University of Puerto Rico – Mayagüez Campus

Implementation of Academic Laboratories Rule (Subpart K)

maria.fernandez11@upr.edu

Outline

- Basic Facts
- Rationale for the Labs Rule
- Main Provisions of the Labs Rule
  - Side by Side comparison + UPRM LMP

*Source: EPA Office of Resource Conservation and Recovery (ORCR)

maria.fernandez11@upr.edu

Basic Facts

- Establishes new Subpart K in 40 CFR Part 262 for laboratories owned by eligible academic entities
  - Labs typically operate under the satellite accumulation area (SAA) regulations of 40 CFR 262.34(c)
  - Subpart K provides alternate RCRA generator regulations for managing hazardous waste in academic labs
- Rule is a mix of performance-based standards and specific standards for the lab
- Each eligible academic entity must develop a laboratory management plan (LMP)

maria.fernandez11@upr.edu

Rationale for the Labs Rule

- Teaching and research labs differ from industry in the following ways:
  - Hazardous waste generation pattern is different
    - Hundreds of different hazardous wastes that vary over time
    - Small amounts of each hazardous waste
    - Many individuals generating hazardous waste in many labs (i.e., many points of generation)
  - Individuals generating the hazardous waste are often students, who
    - Have inherently high turnover (thus difficult to train)
    - Lack the expertise & accountability of a professional workforce

maria.fernandez11@upr.edu

Rationale for the Labs Rule

- Problem
  - Hazardous waste generation pattern + Student presence = Very difficult to make accurate HW determinations at the point of generation
- Solution
  - Require trained professionals to make the HW determination instead of students
  - Allow HW determination to be made after initial point of generation
  - Any material in the laboratory that has the potential to be HW is managed as HW in the laboratory

maria.fernandez11@upr.edu

Regulatory Citation

Satellite Accumulation Areas

- 40 CFR 262.34 (c)

Academic Laboratories Rule

- 40 CFR Part 262 Subpart K

maria.fernandez11@upr.edu

Laboratory Management Plan (LMP)

Satellite Accumulation Areas

- LMP is not required

Academic Laboratories Rule

Two-part LMP is required

- 1. Contents of Part I are **enforceable**
  - 2 elements
    - Identify options for container labeling
    - Identify option for regular removal of unwanted material from laboratories
- 2.Contents of Part II are **not enforceable**
  - 7 elements
  - Best intended practices for laboratory HW management

maria.fernandez11@upr.edu

Applicability

SAA	VS	SUBPART K	UPRM LMP
Satellite Accumulation Area (SAA)		Laboratory	
Applies to SQGs and LQGs		Applies to CESQGs, SQGs and LQGs	
Applies to any SQG or LQG that chooses to establish an SAA "at or near the point of generation"		Applies only to labs at an "eligible academic entity" that opts into Subpart K: ❑College or University ❑Teaching Hospital that is owned by or has a formal written affiliation agreement with a C/U ❑Non-profit Research Institute that is owned by or has a formal written affiliation agreement with a C/U	

maria.fernandez11@upr.edu

Laboratory

Subpart K

What is a Laboratory*?	YES	NO
■ Teaching & research labs	✔	
■ Art studios	✔	
■ Photo labs	✔	
■ Field labs	✔	
■ Diagnostic labs in teaching hospitals	✔	
■ Areas that support labs (e.g., chemical stockrooms & prep rooms)	✔	
■ Chemical stockrooms that do not support labs		✔
■ Vehicle maintenance areas		✔
■ Machine shops		✔
■ Print shops		✔
■ Commercial photo processing		✔
■ Power plants		✔

* Laboratories must be OWNED by the eligible academic entity

maria.fernandez11@upr.edu

Terminology

SAA	VS	SUBPART K
Hazardous Waste (HW)		"Unwanted Material" OR other "equally effective term"
Acute Hazardous Waste (124 P-listed chemicals with 1qt threshold in SAA)		Reactive Acutely Hazardous Unwanted Material (6 P-listed chemicals with 1 qt threshold in lab)

