

HAZARDOUS WASTE MANAGEMENT AT THE UNIVERSITY OF KENTUCKY



HAZARDOUS WASTE TRAINING PROVIDED BY



HAZARDOUS WASTE MANAGEMENT BASICS



HAZARDOUS WASTE MANAGEMENT BASICS

OCTOBER 9, 2020



PREPARED BY THE:
UK Environmental Management Department



HAZARDOUS WASTE MANAGEMENT

Topics

1. Regulatory Foundation
2. Waste Determination
3. Waste Labeling & Hazard Warnings
4. Waste Accumulation Management
5. Waste Pick-Up (E-Trax)
6. Emergency Planning
7. Training

Objective

To learn the safe and compliant requirements for identifying, labeling, and managing hazardous waste originating from laboratories and other areas at the University of Kentucky.

☀ KEY POINT ☀

The University supports and maintains a strong commitment to the safety and health of faculty, staff and students and to the protection of the environment – ensuring your understanding of hazardous waste management requirements is a vital component of this commitment.

HAZARDOUS WASTE MANAGEMENT

TOPICS

1. Regulatory Foundation
2. Waste Determination
3. Waste Labeling & Hazard Warnings
4. Waste Accumulation Management
5. Waste Pick-Up (E-Trax)
6. Emergency Planning
7. Training

1. REGULATORY FOUNDATION



The University's Administrative Regulation (AR) 6:3 has authorized the Environmental Health and Safety Division to coordinate the University's environmental health and safety programs and to monitor the University's compliance with applicable standards and policies.



The EPA has delegated the management of hazardous waste in Kentucky to the Kentucky Division of Waste Management (40 CFR 260-282).



Hazardous waste management practices are regulated by the **U.S. Environmental Protection Agency** (EPA) through a federal law referred to as the Resource Conservation and Recovery Act or **"RCRA"**.

TOPICS

1. Regulatory Foundation
- 2. Waste Determination**
3. Waste Labeling & Hazard Warnings
4. Waste Accumulation Management
5. Waste Pick-Up (E-Trax)
6. Emergency Planning
7. Training

2. WASTE DETERMINATION



A generator must maintain records supporting its hazardous waste determination, including records that identify whether a solid waste is a hazardous waste. These records must comprise the generator's knowledge of the waste and support the generator's determination.

(40 CFR 262.11(f))

2. WASTE DETERMINATION



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2. WASTE DETERMINATION



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(40 CFR 262.11(f))

2. WASTE DETERMINATION



GENERATOR

The generator is the entity that creates the waste and incurs most of the liability associated with waste. Therefore, UK as an entity is the generator, but its employees act as agents of their employer for the purposes of waste generation.

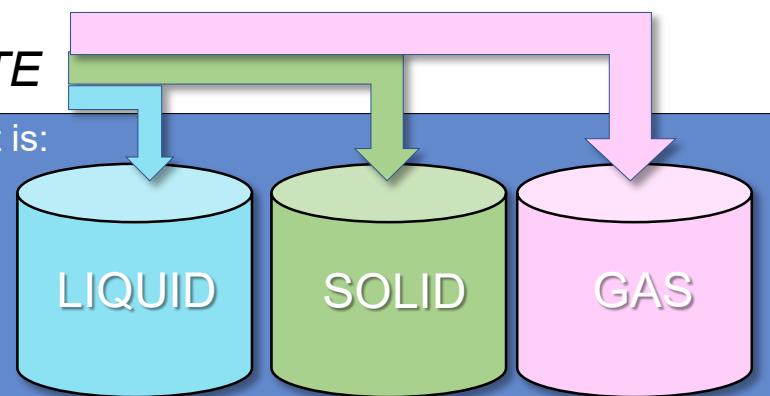
2. WASTE DETERMINATION



SOLID WASTE

Solid waste is a regulatory term meant to denote anything that is:

- ▶ Discarded,
- ▶ Intended to be discarded
- ▶ No longer useful (can not be reused)



2. WASTE DETERMINATION



HAZARDOUS WASTE

Hazardous wastes are a specific category of solid wastes, a category subject to additional regulatory control.

2. WASTE DETERMINATION



WASTE DETERMINATION

A hazardous waste determination is a two-step process:

- (1) Deciding whether a waste is a solid waste.
- (2) Deciding whether the solid waste is a hazardous waste.

2. WASTE DETERMINATION



A determination regarding hazardous or non-hazardous waste is critical.

Applies at the point of generation.

☀ **NOTE** ☀

The EMD should be contacted if the generator is having difficulty making a waste determination.

2. WASTE DETERMINATION

The first big question to answer: *Is the material a solid waste?*



- A solid waste is:
- Any material that is discarded/abandoned.
 - Any material that is or is intended to be disposed.
 - Any material that cannot be reused or recycled.
- A solid waste is not:
- A material that is being used for its intended purpose.
 - A material that is intended to be reused or recycled.

2. WASTE DETERMINATION



It is important to note that failure to make a timely waste determination is the number one cited violation by state and federal inspectors!

2. WASTE DETERMINATION

The second question to answer: *Is it a hazardous waste?*



Is it “listed”?

