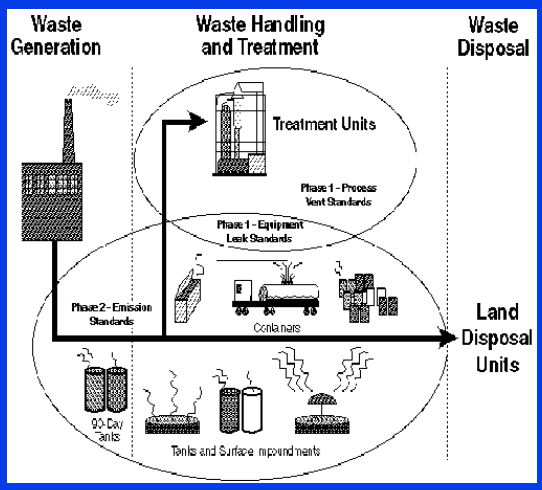
RCRA Subpart AA - Air Emission Standards for Process Vents



Applicability Issues for Subpart AA - Who is Covered?

- Facilities subject to 40 CFR §270
  - Permitted
  - Interim status
- Hazardous waste recycling units located at 90-day facilities, provided another unit at the facility has to obtain a RCRA permit (previously exempt)
- 90-day tanks and containers [40 CFR §264.1030(b)(1-3)]

On December 6, 1994, EPA modified §270.4 to require facilities that have already been issued a final RCRA permit (and whose permit does not address the Subpart AA requirements) to comply with Subpart AA standards. [62 FR 64657]

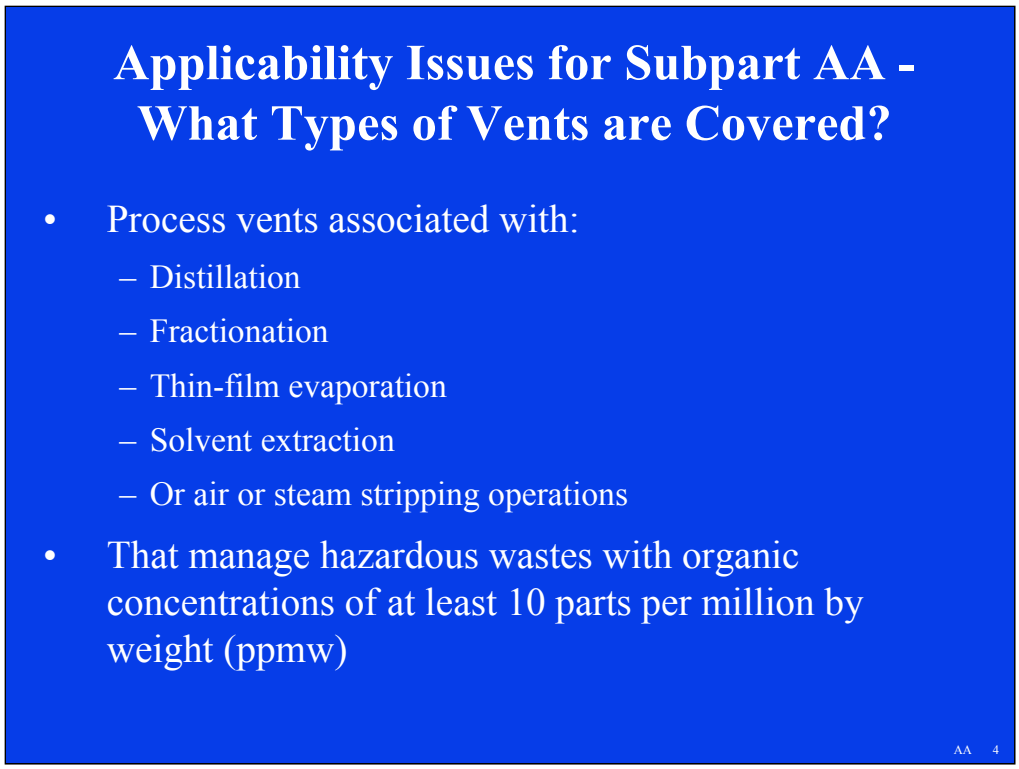
Process Vent - Definition

- Any open-ended pipe or stack that is vented to the atmosphere either directly, through a vacuum-producing system, or a tank associated with the regulated equipment described next

