United States Environmental Protection Agency

Comparing the Academic Laboratories Rule to the Satellite Accumulation Area Regulations

Environmental Protection Agency

Office of Resource Conservation and Recovery (ORCR)
formerly known as the Office of Solid Waste (OSW)

Outline

- Basics of the Labs Rule
- Rationale for the Labs Rule
- Main Provisions of the Labs Rule
- Status of State Authorization

Basic Facts About the Labs Rule

- 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)

Labs Rule is Optional on 2 Levels

1. STATES

The rule is deemed "as stringent" as current RCRA generator regulations

- Authorized states may, but are not required to adopt Subpart K

After the Labs Rule is effective in your State…

2. ELIGIBLE ACADEMIC ENTITIES

Subpart K is an optional rule for eligible academic entities

- Eligible academic entities can choose to comply with existing regulations or Subpart K

Rationale for the Academic 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

Rationale for the Academic Labs Rule

Hazardous waste generation pattern

+ ***Student presence***

Very difficult to make accurate HW determinations at the point of generation

Rationale for the Academic Labs Rule

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

Applicability of the Two Regulatory Provisions

Satellite Accumulation Area	Subpart K
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 (C/U) ■ 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

Terminology of the Two Regulatory Provisions

Satellite Accumulation Area	Subpart K
Hazardous Waste (HW)	"Unwanted Material" OR other "equally effective term" that you choose
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)
< 90/180 day generator accumulation area	Central accumulation area (CAA)

Who is NOT Eligible to Opt In?

Subpart K

- Commercial R&D labs
  - do not meet student criteria of the rule's rationale
- Government research labs
  - we lacked sufficient information regarding the student criteria
- High school labs

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

Notification

Satellite Accumulation Area

SQGs and LQGs must notify that they are generating HW but do not have to specify that they are accumulating HW in an SAA

Subpart K

Eligible Academic Entity must notify its authorized state that it is opting into Subpart K

- Use the Site ID Form (Form 8700-12) to notify
- Site ID Form has been modified to include new box for Subpart K
- Can withdraw from Subpart K using the same form

All laboratories at an EPA ID # (or site) must opt in together

Container Labeling

Satellite Accumulation Area

Containers of HW must be labeled with the words

- "Hazardous Waste" OR
- "Other words that identify the contents of the container"

Subpart K

Containers of Unwanted Materials must be labeled with:

"Affixed or Attached To" Label

- 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

"Associated with" Label

May be "affixed or attached" if preferred

- Information sufficient to make a hazardous waste determination and
- Accumulation start date

Container Management

Satellite Accumulation Area

1. Containers must be in good condition
2. Contents must be compatible with container
3. Containers must be kept closed except:
   - When adding or removing HW

* Working container ≤ 2 gallons

Subpart K

1. Containers must be in good condition
2. Contents must be compatible with container
3. Containers must be kept closed except:
   - 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
     - For operation of equipment such as HPLCs
     - To avoid pressure build-up

Training

Satellite Accumulation Area

No training of SAA personnel is required

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

Subpart K

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

- Laboratory workers, and
- Students

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

Removing HW from the Laboratory

Satellite Accumulation Area

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

Subpart K

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

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

Acutes in the Laboratory

Satellite Accumulation Area

In the SAA:
Acute Hazardous Waste

- 124 P-listed chemicals (unused commercial chemical products)
- If 1quart is exceeded in SAA, must be removed within 3 days

Generator status for facility: all 124 P-listed chemicals have 1 kg/month threshold that triggers LQG status

Subpart K

In the lab:
Reactive Acutely Hazardous Unwanted Material

- 6 reactive P-listed chemicals (unused commercial chemical products)
- If 1 quart is exceeded in lab, must be removed within 10 calendar days

1. P006 – Aluminum phosphide
2. P009 – Ammonium picrate
3. P065 – Mercury fulminate
4. P081 - Nitroglycerine
5. P112 - Tetranitromethane
6. P122 – Zinc phosphide (> 10%)

Generator status for facility: all 124 P-listed chemicals have 1 kg/month threshold that triggers LQG status

Hazardous Waste Determination

Satellite Accumulation Area

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

- The time and place HW is first generated

Individuals generating the HW generally make the initial HW determination

Subpart K

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

- In the laboratory (but after the time of initial HW generation), or
- Within 4 calendar days of arriving at an on-site:
  - Central accumulation area (CAA = 90/180/270 day area), or
  - Interim status or permitted treatment, storage, or disposal facility (TSDF)

Individuals making the HW determination must be "trained professionals"

HW Determination in a CAA

Subpart K

- Must date the container when it arrives at CAA, which starts the
  - 4-day clock for HW determination
  - 90- or 180-day clock for accumulation time
- Must determine whether the unwanted material is a HW within 4 days of arriving at the on-site CAA
- If it's a HW, must add the words "hazardous waste"
  - Must go on the "affixed or attached to" container label
- Can delay adding the HW code until immediately prior to off-site shipment
  - Can go on "affixed or attached to" label or "associated with" label

Hazardous Waste Determination

Subpart K

- The point of generation remains the same, only the hazardous waste determination is delayed
- All unwanted materials are **managed as hazardous waste** in the laboratory until the hazardous waste determination is made
- Unwanted materials in the laboratory will likely include materials that turn out to be non-hazardous wastes once the hazardous waste determination is made

On-site Consolidation

(Transferring Containers Outside the SAA/Lab)