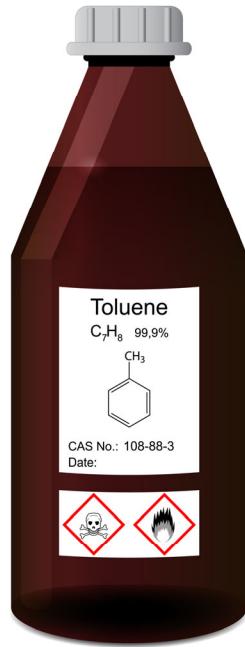
OR

Are its “characteristics” hazardous?

2. WASTE DETERMINATION

The second question to answer: *Is it a hazardous waste?*

Is it “listed”?



P and U-listed wastes consists of unused commercial products only.

Example: Unused Toluene (U220)

F-listed Waste

Wastes originating from non-specific sources

Example: Toluene used as a solvent (F005)

P-listed Waste

Wastes that are acutely toxic

Example: Unused Potassium Cyanide (P098)

U-listed Waste

Wastes that are toxic

Example: Unused Acetonitrile (U003)

2. WASTE DETERMINATION

The second question to answer: *Is it a hazardous waste?*

Are its “characteristics” hazardous?



Ignitable: Liquids with a flashpoint < 60C (140F)
(Solids that spontaneously ignite ...)
Example: Paint thinners (D001)

Corrosive: Liquids with a pH <2 or >12.5
Example: Acids and Bases (D002)

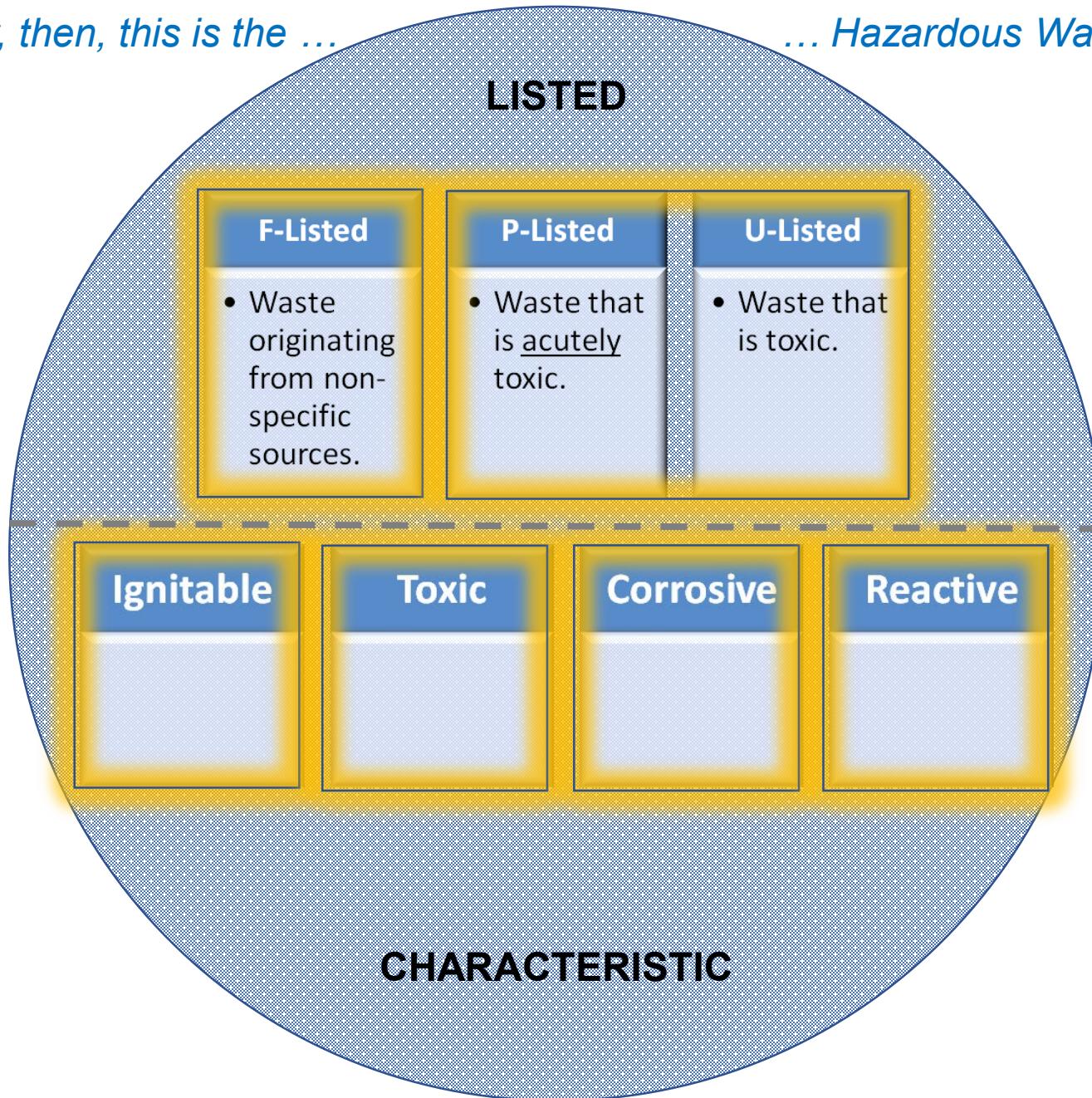
Reactive: Any material which is unstable...
Example: Alkali metals (D003)

Toxic: Any material which contains any of 40 constituents in excess of regulatory limits...
Example: X-ray film (D011)

2. WASTE DETERMINATION

In summary, then, this is the ...