UPRM LMP

- Unwanted material
- Reactive Acutely Hazardous Unwanted Material

maria.fernandez11@upr.edu

Container Labeling

SAA VS SUBPART K

• "Hazardous Waste"
OR

•"Other words that identify the contents of the container"

•The words "Unwanted Materials" or another "equally effective term" used consistently **AND,**

•Information to alert emergency responders to the contents of the container (e.g., name of chemical) **AND,**

•information sufficient to make a hazardous waste determination **AND,**

•Accumulation start date

UPRM LMP

- Chematix generated label with the following information:
  - "Unwanted material"
  - Name of chemical(s)
  - Accumulation start day

maria.fernandez11@upr.edu

Container Management

SAA	SUBPART K	UPRM LMP
•Containers must be in good condition	•Containers must be in good condition	▪ Containers must be in good condition
•Contents must be compatible with container	•Contents must be compatible with container	▪ Contents must be compatible with container

maria.fernandez11@upr.edu

Container Labeling

UNWANTED MATERIAL

GITW00005O

		Received Date:	
Accumulation Start Date:			
2008-03-04			
Created By:		Principal Investigator	
One, Test		One, Test	
Department	Building Name	Room No.	Phone
Engineering	Swanson Chemistry Center (917)	222	555-5555

Chemical Name	CAS #	%
Acetone	67-64-1	100.0

Signature:	Container Size:	5.0 Gal

maria.fernandez11@upr.edu

Container Management

SAA VS SUBPART K

SAA	SUBPART K
•Containers must be kept closed except:	•Containers must be kept closed except:
❑ When adding or removing HW	❑When adding, removing, or bulking unwanted materials
	❑Working container* may be open until end of procedure or shift, whichever is first
	❑When venting of a container is necessary

*Working container ≤ 2 gallons.

UPRM LMP

- Container size
  - Liquid Unwanted Materials
    - "working containers"
      - 500 ml – 1 gallon
    - "non-working containers"
      - up to 5 gallons
  - Solid Unwanted Materials
    - 250 g – 1 kg

maria.fernandez11@upr.edu

Removing HW from the Laboratory

SAA VS SUBPART K

• Volume-driven removals of HW from SAA:

❑ 3 days to remove the excess of 55 gallons of hazardous waste, if 55 gallons of HW (or 1 quart acute HW) is exceeded

•Time-driven removals of unwanted materials from laboratory:

❑All containers must be removed from the lab at a regular interval not to exceed 6 months, **OR**

❑Rolling 6 months: each container must be removed within 6 months from the container's accumulation start date

UPRM LMP

- Rolling 6 month approach
- Use of Chematix to monitor whether removal is necessary
- EHS office personnel will remove unwanted materials from laboratories

maria.fernandez11@upr.edu

Removing HW from the Laboratory

SAA VS SUBPART K

AND:

•Volume-driven removals of unwanted materials from lab:

❑10 days to remove unwanted materials if 55 gallons (or 1 quart of acute reactives) is exceeded

UPRM LMP

- If volumes are exceeded, EHS office personnel will remove **all** unwanted materials from laboratory within 10 days of volumes being exceeded

maria.fernandez11@upr.edu

Acutes in the Laboratory

SAA VS SUBPART K

SAA	SUBPART K
•Acute Hazardous Waste	•Reactive Acutely Hazardous Unwanted Material
❑ 124 P-listed chemicals (unused commercial chemical products)	❑ 6 reactive P-listed chemicals (unused commercial chemical products)
❑ If 1quart is exceeded in SAA, must be removed within 3 days	❑If 1 quart is exceeded in lab, must be removed within 10 calendar days

UPRM LMP

- If volumes are exceeded, EHS office personnel will remove **all** unwanted materials from laboratory within 10 days of volumes being exceeded
- 6 reactive P-listed chemicals
  - P006 – Aluminum phosphide
  - P009 – Ammonium picrate
  - P065 – Mercury fulminate
  - P081 - Nitroglycerine
  - P112 - Tetranitromethane
  - P122 – Zinc phosphide (> 10%)