AA 3

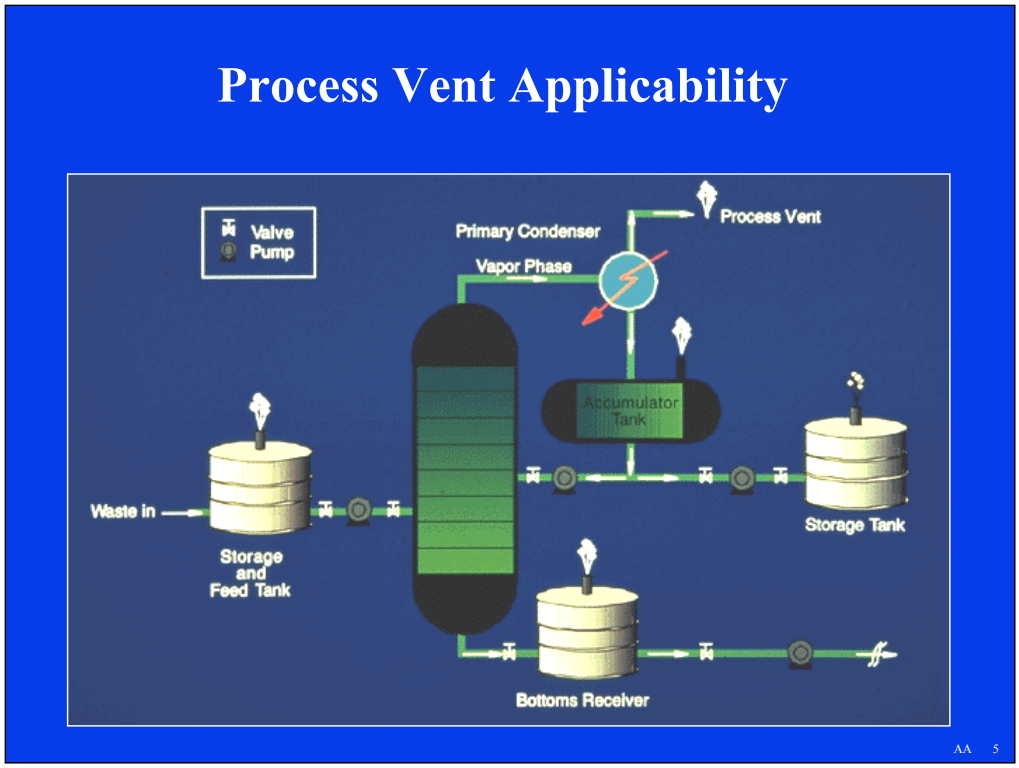
Process vent means “any open-ended pipe or stack that is vented to the atmosphere either directly, through a vacuum-producing system, or through a tank (e.g., distillate receiver, condenser, bottoms receiver, surge control tank, separator tank, or hot well) associated with hazardous waste distillation, fractionation, thin-film evaporation, solvent extraction or air or steam stripping operations.” [§264.1031]

Vented means “discharged through an opening, typically an open-ended pipe or stack, allowing the passage of a stream of liquids, gases, or fumes into the atmosphere. The passage of liquids, gases, or fumes is caused by mechanical means such as compressors or vacuum-producing systems or by process-related means such as evaporation produced by heating and not caused by tank loading or unloading (working losses) or by natural means such as diurnal temperature changes.” [§264.1031]



EPA Region 4 has been and does require unit organic air emission controls and compliance with RCRA Subpart AA for process vents and Subpart BB for equipment leaks at air stripping operations treating groundwater contaminated with volatile organic compounds.

The June 21, 1990, preamble to the RCRA Subpart AA & BB Rule, does make reference to wastewater treatment tanks as defined under 40 CFR § 260.10 being excluded from applicability to these two Subparts. But, this is not the case when remediating groundwater in air stripping operations. 40 CFR § 260.10 defines wastewater treatment units as receiving or treating an influent wastewater that is defined as hazardous waste as defined in 40 CFR § 261.3. However, 40 CFR § 261.3 does not address environmental media such as groundwater. Environmental media are not solid wastes. The Agency's position is that mixtures of environmental media and listed hazardous wastes must be managed **as if** they were hazardous wastes. In summary, groundwater is not a hazardous waste and does not meet the criteria of 40 CFR § 261.3. Thus, an air stripper treating groundwater contaminated with volatile organics does not meet the definition of a wastewater treatment unit as mentioned in the 1990 preamble to the Subpart AA & BB Rule and is not excluded from applicability to the RCRA Organic Air Emission Standards. In accordance with the "Contained-in Policy", a corrective action unit treating groundwater contaminated with a listed hazardous waste should be addressed as a hazardous waste management unit - not as a wastewater treatment unit.



Steam strippers are commonly used on relatively dilute aqueous type wastes. So the question might be "why is this a type of device where you would find equipment affected by these rules?" When the waste materials are stripped, the organic vapor phase passes overhead into an accumulator tank. When the organic material comes out of the accumulator tank and passes through the pumps and valves, the stripping systems at these points may be contacting waste materials with high enough organic content to be subject to these rules.