... Hazardous Waste Universe.



2. WASTE DETERMINATION

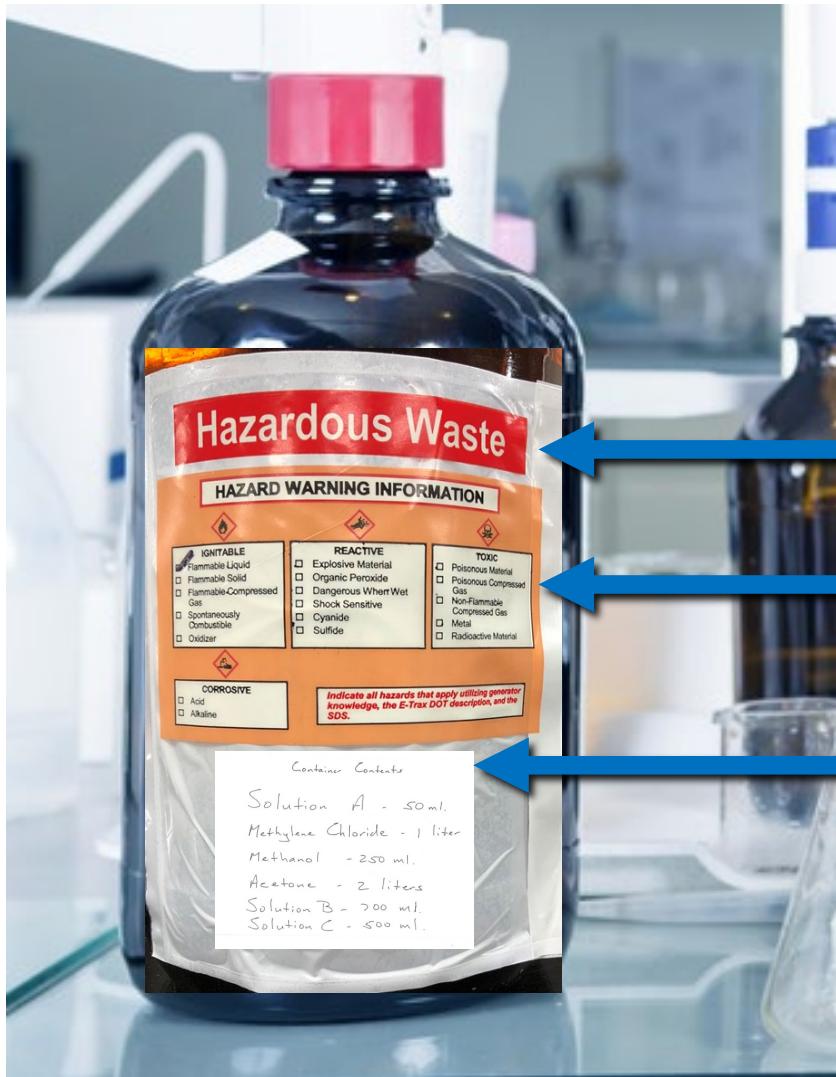
In summary, here are key elements of the waste determination process:

- Develop and keep a list of all wastes you generate
- Keep an updated chemical inventory – Chematix
- Review 40 CFR 261 for exclusion or exemptions (e.g. for recycling and reuse), and the F, P and U-List.
- Make a determination
- Document determinations (e.g. lab reports, SDSs, material specifications, specific knowledge)

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3. WASTE LABELING & HAZARD WARNINGS



(The Hazardous Waste "self-adhesive sleeve" shown above and a "hang-tag" version are available from EMD.)

A **Hazardous Waste Label** and
Hazard Warning Information
must be indicated as
soon as hazardous waste
is introduced into the container.

The label must read: "Hazardous Waste"

The hazard(s) of the contents must be indicated.

The contents must be indicated (UK required).

Sources of Hazard Warning Information:

- Utilizing generator knowledge, or
- Identifying the DOT classification through E-Trax, or
- Consulting the DOT classification in section 14 of the Safety Data Sheet.

3. WASTE LABELING & HAZARD WARNINGS

HAZARDOUS WASTE



IGNITABLE

- Flammable Liquid
- Flammable Solid
- Flammable Compressed Gas
- Spontaneously Combustible
- Oxidizer



REACTIVE

- Explosive Material
- Organic Peroxide
- Dangerous When Wet
- Shock Sensitive
- Cyanide
- Sulfide



TOXIC

- Poisonous Material
- Poisonous Compressed Gas
- Non-Flammable Compressed Gas
- Metal
- Radioactive Material



