



The organic air emission standards for tanks, surface impoundments, and containers became effective on December 6, 1996.

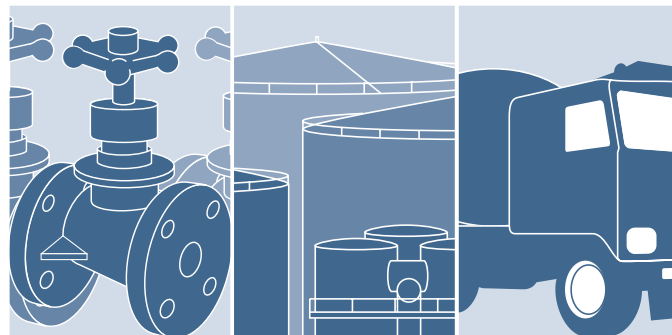
Prior to publication in the Code of Federal Regulations, subpart CC regulations can be found in the Federal Register (FR) at 59 FR 62896, December 6, 1994, as amended at 60 FR 50426, September 29, 1995; 61 FR 4903, February 9, 1996; 61 FR 59932, November 25, 1996; 62 FR 64636, December 8, 1997.

# RCRA Organic Air Emission Standards for TSDFs and Generators

## Purpose

The purpose of this document is to inform you of the requirements of the Resource Conservation and Recovery Act (RCRA) organic air emission standards contained in

40 CFR Parts 264/265, subpart CC. The Environmental Protection Agency (EPA) is responsible for the enforcement of the subpart CC standards until states become authorized to implement the regulations.

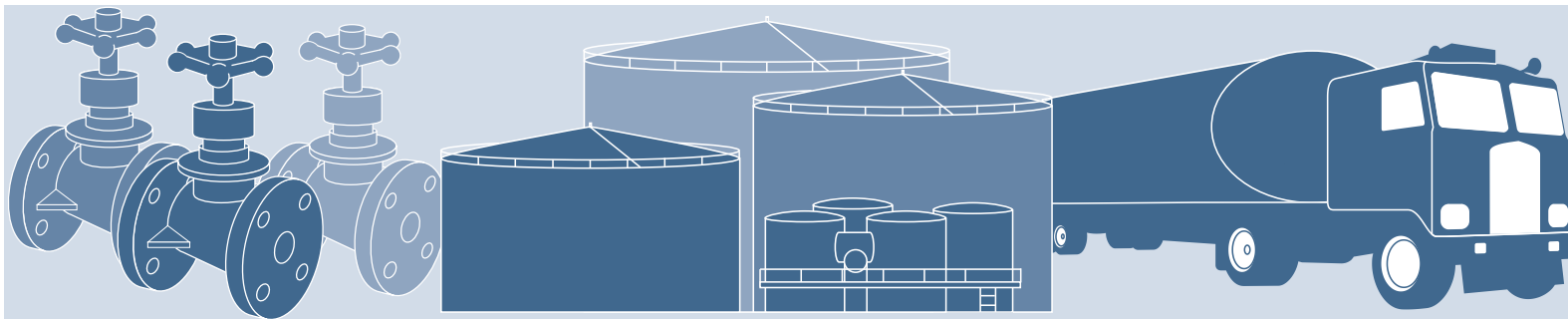


**The information contained in this summary document is solely for the convenience of the reader. It is the responsibility of the facility to comply with all regulatory requirements as promulgated. For a complete understanding of all applicable requirements, the facility should refer to the regulations contained in the Code of Federal Regulations (CFR).**

Section 3004(n) of RCRA requires the development of standards to control air emissions from hazardous waste treatment, storage, and disposal facilities (TSDFs) as necessary to protect human health and the environment. EPA has promulgated a series of regulations to implement this requirement. These regulations control air emissions from certain process vents and equipment leaks (parts 264 and 265, subparts AA and BB), as well as air emissions from certain tanks, containers, and surface impoundments (subpart CC). The subpart AA and BB standards became effective on December 21, 1990. See page 6 for a detailed discussion of the subpart AA and BB standards. The subpart CC organic emission control standards became effective on December 6, 1996.

