# P-LISTED WASTES

- Are listed wastes that are off-specification, unused, materials and are acutely hazardous.
- Examples: Arsenic compounds, cyanide compounds, and strychnine
- P-codes are used for listing. They only apply to pure unused chemicals and to unused products where said chemical is the sole active ingredient.
- Regulations on storage and disposal are very strict.
- Identifiable by P-Listing and the “List-of-Lists”.

# P-LIST WASTE/CHEMICAL WASTE STORAGE

- ◉ Regulated under 40 CFR 262.34(c).
- ◉ Labs can collect hazardous waste until they reach collection limits or for a maximum of up to 1 year.
  - Collection Limits are 55 gallons of hazardous waste and/or 1 quart of P-listed acute hazardous wastes at ANY time.
    - Can only exceed these limits for 3 calendar days.
    - Contact EH&S for pickup when containers become 75% full.
  - Containers must be labeled as hazardous waste or otherwise describing the content of the waste.
    - List all chemicals on hazardous waste tag as well as their percentages/concentration.
    - Containers must be dated with an accumulation start date (the date chemicals were first placed in the container).
- ◉ Transfer of containers between Satellite Accumulation Areas is not allowed.
- ◉ Large Quantity Generator status is obtained if over 1 kg of P-listed waste per month is produced and/or 1000 kg of chemical hazardous waste is produced per month.

# WASTE MIXTURES

- ⦿ Keep non-soluble chemicals separate.
- ⦿ Keep chlorinated solvents separate from non.
- ⦿ Precipitate dissolved solids and filter what remains.
- ⦿ Minimize water in solvents.
- ⦿ Teach waste minimization as part of lab instruction.
- ⦿ Remember you pay for chemicals twice. Once when you buy it, and again when your disposing of excess.
  - 14 gallon lab pack = \$225 or \$16 per gallon
  - 55 gallon bulk = \$150 or \$2.74 per gallon

**THE LESSON HERE IS TO MINIMIZE PURCHASES!**

# YOU MAY BE A SATELLITE ACCUMULATION SITE...

- If you generate any hazardous waste in your lab or worksite, you are a “Satellite Accumulation Area” and required by the EPA to adhere to certain regulations.
- Noncompliance with any hazardous waste regulation may result in substantial fines and penalties for the University or individual investigators.

# SATELLITE ACCUMULATION

- ◉ Before you start, label the secondary container and make sure the container is the proper container to use for storing the waste (see next slide).
- ◉ Once a chemical is designated a “waste” or when the first drop of waste has been put into the container, a “hazardous waste” tag must be completed, dated, and placed on that container.
- ◉ Wastes can only be accumulated for up to one year.
- ◉ EH&S must be notified for pick-up when containers are  $\frac{3}{4}$  full and prior to the one year accumulation date.

# SATELLITE



# Accumulation Area

## Chemical Waste Collection and Turn In

- The container must be marked **“Hazardous Waste”** with the accumulation start date or properly tagged.
- Transfer materials only inside fume hood.
- Containers must be kept tightly closed unless adding waste.
- Store in designated **“Satellite Accumulation Area”**.
- Segregate waste by chemical compatibility.
- Keep waste in secondary containment.
- Inspect daily for signs of damage to containers, labels or leaks.
- Arrange for waste pickup when containers are  $\frac{3}{4}$  full or close to one year from accumulation start date.
- For waste pickup contact EH&S at **[safety@mail.ecu.edu](mailto:safety@mail.ecu.edu)** or **328-6166**.
- **Clean up all spills promptly.**



# THE FOUR “L’S” OF SATELLITE ACCUMULATION

- **Lids:** Keep containers tightly closed. Open containers only when adding waste.
- **Labels:** Tag containers before using for waste collection.
- **Leaks:** Inspect waste containers weekly for leaks. Residue on outside of a container is considered a discharge by EPA. Keep containers clean.
- **Location:** Collect waste at or near point of accumulation in a secondary container. Segregate by compatibility.

\*\*Remember label vacuum flasks “used” and its contents, not “waste”

# HAZARDOUS WASTE FUNNEL USE

- Safety funnels can be used if they meet the following conditions:
  - The funnel is secured to the container.
  - The funnel has a gasket and locking devices on the lid.
  - It is kept closed when not in use.
  - The funnel has a one way valve to prevent spills and emissions.