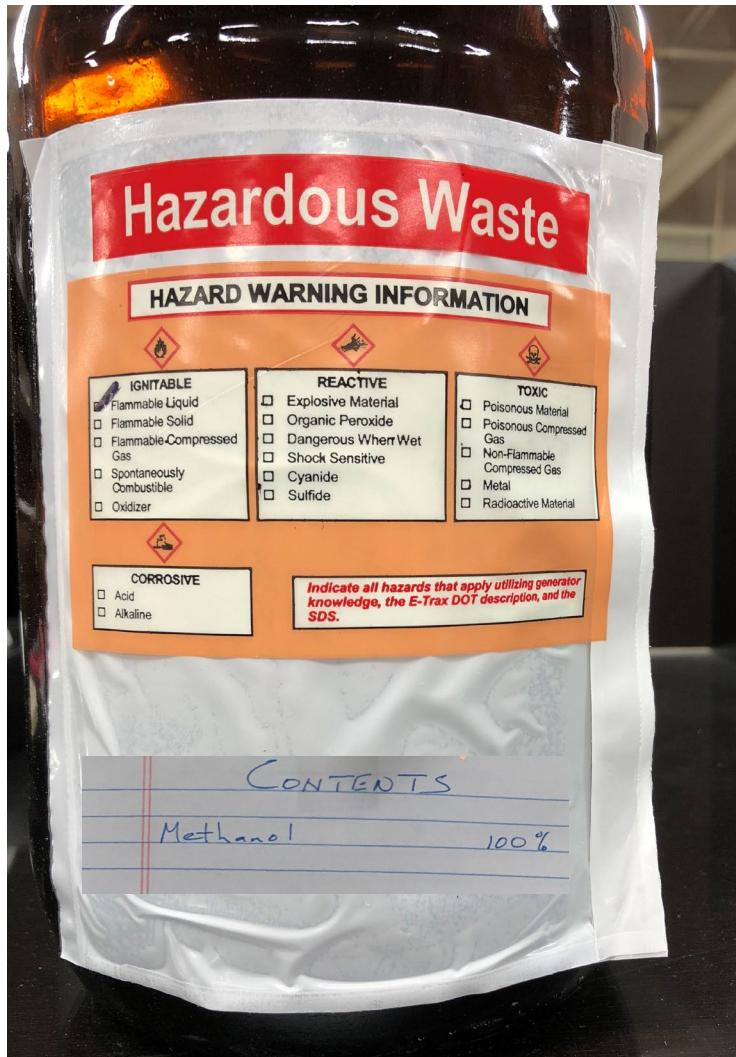
CORROSIVE

- Acid
- Alkaline

Indicate all hazards that apply utilizing generator knowledge, the E-Trax DOT description, and the SDS.

3. WASTE LABELING & HAZARD WARNINGS

Example: “Spent Methanol”



Self-Adhesive Sleeve



Hang-Tag

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4. WASTE ACCUMULATION MANAGEMENT

“Under the Control of the Operator”

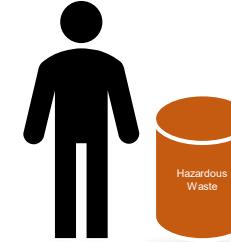


- The operator can control access to the room in which the SAA is located.
- The operator accumulates the waste in a locked cabinet
- The operator is regularly in view of the SAA in the course of their job.
- The operator is able to control who enters the location of the SAA.
- There can be more than one operator responsible for having control of the waste in the SAA.

4. WASTE ACCUMULATION MANAGEMENT

Some Key Terms

- “Under the Control of the Operator”

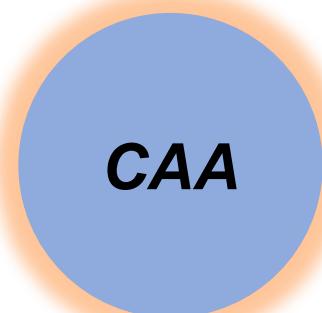


- Satellite Accumulation Area (SAA)



An SAA is an area where hazardous waste can be accumulated so long as it is under the control of the operator, at or near the point of generation and is within applicable volume restrictions.

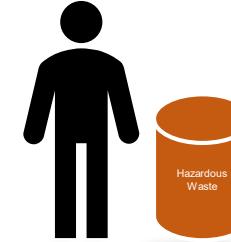
- Central Accumulation Area (CAA)



4. WASTE ACCUMULATION MANAGEMENT

Some Key Terms

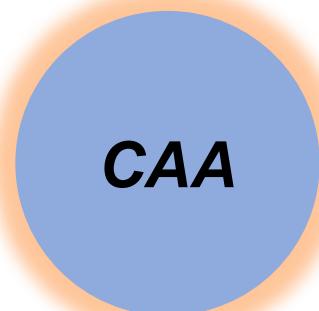
- “Under the Control of the Operator”



- Satellite Accumulation Area (SAA)



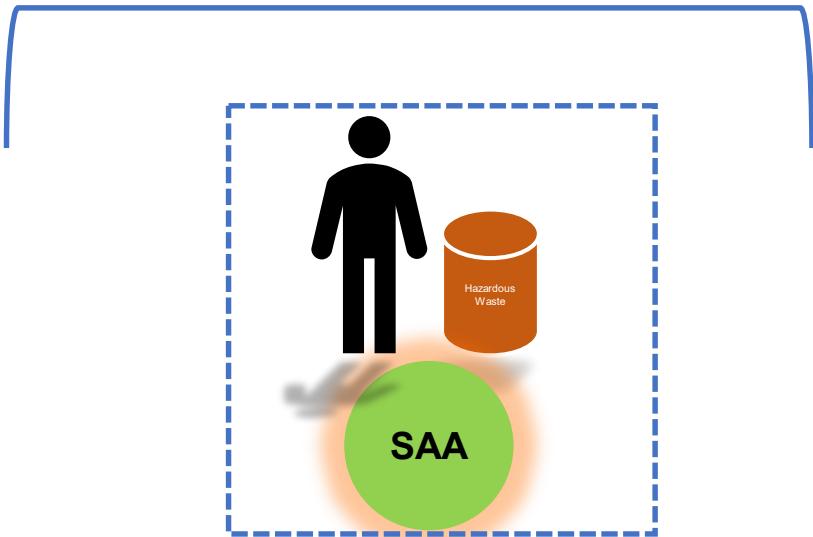
- Central Accumulation Area (CAA)