Applicability Issues for Subpart AA - Exemptions

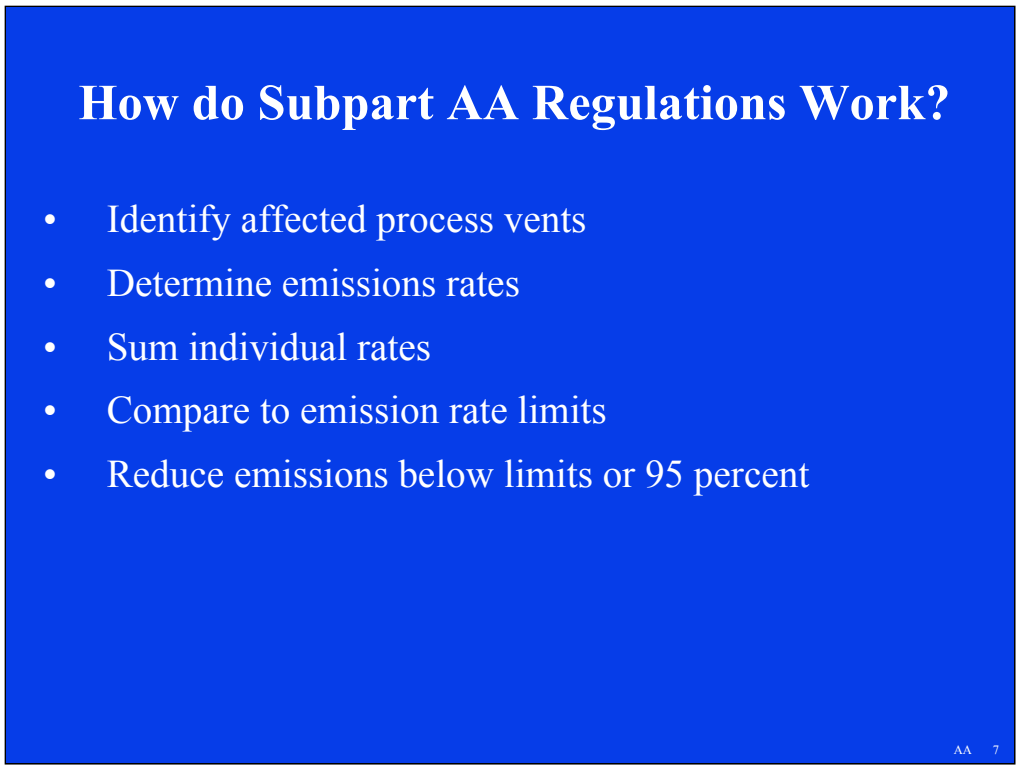
- Vents associated with recycling units that are exempt under 40 CFR §261.6(c)(1) at 90-day generator facilities provided no other unit at the facility has to obtain a RCRA permit
- Example: solvent recycling unit

AA 6

Facilities that would otherwise be subject to Subpart AA requirements that are equipped with and operating air emission controls complying with Clean Air Act (CAA) NSPS, NESHAPS, or MACT provisions in 40 CFR Part 60, 61, or 63 **for each affected process vent** are exempt from Subpart AA regulations.

It should be noted that exclusions for units addressed by CAA or other overlapping regulations are not automatic and often require investigation to ensure that the units are using air emission controls. In addition, the facility must show how they operate and monitor the control devices.

Refer to note on page 59932 of the Subpart CC Final Rule dated November 25, 1996.



The most difficult part of applying Subpart AA regulations is determining which vents are process vents.

Mass-balance calculations or grab samples can be used to determine emission rates.

Standards - Process Vents

- Total organic emissions from all affected process vents at a facility must be < 1.4 kg/h (3 lb/h) and 2.8 Mg/yr (3.1 tons/yr)
- Otherwise, use a closed vent system and control device to reduce the total organic emissions by 95 percent by weight

AA 8

Allowable control devices include vapor recovery systems, enclosed combustion devices, and flares. Standards for control devices are codified in § §264/265.1034(c).

Procedures for determining emission rates via performance tests are provided in §264/265.1034(c).

Subpart AA Example - Groundwater Remediation Air Stripper

- 90-day generator facility
- Groundwater pump and treat system, average flow of 400 gpm combined from multiple wells
- Groundwater is contaminated media, with average concentration of 27 mg/l hexane
- Collected water is treated in air stripper, assume complete removal

Calculate Yearly Emission Rate

- Annual flow = 400 gpm x 1440 min/yr x 365 days/yr x 3.80 l/gal
  = 798,900 liters per year
- Annual organic mass recovered = 798,900 l/yr x 27mg/l x 1 kg/10^6 mg
  = 21.56 kg per year
- What are emissions if 92% capture in condenser?
  1.73 kg per year
- Therefore, no control required unless all emissions at facility exceed 3.1 tons per year

Subpart AA - Summary

- Applicable to wastes with 10 ppmw organic concentration or more
- When treated in a specified type of process unit
  - Distillation
  - Fractionation
  - Thin-film evaporation
  - Solvent extraction
  - Or air or steam stripping operations
- Hourly and annual emission limits for both vent and facility