

US EPA ARCHIVE DOCUMENT

## Session 12 Air Emissions Standards



Booz | Allen | Hamilton

## Session 12 Agenda: Air Emissions Standards

- ▶ Regulatory Framework
- ▶ Subpart CC
  - Tanks, Containers, Surface Impoundments
- ▶ Subpart AA
  - Process Vents
- ▶ Subpart BB
  - Equipment Leaks



## Why Does RCRA Regulate Air Quality?

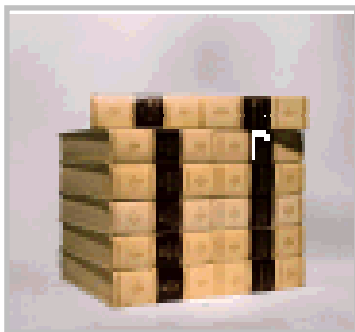
- ▶ Combined coverage – RCRA air emissions regulations and the Clean Air Act (CAA)
- ▶ RCRA regulates organic air emissions from hazardous waste management
- ▶ RCRA statute Section 3004(n) requires promulgation of air emissions standards



## Air Emissions Standards

**RCRA §3004(n)**

“The administrator shall promulgate such regulations for the monitoring and control of air emissions at hazardous waste treatment, storage, and disposal facilities, including but not limited to open tanks, surface impoundments, and landfills, as may be necessary to protect human health and the environment.”



The RCRA Air Emissions  
Program Compliments LDR  
by Preventing Cross-Media  
Contamination

## Three Phases of RCRA Air Regulations

- ▶ **Phase I:** Subparts AA & BB
  - Process vents and equipment leaks
  - 55 FR 25454; June 21, 1990
- ▶ **Phase II:** Subpart CC
  - Tanks, containers, and surface impoundments
  - 59 FR 62896; December 6, 1994
  - 61 FR 59932; November 25, 1996
- ▶ **Phase III:** Regulations for Individual Constituents or Individual Industries



## Subpart CC – Applicability

- ▶ Tanks, surface impoundments, and containers at **permitted and interim status Treatment, Storage, and Disposal Facilities (TSDFs)**
- ▶ Tanks and containers used by **Large Quantity Generators (LQGs)** as accumulation units



## Subpart CC – Exemptions

- ▶ **Units exempted under §264/265.1**
  - WWTU, TETU, ENU
- ▶ **Units listed in §264/265.1080(b)**
  - No waste added after December 6, 1996
  - Container with design capacity  $\leq 0.1\text{m}^3$
  - Tanks or surface impoundments undergoing closure
  - Units meeting CAA requirements
  - Tanks with a process vent regulated under Subpart AA
  - Units holding radioactive mixed waste
  - Units managing remediation waste





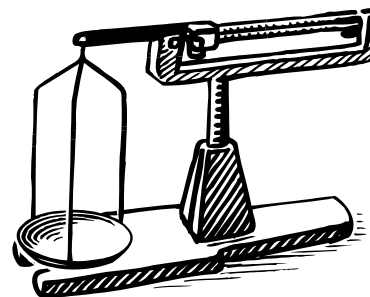
## Subpart CC – Exemptions (cont.)

- ▶ **Recycling units** where no waste storage occurs
- ▶ **Units in Satellite Accumulation Areas**
- ▶ **Units Satisfying a Treatment Exemption** in Sections 264.1082(c) or 265.1083(c)
  - Organic content has been removed by a specific process
  - Tank or surface impoundment used for biological treatment
  - Unit storing waste that meets its LDR treatment standard
  - Incinerator bulk feed tank regulated under benzene NESHAP



## Subpart CC – Exemptions (cont.)

- ▶ Units managing hazardous waste with a volatile organic compound (VOC) concentration of less than or equal to 500 parts per million by weight (ppmw) at the point of waste origination
- ▶ **VOC Concentration**
  - Mass-weighted average
  - Determined by testing or applying knowledge
- ▶ **Point of Waste Origination**
  - LQGs = point of waste generation
  - TSDFs = point of waste generation or waste acceptance



## Subpart CC – Tank Types

### ▶ Level 1 Units

- Meet maximum organic vapor pressure limits based on size of tank
- No heating above the temperature at which vapor pressure was determined
- No waste stabilization

### ▶ Level 2 Units

- All tanks that do not meet definition of a Level 1 tank



## Subpart CC – Level 1 Tank Requirements

- ▶ Fixed roof
- ▶ Closure device or closed-vent system connected to control device on all openings
- ▶ Conservation vents allowed to maintain tank pressure



## Subpart CC – Level 2 Tank Requirements

- ▶ Comply with one of the following:
  - Fixed roof and internal floating roof
  - External floating roof
  - Fixed roof vented through a closed-vent system to a control device
  - Pressure tank
  - Enclosure vented through a closed-vent system to an enclosed combustion device