# UNKNOWN CHEMICALS/WASTE

- It is the department's responsibility for covering the costs of dealing with unknowns.
  - Identification, removal, safe disposal.
- Any chemical that does not have a label and cannot be identified is referred to as unknown
- Place on the Pick-Up Request Form.
  - Include amount and any identifying characteristics.
- ECU's Chemical Contractor will have to retrieve the chemical and an identification analysis will be conducted.

# HAZARDOUS WASTE LABELING

- All Hazardous Waste containers must be properly labeled with EH&S tags.
  - If the chemical is in its original container and the label is not damaged, then the container does not need a hazardous waste tag.
- **DO NOT** use chemical formulas or abbreviations.
  - Full chemical names **ONLY!!**
- Tag must show all the chemical constituents by percent.
- Make sure to sign the generator's signature when the tag is applied to the container.
- The Accumulation Start Date **MUST** be completed on the tag when the 1<sup>st</sup> drop of waste enters the container.
- Attach the tag to the container with string, wire or rubber band.
- Inspect label integrity and replace if damaged or stained.
- Do not tag containers that are empty, wait until the first drop has been entered into the container.

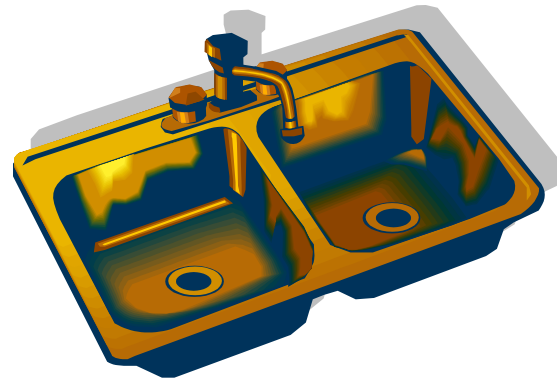


# HAZARDOUS WASTE DISPOSAL

- Ensure that wastes are properly packaged and labeled.
  - Containers with residues, cracked lids, damaged containers, unknowns, or leaking containers will not be collected, and will be left in the lab.
- Complete the waste pick-up request form from EH&S web page and email to **safety@ecu.edu** .
- Provide your name, phone #, location, identity, and amounts of waste.
- Waste pick-ups are conducted every Thursday.

# DRAIN DISPOSAL

- Must have EH&S approval before drain disposal occurs.
- Must comply with EH&S and GUC requirements.
- Any approved disposal must be logged on the Drain Log.
- pH has to be between 6 and 9.



# WASTE MINIMIZATION

- Find a non-hazardous alternative to the hazardous material you are obtaining.
- Practice Inventory Control: Use it all before looking for more.
- Recycle/Recover all materials possible.
- Reduce waste and unnecessary purchases.
- Teach waste minimization as part of lab instruction.



# EMPTY CONTAINER RULES

- To dispose of “empty” containers in the trash, they must meet the following criteria:
  - Contain no radioactive materials or biological wastes.
  - Was not a container for acutely toxic chemicals.
  - Has less than or equal to 3% by weight of its total capacity.
  - All content in the container has been collected, recovered or used. No content should be able to immediately spill out if held upside down.
  - Non acutely toxic chemical containers should be triple rinsed.
  - Labels on the containers for disposal should be removed or defaced and the container should be labeled “EMPTY”.
  - Containers for disposal are in the appropriate refuse area with lids removed.

# IN THE EVENT OF A SPILL

- If the spill represents an increased risk of exposure to you or others, GET HELP!
- Leave the area, close all doors and call for assistance
- if any of the following occur:
  - A fire or potential for a fire - dial 911.
  - Serious injury or a hazardous chemical exposure - dial 911.
  - The spill is beyond your ability to control - call EH&S (328-6166).
  - The spill has left the immediate area or threatens others areas - call EH&S (328-6166) or 911.
  - Unknown materials are involved - call EH&S (328-6166).



# WHEN REPORTING A SPILL...

Call Environmental Health & Safety at 328-6166.

- State your NAME.
- Give your EXACT LOCATION (Building and room #).
- Explain the CHEMICAL SPILLED (type, concentration, and quantity).
- Describe any SPECIAL CIRCUMSTANCES that may be involved.
- Leave a PHONE NUMBER or SPECIFIC LOCATION where you can be reached.

Stay safely nearby to meet EH&S/emergency personnel.

# QUESTIONS AND QUIZ

- Contact Environmental Health & Safety at **328-6166** or **safety@ecu.edu**.
- For Radiation/Biological Safety Information - Contact the Office of Prospective Health at **744-2070**.
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Quiz