When the rules were issued, EPA estimated that organic air emissions from hazardous waste TSDFs exceeded 2 million tons/year. These air emissions can contain toxic organic compounds as well as ozone precursors. Cancer and other adverse health effects may result from exposure to these organic emissions. Subpart CC standards are designed to reduce the level of organic air emissions to approximately 150,000 tons/year.





All samples used for waste characterization must be collected and handled in accordance with procedures contained in a written sampling plan maintained onsite.

Method 25D in 40 CFR part 60, appendix A, other approved analytical methods, or owner/operator knowledge may be used to determine the average VO concentration of the waste.

## Applicability

The subpart CC standards of 40 CFR part 264 (Permitted Facilities) and part 265 (Interim Status Facilities) apply to owners and operators of all facilities that treat, store, or dispose of hazardous waste in tanks, surface impoundments, or containers if the waste management units are subject to 40 CFR parts 264/265, subparts I, J, or K, after December 6, 1996. This includes large-quantity hazardous waste generators ( $\geq 1,000$  kg/month) storing hazardous waste in tanks or containers for less than 90 days.

See 40 CFR 264.1080 or 265.1080 to determine if your waste management units are subject to the subpart CC regulations. See 40 CFR 264.1082 and 265.1083 for a description of hazardous wastes and waste management units that are exempt from the subpart CC standards. Generally, if a hazardous waste has an average volatile organic (VO) concentration less than 500 parts per million by weight (ppmw) at the point of waste origination or if the hazardous waste organic content has been reduced by a treatment process to the extent described in 40 CFR 264.1082 or 265.1083 prior to placement in the waste management unit, the unit is exempt from the air emission controls required under the standards. The procedures to be used for determining average VO concentration and other waste characteristics are specified in 40 CFR 264.1083 and 265.1084.

**An owner or operator of an exempt waste management unit is required to maintain records that document the rationale for the exemption.**

## Effective Dates

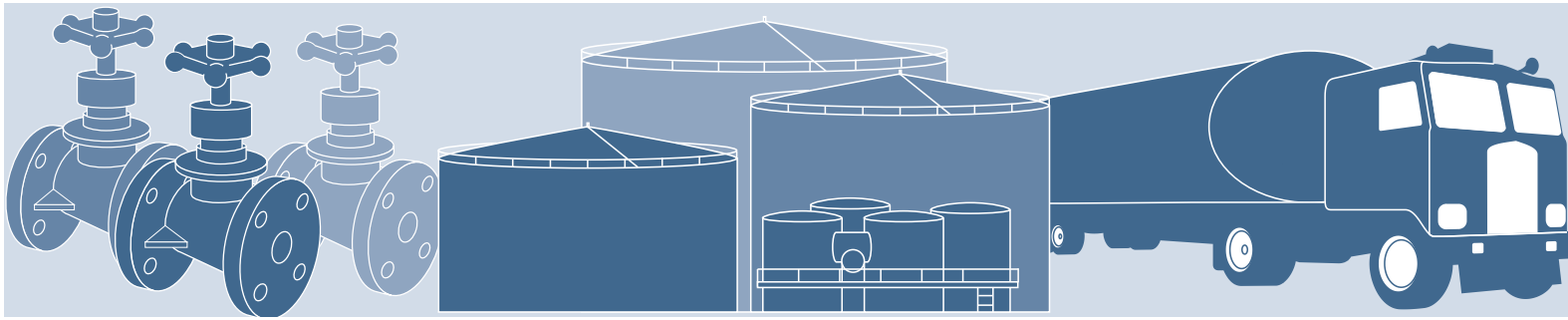
The subpart CC standards became effective on December 6, 1996. If the required air emission control equipment was not operational by December 6, 1996, the owner or operator was required to develop an implementation schedule for the equipment installation and startup. The schedule must have been placed in the facility records by December 6, 1996. For most facilities, the final date by which all required air emission equipment must have been installed and operating was December 8, 1997. Waste stabilization tank controls must be installed by June 8, 1998.