Satellite Accumulation Area

- Containers may **NOT** be transferred between SAAs, therefore on-site consolidation may **ONLY** occur in a
  - central accumulation area

Subpart K

- Containers **MAY** be transferred between laboratories, therefore on-site consolidation **MAY** occur in a
  - laboratory or
  - in a central accumulation area
- 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

Off-site Consolidation

Satellite Accumulation Area

No provision for a generator to consolidate HW at an off-site location, unless the receiving facility is:

- An interim status or permitted TSDF or
- A transfer facility

Subpart K

No provision for a generator to consolidate HW at an off-site location, unless the receiving facility is:

- An interim status or permitted TSDF or
- A transfer facility

Laboratory Clean-Out Incentives

Satellite Accumulation Area

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

Subpart K

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

Laboratory Clean-Out Details

Subpart K

- Laboratory clean-outs are not mandatory
- 30-day clock for clean-out begins when you start sorting through cabinets and taking inventory
- At the end of 30 days, all laboratory clean-out unwanted materials must be removed from the laboratory and
  - Sent to on-site CAA or on-site TSDF, or
  - Sent off-site for disposal

Laboratory Clean-Out Details

Subpart K

- **On-site Management** of laboratory clean-out waste
  - Unused commercial chemical products are not counted toward generator status
  - CESQGs and SQGs will not have increased regulatory burden because of a laboratory clean-out
- **Off-site Management** of laboratory clean-out waste
  - If weight of laboratory clean-out waste makes the eligible academic entity exceed the CESQG monthly limits, then all HW must be managed and disposed of as HW when sent **off-site**
    - >1 kg of acute HW or
    - >100 kg of HW
- **Manifesting** laboratory clean-out waste
  - Use Box 14 on the manifest titled, “Special Handling Instructions and Additional Information”
  - Indicate that a portion or all the waste on the manifest is from a Subpart K laboratory clean-out

Laboratory Clean-out Example

Subpart K

- Squeaky Clean University (SCU) is a normally a CESQG
- Squeaky Clean University conducts a laboratory clean-out:
  - Generates 5 kg P-listed acute HW (unused commercial chemical products)
  - This amount is greater than the 1 kg of acute HW/month weight limit for CESQGs
  - Normally, Squeaky Clean University would become an LQG for the month
  - But, Squeaky Clean University does not count the 5 kg of unused commercial chemical product towards its generator status
  - Squeaky Clean University remains a CESQG for purposes of on-site accumulation
    - Squeaky Clean University does not have to do Biennial Reporting, contingency plans, etc.
  - For off-site management, since the CESQG limits have been exceeded, all HW must be managed as HW when sent off-site (e.g., manifested, LDRs, TSDF, etc.)

Laboratory Management Plan (LMP)

Satellite Accumulation Area	Subpart K
LMP is not required	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

Laboratory Management Plan (LMP)

- Contents of Part I of LMP are Enforceable
  - you can be held in violation if your practices vary from the LMP procedures you develop
- Contents of Part II of LMP are Not Enforceable
  - you can NOT be held in violation if your practices vary from the LMP procedures you develop
- You can be held in violation if all 9 required elements are not reasonably addressed in your LMP

Laboratory Management Plan (LMP)

- One LMP covers all laboratories at an EPA ID # (or site) that opts in
- If you have multiple EPA ID #'s (or sites) that opt in
  - One LMP can cover multiple sites
- LMP can be incorporated into another plan
  - e.g., OSHA's Chemical Hygiene Plan
- LMP includes procedures many of you have already developed

Recordkeeping

Subpart K

- Laboratory clean-outs must be documented
  - Identify laboratory cleaned out
  - Start and end date of laboratory clean-out
  - Volume of laboratory clean-out hazardous waste
- Training records must be kept by LQGs for
  - Laboratory workers (but not for students)
  - Trained professionals (as required by existing generator regulations)

Cost Savings for Eligible Academic Entities

- Economic Assessment for the Labs Rule
  - Of the eligible academic entities projected to opt into Subpart K, annual cost savings ranged from
    - $1,000 to just over $12,000
- Sector-specific generator regulations tailored to work with the normal operations of teaching and research laboratories
- Potential for better compliance and to move beyond compliance
  - e.g., waste minimization, green chemistry, both of which may reduce costs
- Safer laboratories may reduce occurrence of accidents and releases
- Reduced liability from better laboratory hazardous waste management
  - Potential for lower insurance rates

Where Is the Labs Rule Effective Now?

(Status as of 5/11/2010)

- Rule is effective in states and territories that are not authorized to run RCRA programs
  1. Alaska
  2. Iowa
  3. Indian Nations
  4. Territories: Puerto Rico, American Samoa, Northern Mariana Islands, US Virgin Islands

- Eight RCRA-authorized states have adopted the Labs Rule but not yet been authorized for the Labs Rule
  1. Alabama
  2. Arkansas
  3. Idaho
  4. Mississippi
  5. Montana
  6. New Jersey
  7. Pennsylvania
  8. Virginia

- Two additional states that are using the Labs Rule
  1. Wisconsin
  2. South Dakota

* Reminder: The Labs Rule (Subpart K) must be effective in a state before an eligible academic entity in that state may opt into the Labs Rule

Managing the Change to Subpart K

- Some institutions are nervous about changing to the new Subpart K
- We recommend talking to your state regulatory agency prior to opting into Subpart K to talk through concerns and to begin a dialogue
- Many of you are already operating under a similar system
- **Change is possible! And a few schools have already paved the way**

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