## Subpart CC – Container Types

### ▶ Level 1 Containers

- Design capacity between 0.1 m<sup>3</sup> and 0.46 m<sup>3</sup>, or greater than 0.46 m<sup>3</sup> and not in light material service
- No waste stabilization

### ▶ Level 2 Containers

- Design capacity greater than 0.46 m<sup>3</sup> and operating in light material service
- No waste stabilization

### ▶ Level 3 Containers

- All containers with a design capacity greater than 0.1 m<sup>3</sup> in which waste stabilization occurs



## Subpart CC – Level 1 Container Requirements

- ▶ Meet one of the following conditions:
  - Container regulated by DOT standards in 49 CFR Parts 178 and 179
  - Covered container with no visible holes
  - Container with organic suppressing barrier (such as foam)





## Subpart CC – Level 2 Container Requirements

- ▶ Meet one of the following conditions:
  - Container regulated by DOT standards in 49 CFR Parts 178 and 179
  - Container with no detectable emissions (as defined by CAA Method 21)
  - Vapor tight containers (as defined using CAA Method 27)





## Subpart CC – Level 3 Container Requirements

- ▶ Meet one of the following conditions:
  - Container vented directly through a closed-vent system to a control device
  - Container vented into an enclosure that is exhausted through a closed-vent system to a control device



Air Emissions Standards

## Subpart CC – Surface Impoundment Requirements

- ▶ Floating synthetic membrane cover forming a continuous barrier over the liquid surface
- ▶ Another type of cover where any openings are equipped with a closure device or vented through a closed-vent system to a control device



*40 CFR Sections 264.1085 and 265.1086*



## Subpart CC – Inspection and Monitoring

- ▶ Tanks
  - Level 1 - initially and annually
  - Level 2 - specific to type of tank
- ▶ Surface impoundments
  - Floating cover - initially and biennially
  - Cover with closed-vent system - initially and annually
- ▶ Containers
  - Initially (unless off site within 24 hours)
  - Annually



## Subpart CC – Recordkeeping

- ▶ All records are placed in operating record
  - Waste determination procedures
  - Verification of exempt units
  - Control device installation records
  - Test method results
  - Inspection logs
  - Maintenance records
- ▶ Keep all records for a minimum of three years



## Subpart CC – Reporting

- ▶ Only permitted facilities report
- ▶ Report all instances of noncompliance for exempt units (when compliance with Subpart CC would have been required were it not an exempt unit)
- ▶ Semi-annual report describing instances where:
  - Control devices were in noncompliance for 24 hours, or
  - Visible emissions were present for five minutes or more without an operating flare



## Subpart AA – Applicability

- ▶ **Process vents:** Any open-ended pipe or stack that is vented to the atmosphere directly, through a vacuum-producing system, or through a tank
- ▶ Emissions directly associated with **certain processes:**



- Distillation
- Fractionation
- Air stripping
- Thin film evaporation
- Solvent extraction
- Steam stripping

## Subpart AA – Applicability (cont.)

- ▶ Process vents on:
  - Hazardous waste units subject to permitting or interim status
  - Recycling units at a permitted or interim status facility
  - LQG accumulation units
- ▶ Managing hazardous waste with organic concentrations of at least 10 ppmw





## Air Emissions Standards

**Subpart AA – Requirements**

- ▶ **Allowable facility-wide total organics emissions rate = 3 pounds per hour **AND** 3.1 tons per year**
  
- ▶ If threshold is exceeded, facility must:
  - Reduce facility-wide emission rates from all subject process vents to levels below these thresholds

**OR**

  - Reduce facility-wide total organic emissions from all sources by 95%





## Subpart AA – Compliance Options

- ▶ Use of control devices to remove or destroy organics in exhaust stream
  - Vapor recovery systems
  - Flares and enclosed combustion devices
  - Carbon adsorption systems
- ▶ Use of closed vent systems to route exhaust gases to control devices
- ▶ Change process to reduce organics entering system
- ▶ Cease operations



## Subpart BB – Applicability

- ▶ **Equipment leaks** from:
  - Hazardous waste units subject to permitting or interim status
  - Recycling units at a permitted or interim status facility
  - LQG accumulation units
  
- ▶ **Equipment** includes valves, pumps, compressors, pressure relief devices, open-ended valves or lines, sampling ports, flanges or other connectors, and any control devices or systems required by Subpart AA (64 FR 3389; January 21, 1999)
  
- ▶ Containing or contacting hazardous waste with organic concentrations of at least 10 parts ppmw



## Subpart BB – Applicability (cont.)

### ► Conditional Exclusions:

- Equipment that contacts or contains hazardous waste with at least 10 ppmw organic content for less than 300 hours in a calendar year
- Equipment in vacuum service
- Must still comply with recordkeeping requirements



## Subpart BB – Requirements

- ▶ Equipment must be **marked** in a way that it can be readily distinguished from other pieces of equipment
- ▶ **Leak Detection and Repair (LDAR)**
  - Monitoring and inspection requirements to detect leaks for each type of equipment
  - Specified time frame to repair leaks after detection