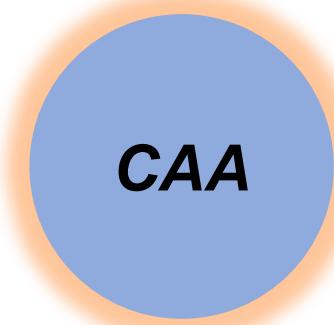
A CAA is any hazardous waste accumulation area that complies with specific regulatory requirements but is different from SAA's in that a CAA does not have to be located at the point of generation and the volumes of waste allowed to be accumulated are greater.

4. WASTE ACCUMULATION MANAGEMENT

“Under the Control of the Operator”



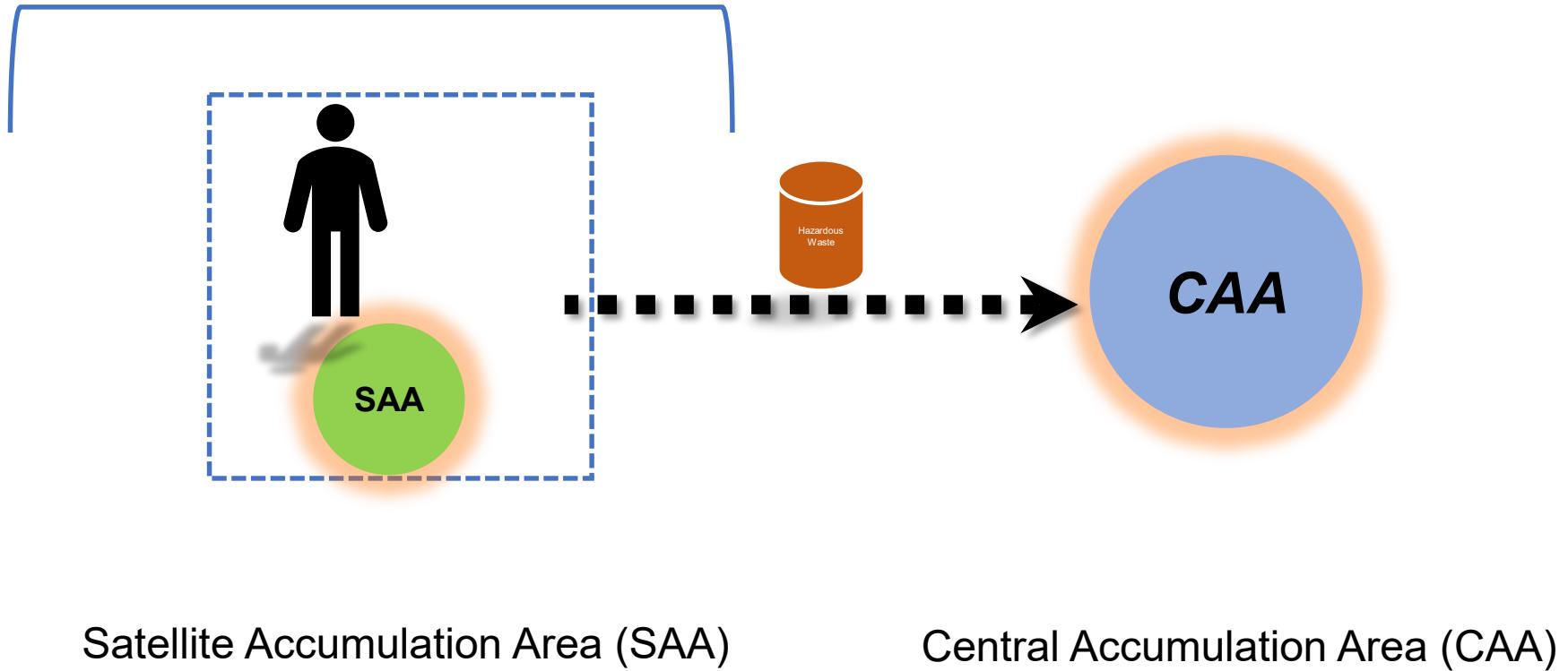
Satellite Accumulation Area (SAA)



Central Accumulation Area (CAA)