## Tanks

Subpart CC standards applicable to tanks containing hazardous wastes are specified in 40 CFR 264.1084 and 265.1085. There are two levels of air emission controls for tanks based on the size of the tank, maximum organic vapor pressure of the waste, and whether the tank is used in a waste stabilization process. The owner or operator is responsible for determining whether Tank Level 1 or Tank Level 2 controls are applicable.

## Tank Controls

1. If a tank's waste is greater than or equal to 500 ppmw VO, then air emission controls must be used.
2. Level of control is determined based on tank capacity, vapor pressure at storage conditions, and waste stabilization. Table 1 provides a matrix for determining the applicable control level for a tank.



3. If a tank qualifies for Level 1 controls, a tight-fitting cover (i.e., fixed roof) can be used and the owner or operator using Level 1 must determine the maximum organic vapor pressure for each hazardous waste placed in the tank as specified by 40 CFR 265.1084(c). Records of the maximum organic vapor pressure determination are required. These records must include the date and time the samples were collected, the analytical method used, and the results.

4. If a tank qualifies for Level 2 controls, the following control options are available to the owner/operator:

- External floating roof (EFR)
- Internal floating roof (IFR)
- Vent to control device
- Pressure tank

- Vent to an enclosed combustion device.

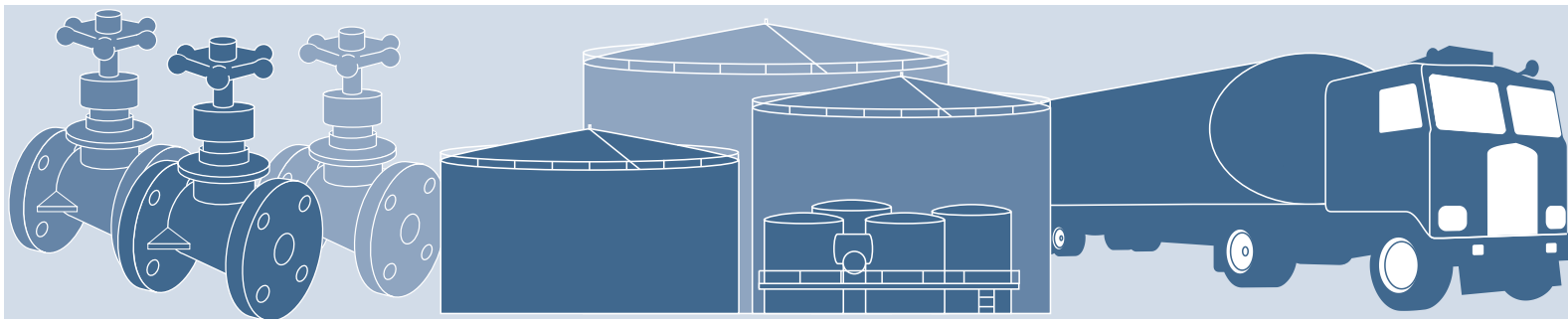
All tanks regulated by the subpart CC standards must be regularly inspected. Inspection procedures and requirements vary by type of tank control used. Records of all inspections, regardless of the control level, must be kept at the facility for a minimum of 3 years after the date of the inspection.

Owners or operators of tanks with internal or external floating roofs using Tank Level 2 controls are required to notify the Regional Administrator before conducting inspections. More detailed recordkeeping and inspection requirements are also required for floating roof tanks and tanks or enclosures that vent to a control device.

**Method 25E in 40 CFR part 60, appendix A, other approved analytical methods, or owner/operator knowledge may be used to determine the maximum organic vapor pressure of the hazardous waste.**

**If Tank Level 1 controls are used, documentation of the maximum organic vapor pressure determination must be kept in the facility records.**