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Hazardous Waste Determination

SAA VS SUBPART K

•Generator must make HW determination at the **point of generation**:

❑The time and place HW is first generated

•Eligible Academic Entity can choose when and where to make HW determination:

❑ In the laboratory, **or**

❑ Within 4 calendar days of arriving at an on-site:

•Central accumulation area

or

•Interim status or permitted TSDF

UPRM LMP

- HW determination will be made at the CAA within 4 days of unwanted materials arriving at said location

maria.fernandez11@upr.edu

Hazardous Waste Determination

SAA VS SUBPART K

Individuals generating the HW generally make the initial HW determination.

Individuals making the HW determination must be "trained professionals"

UPRM LMP

- EHS personnel will made HW determination

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Training

SAA VS SUBPART K

No training of SAA personnel is required

Training that is "commensurate with duties" is required for all laboratory personnel which includes:

- ❑Laboratory workers, and
- ❑Students

UPRM LMP

- Laboratory workers, include:
  - Laboratory Assitants
  - Laboratory Technicians
  - Research Associates
  - Teaching Lab Coordinators
  - Principal Investigators
  - Teacher Assistants
  - Students
- Training schedule and content will be determined by EMS Office
- Primarily classroom training
- One year certification

maria.fernandez11@upr.edu

Training

SAA VS SUBPART K

•Training required for personnel outside SAA:

❑Must have standard RCRA generator training, pursuant to their generator status

❑No CAA at CESQGs, so no training required

Training required for personnel outside lab (trained professionals):

❑Must have standard RCRA generator training, pursuant to their generator status

❑Trained professional at CESQGs must train to SQG standards

UPRM LMP

- EHS and EMS office personnel will remain in compliance with RCRA generator training

On-site Consolidation (Transferring Containers Outside the SAA/Lab)

SAA VS SUBPART K

Containers **may NOT** be transferred between SAAs, therefore on-site consolidation may **ONLY** occur in:

- ❑central accumulation area

Containers **MAY** be transferred between laboratories, therefore on-site consolidation **MAY** occur in a:

- ❑laboratory or
- ❑central accumulation area

UPRM LMP

- Consolidation will occur in the CAA
- If consolidation were to occur in the laboratory,
  - the earliest date associated with the original containers will be used
  - transfer between laboratories will be made by a trained professional

maria.fernandez11@upr.edu

On-site Consolidation (Transferring Containers Outside the SAA/Lab)

SAA VS SUBPART K

Consolidation laboratory

- ❑ Same time limits on how long containers can remain in the laboratory (i.e., 6 months)
- ❑ Same volume limits on how much unwanted material is allowed in the laboratory
- ❑ Only trained professionals can transfer the containers outside the lab

UPRM LMP

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Laboratory Clean-Out Incentives

SAA VS SUBPART K

No incentives to conduct laboratory clean-outs are provided:

❑ If exceed 55 gallons of HW, must remove the excess within 3 days

❑ All HW generated in a laboratory clean-out must be counted toward generator status

Regulatory incentives to conduct laboratory clean-out are provided:

❑ Laboratory clean-out waste has no volume limit--must remove all laboratory clean-out waste after 30 days

❑ HW generated during a laboratory clean-out that is unused commercial chemical product does not have to be counted toward generator status

UPRM LMP

- Laboratory clean-outs will be coordinated through the EHS office on campus.

maria.fernandez11@upr.edu

Laboratory Clean-Out Incentives

SAA VS SUBPART K

UPRM LMP

No incentives to conduct laboratory clean-outs are provided:

❑ Laboratory clean-outs will often increase generator status (e.g. from SQG to LQG)

Regulatory incentives to conduct laboratory clean-out are provided:

❑ Incentives can be used one time per laboratory per 12 months

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