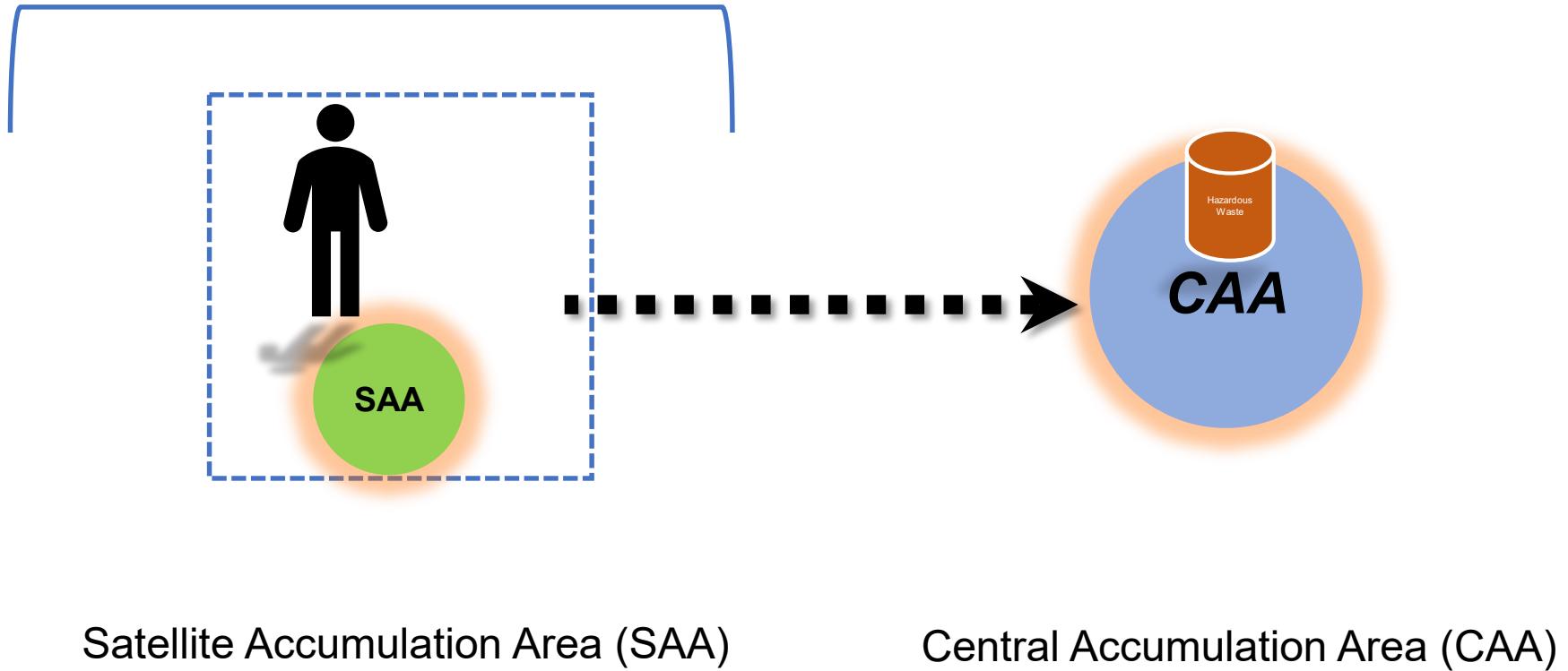
4. WASTE ACCUMULATION MANAGEMENT

“Under the Control of the Operator”

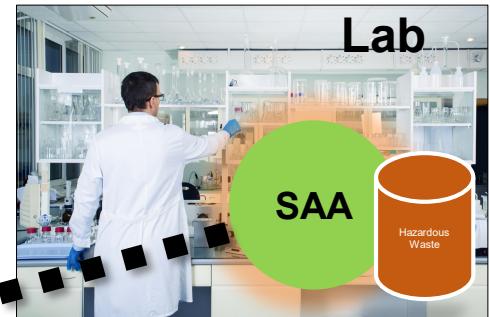


4. WASTE ACCUMULATION MANAGEMENT

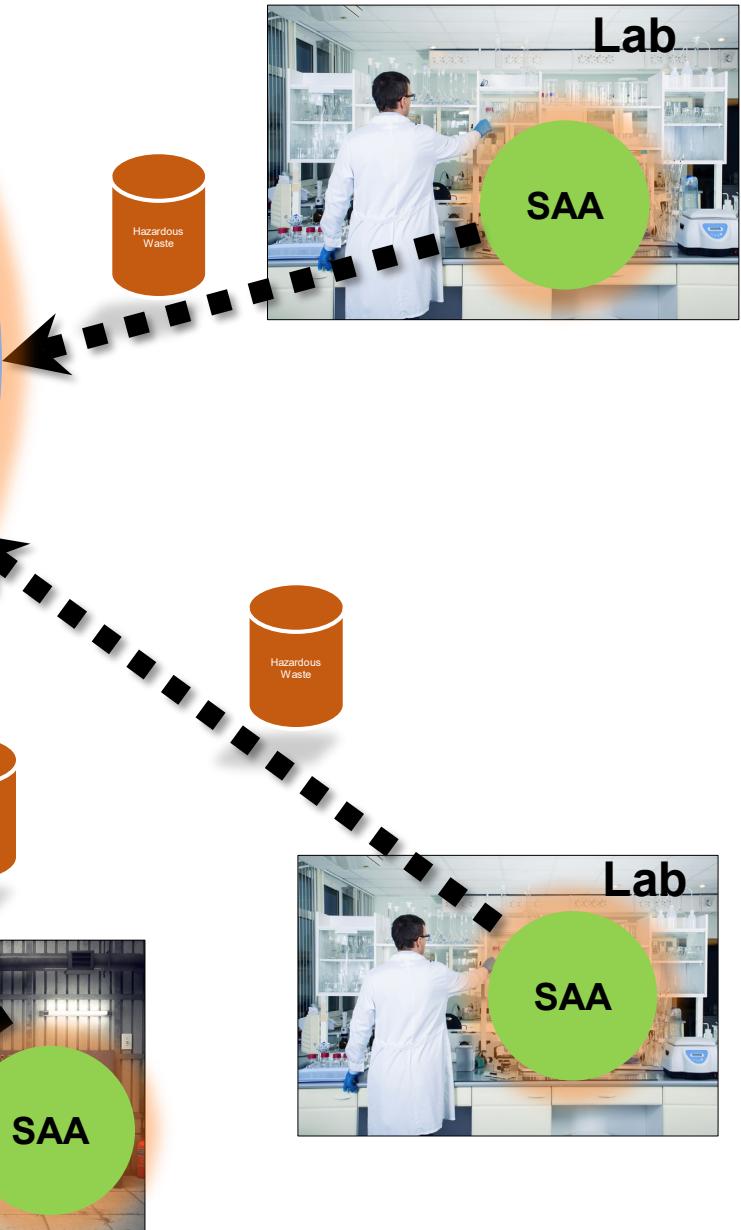
“Under the Control of the Operator”