Table 1. Determination of Applicable Level of Control for Tanks Containing Hazardous Waste Subject to the Subpart CC Regulations			
Tank Design Capacity	Maximum Organic Vapor Pressure of Hazardous Waste in Tank	Does Waste Stabilization Process Occur in Tank?	Applicable Level of Control
<75 m <sup>3</sup> (20,000 gal)	≤76.6 kPa (11.1 psi)	Yes	Tank Level 2 Controls
		No	Tank Level 1 Controls
	>76.6 kPa	Yes	Tank Level 2 Controls
		No	Tank Level 2 Controls
≥75 m <sup>3</sup> (20,000 gal) and <151 m <sup>3</sup> (40,000 gal)	≤27.6 kPa (4.0 psi)	Yes	Tank Level 2 Controls
		No	Tank Level 1 Controls
	>27.6 kPa	Yes	Tank Level 2 Controls
		No	Tank Level 2 Controls
≥151 m <sup>3</sup> (40,000 gal)	≤5.2 kPa (0.75 psi)	Yes	Tank Level 2 Controls
		No	Tank Level 1 Controls
	>5.2 kPa	Yes	Tank Level 2 Controls
		No	Tank Level 2 Controls



**Surface impoundments subject to subpart CC control requirements must have a floating membrane cover or a cover vented to a control device.**

**Transport vehicles, such as tank trucks and tank rail cars, are considered to be containers under RCRA.**

**Container Level 1 or 2 controls can be satisfied by properly using a DOT container approved for hazardous material transport.**

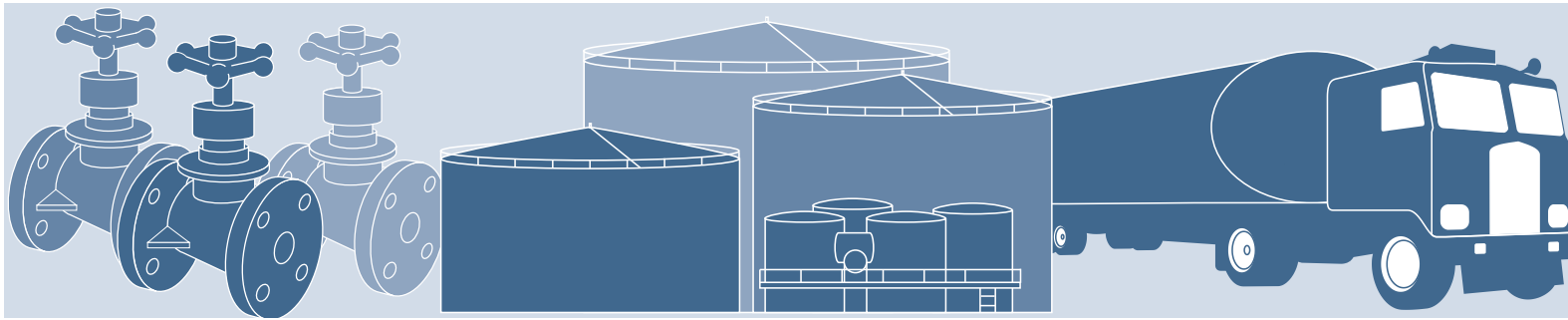
## Surface Impoundments

Subpart CC standards applicable to surface impoundments containing hazardous wastes are found in 40 CFR 264.1085 and 265.1086. To control air emissions from a surface impoundment managing a hazardous waste with a VO concentration >500 ppmw, an owner or operator must install and operate either a floating membrane cover or a cover that is vented through a closed-vent system to a control device. The floating membrane cover must meet certain design requirements specified in the rule including a requirement that the cover be made of high-density polyethylene with a thickness no less than 2.5 mm or of an equivalent material. The surface impoundment covers and closure devices are to be visually inspected for defects on or before the date that the unit is subject to the subpart CC standards and at least once a year thereafter. First efforts at repair of any defects detected on the cover or closure devices must be made within 5 days of detection, and repairs must be completed within 45 days of detection. A repair may be delayed more than 45 days only if it requires emptying the surface impoundment or removing it from service and no alternative capacity is available at the facility to accept the hazardous waste normally managed in the unit. Records of all inspections must be kept at the facility for a minimum of 3 years from the date of the inspection.