4. WASTE ACCUMULATION MANAGEMENT



4. WASTE ACCUMULATION MANAGEMENT



4. WASTE ACCUMULATION MANAGEMENT

SAA



WASTE MANAGEMENT AT SATELLITE ACCUMULATION AREAS

- Containers must be:
 - ✓ Completely closed unless adding waste
 - ✓ Labeled with the words "**Hazardous Waste**".
 - ✓ Contents tracked and kept in the pocket-label during use.
 - ✓ Hazards determined and indicated on the label.
 - ✓ Not dated during use – date only when filled and ready for pick up.

The quantity of hazardous waste in a SAA cannot exceed:

- **55 gallons**, but
- Only **1 quart** of acutely toxic (P-listed)
- If limit reached – **3 days** to remove to CAA

4. WASTE ACCUMULATION MANAGEMENT

WASTE MANAGEMENT AT SATELLITE ACCUMULATION AREAS

HAZARDOUS WASTE SATELLITE ACCUMULATION AREA

Contact the PI for this area or the UK Environmental Management Department for more information.
For spill response assistance: During business hours (8:00 AM - 5:00 PM, Monday - Friday): **859-323-6280**
During non-business hours: **911** from a campus phone or #8573 from a cell phone.

Satellite Accumulation Areas must be clearly identified. This can be accomplished by placing signage as noted above on any of the following:

- The spill trays accumulating hazardous waste containers,
- The fume hood wall just above hazardous waste accumulation containers, or
- The hazardous waste storage cabinet.

The plastic, self-adhesive signage pictured above can be obtained from the Environmental Management Department.

4. WASTE ACCUMULATION MANAGEMENT

WASTE MUST BE COMPATIBLE WITH THE CONTAINER AND OTHER CONSTITUENTS!



CAUTION!

When incompatible wastes are placed in the same container **violent reactions** can occur!



4. WASTE ACCUMULATION MANAGEMENT

UNIVERSAL WASTE

- Batteries
- Pesticides
- Mercury-Containing Equipment
- Lamps
- Aerosol Cans



REQUIREMENTS:

- Containers should be dated at the time the accumulation is begun and may not be stored for longer than 1 year.
- Proper labeling.

4. WASTE ACCUMULATION MANAGEMENT

UNIVERSAL WASTE

Fluorescent Lamps and Other Lighting



LIGHTBULB CONTAINER

- SERVICED ON AN AS-NEEDED BASIS
- 4FT. FIBER DRUM
- UNIVERSAL WASTE: MUST BE LABELED AND CANNOT BE PLACED FOR LONGER THAN ONE YEAR.



You can contact the University of Kentucky Recycling office by:

Phone: 859-257-6234

Fax: 859-257-4878

Email: recycle@uky.edu

Address: 411 S. Limestone St.
Peterson Service Building, 0005
Room 18
Lexington, KY 40506

4. WASTE ACCUMULATION MANAGEMENT

Non-RCRA Regulated Waste



- Non-RCRA Regulated Waste is not a Hazardous Waste.
- However, such waste may still possess hazardous qualities.
- This waste can be picked up by the Environmental Management Department via the same notification procedures as for Hazardous Waste.

Ethidium Bromide



Silica Gel



Formalin



4. WASTE ACCUMULATION MANAGEMENT



Oil, such as vacuum pump oil, that has been used and as a result it is unfit for continued use is required to be labeled as ***Used Oil***.

You can contact the University of Kentucky Recycling office by:

Phone: 859-257-6234

Fax: 859-257-4878

Email: recycle@uky.edu

Address: 411 S. Limestone St.

Peterson Service Building, 0005

Room 18

Lexington, KY 40506

TOPICS

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- 5. Waste Pick-Up (E-Trax)**
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7. Training

5. WASTE PICK-UP (E-TRAX)

Resources Covid-19 Report an Incident Committees Training Search Print Log In

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

University of Kentucky

Environmental Management

UK Safety Begins with You!

Air Quality

Asbestos and Lead-Based Paint >

Environmental Auditing Practice & Charter

Phase I and II Environmental Site Assessments

Shipping Dangerous Goods

Storage Tanks

Stormwater Quality >

Waste Management >

Wastewater Quality >

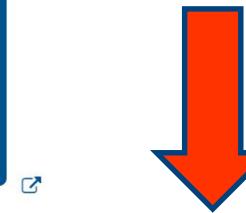
Waste Pick-Up Service

!! E-Trax and Chematix Moved !!

Note that as part of a recent update, E-Trax has a new location Please update your bookmarks!

One of the primary functions of the Environmental Management Department is to manage the University's permitted hazardous waste storage and treatment facility located at the [Environmental Quality Management Center \(EQMC\)](#). Most of the waste generated by the research and teaching laboratories (as well as other University sectors) is brought to this 11,000 sq. ft. facility for consolidation prior to its final shipment to an off-site commercial disposal or treatment facility.

The Environmental Management Department manages a web-based waste tracking system known as E-Trax. As a critical component of the University's regulatory compliance strategy, E-Trax provides a proficient and speedy means for those who generate waste to ensure its safe and timely pick-up by trained personnel. If you have the required training in place, simply access the E-Trax website by clicking the icon below, fill in the requested information, submit it to us using the prescribed notification process and within five (5) working days your waste will be picked up from your on or off-campus location.



If you have not used E-Trax before or need a reminder of certain aspects of the service, a convenient [E-Trax User's Guide](#)

Annual Hazardous Waste training is required for those responsible for any aspect of its management. Click on our "Hazardous Waste Management Training" page for more information.



24-Hour Spill Response Service

Between 8:00 a.m. - 5:00 p.m.: 323-6280

After Hours:

911 (from on-campus phones)
257-UKPD (8573)

Report an Illicit Stormwater Discharge Hotline:

To report an illicit discharge, spill or unusual surface water condition call the numbers below:

Between 8:00am - 5:00pm:

323-6280

After Hours:

911 (from on-campus phones),
257-UKPD (8573)

http://ehs.uky.edu/env/waste_pick-up.php

5. WASTE PICK-UP (E-TRAX)



EASY LOG ON PROCEDURES

- www.etrax.uky.edu

Please use your link blue information. E-Trax is integrated with the University's campus wide login system.



CREATE WASTE CARDS

- This step allows the user to print out a customized and accurate Waste Card that will accompany the waste from pick up to final disposition.
- This step also includes another useful utility to create a "Hot List" for repetitively generated wastes.



SUBMIT WORKSHEETS

- This final step results in the electronic submission of a Worksheet to the Environmental Management Department (EMD). Upon receipt of the Worksheet, personnel from the EMD will arrive within five working days to pick up the waste.



If you need assistance in accessing or using **E-Trax**, please contact:

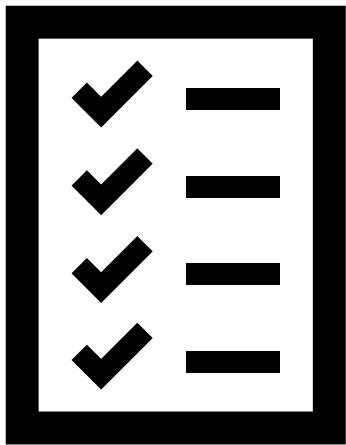
**Brian Butler, Waste Management Systems Specialist
University of Kentucky
Environmental Management Department
bbutl1@uky.edu
Office: 859-323-5005**

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6. EMERGENCY PLANNING

CONTINGENCY PLAN QUICK REFERENCE GUIDE



Must be readily available for each SAA and must include:

- ✓ Types, names, and hazards for Hazardous Waste
- ✓ Estimated maximum amounts
- ✓ Map showing location of SAA's
- ✓ Map of surrounding areas and routes of access
- ✓ Location of water supply
- ✓ Identification of emergency equipment
- ✓ Names and telephone number of Emergency Coordinator



6. EMERGENCY PLANNING

SPILL RESPONSE

"Small Spills"



"Large Spills"



**Lab Personnel are
responsible for the clean up
of all small spills.**

**Regular Business Hours:
After Hours:** **323-6280
911 (campus phones)
257-UKPD**

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7. TRAINING

Persons involved in the management of hazardous waste must complete a training program which teaches them how to perform their duties in compliance with applicable hazardous waste regulations.



Persons must be trained within 6 months of hire and annually thereafter.

SUMMARY

do
what^ you need
to know?



SUMMARY

ALL CONTAINERS OF HAZARDOUS WASTE MUST :

- ✓ Be labeled with the words “Hazardous Waste”.
- ✓ Be labeled with hazard warning information.
- ✓ Be labeled with the waste’s constituents.
- ✓ Be closed at all times, except when filling.
- ✓ Be located under the control of an operator.
- ✓ Be in a clearly identified and maintained Satellite Accumulation Area
- ✓ Not include incompatible wastes.
- ✓ Not include a date until it is filled and ready for pick-up.
- ✓ As much as possible, segregate wastes from non-waste chemicals.

WITHIN A SATELLITE ACCUMULATION AREA:

- No more than 55-gal. of hazardous waste (only 1 qt. of acutely toxic).

EVERYONE MANAGING HAZARDOUS WASTE MUST:

- Complete annual Hazardous Waste training.

QUESTIONS

- UK EMD Web site:
<https://ehs.uky.edu/env/>
“Waste”, “Lab Wastes”, & “Other Services”
- Kentucky DEP Web site:
www.dep.ky.gov
“Division of Waste Management”, “Fact Sheets”, & “Publication”
- USEPA Web site:
www.epa.gov
“Hazardous Waste”, “Waste Programs” & “Pollution Prevention”



QUESTIONS

Contact the Environmental Management Department for further information:

Maridely Loyselle, Assistant Director
562-3121 (O); 433-3235 (M)
maridely.loyselle@uky.edu