## Containers

Subpart CC standards applicable to containers of hazardous wastes are specified in 40 CFR 264.1086 and 265.1087. There are three levels of air emission controls for containers based on container size, organic contents, and whether the container is used in a waste stabilization process. Table 2 provides a matrix for determining the applicable control level for a container. Containers with a capacity less than 0.1 m<sup>3</sup> (26 gallons) are exempted from the rule. Container Level 1 controls require that the hazardous waste be stored in an approved Department of Transportation (DOT) container, a container equipped with a cover and closure devices for each opening, or an open-top container with an organic-vapor-suppressing barrier. Container Level 2 controls require that the hazardous waste be stored in an approved DOT container, a container that operates with no detectable organic emissions, or a demonstrated vapor-tight container. Container Level 3 controls require that the hazardous waste be stored in a container that is either vented directly to a control device or is located inside an enclosure that is vented through a closed-vent system to a control device. Design and operating criteria are specified in the rule for the enclosure, closed-vent system, and control device.

If a container is not emptied within 24 hours after it is accepted at the facility, a visual inspection is required on or before the date the container is accepted and at least once a year thereafter. Repairs of defects must be completed within 5 days or the contents of the container must be transferred to a container that is in compliance with the subpart CC standards.



If a non-DOT container larger than 0.46 m<sup>3</sup> (119 gallons) is used with Container Level 1 controls, records of the procedure used to determine that the container is not managing hazardous waste “in light material service” must be maintained. The subpart CC standards contain special recordkeeping and inspection requirements for Level 3 containers and their associated closed-vent systems, enclosures, and control devices.

## Miscellaneous Units

Certain miscellaneous (subpart X) units may also be subject to subparts AA, BB, and CC if those units managing the hazardous waste are similar to tanks, containers, and surface impoundments. The appropriate air emission controls would be implemented through the issuance or modification of a permit.

## Inspection and Monitoring Requirements

Owners or operators are required to inspect and monitor air emission control equipment used to comply with subpart CC in accordance with the applicable requirements specified in §265.1085 through §265.1088. Requirements vary by type of waste management unit and control device used.

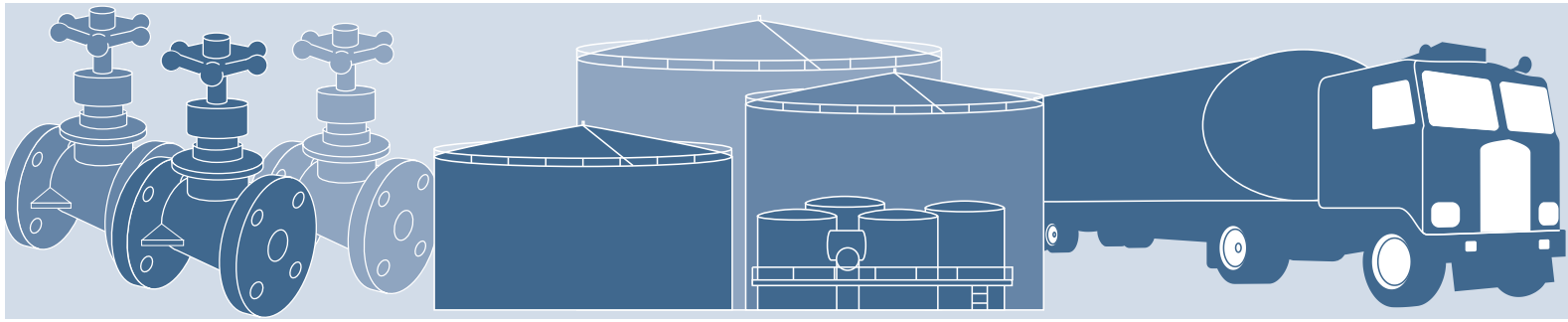
*The owner or operator must develop and implement a written plan and schedule to perform the required inspection and monitoring*

## Differences Between Permitted and Interim Status Facilities

The only difference between the air emission standards for permitted facilities

*Inspection records must be maintained in the facility records for at least 3 years from the date of inspection.*

Container Design Capacity	Is the Container in Light Material Service?	Does Waste Stabilization Process Occur in Container?	Applicable Level of Control
<0.1 m <sup>3</sup> (26 gal)	NA	NA	Container is Exempt from Air Emission Standards
≥0.1 m <sup>3</sup> (26 gal) and <0.46 m <sup>3</sup> (119 gal)	Yes	Yes	Container Level 3 Controls
	No	No	Container Level 1 Controls
	No	Yes	Container Level 3 Controls
	Yes	No	Container Level 1 Controls
≥0.46 m <sup>3</sup> (119 gal)	Yes	Yes	Container Level 3 Controls
	No	No	Container Level 1 Controls
	No	Yes	Container Level 3 Controls
	Yes	No	Container Level 2 Controls



Facilities that became subject to subpart AA and BB regulations as a result of the TSDF organic air emission standards must install the regulated control devices by June 6, 1999. (This does not apply to leak detection and repair (LDAR) program requirements under subpart BB. Facilities must comply with LDAR requirements by December 6, 1996.)

Subpart AA establishes standards for process vents as well as closed-vent systems and control devices.

and interim-status facilities or large-quantity generators (<90-day storage) is the reporting requirement. There are no specific reporting requirements for interim-status facilities or generators. For permitted facilities, the following situations should be reported to the Regional Administrator:

1. A waste management unit reported to be exempt from the subpart CC regulations that is no longer complying with the standard that exempted the unit.
2. A tank using Tank Level 1 air emission controls that is no longer complying with Level 1 control requirements.
3. A control device that has continuously operated in noncompliance with the applicable standards for a period of 24 hours or longer in any 6-month period.

## Subpart AA and BB Standards

The TSDF organic air emission standards have made all permitted TSDFs and large-quantity generators subject to the subpart AA and BB regulations as of December 6, 1996. The subpart AA and BB standards of 40 CFR parts 264 and 265 became effective on December 21, 1990, for interim-status TSDFs. Under the subpart CC rule, permitted TSDFs are now required to comply with the subpart AA and BB air emission standards for interim-status facilities until the facility's permit is reviewed or reissued by EPA or the state (when authorized to implement these programs).

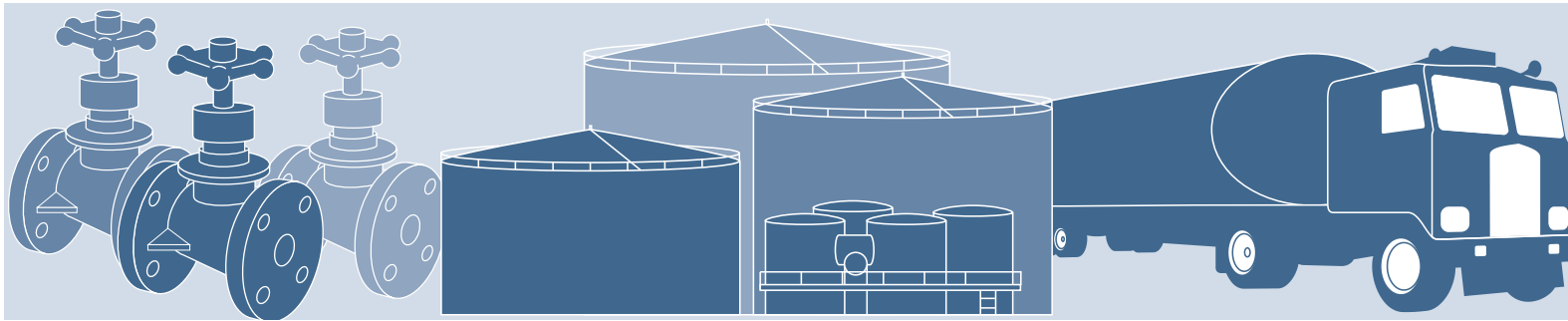
If the required controls (i.e., control devices or process changes) were not installed

before December 6, 1996, an implementation schedule and an explanation describing why the controls were not installed must be placed in the facility records.

Subpart AA establishes air emission controls for process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations that manage hazardous wastes with organic concentrations of at least 10 ppmw. Subpart AA also establishes standards for closed-vent systems and control devices. See 40 CFR 264.1030 through 264.1036 or 265.1030 through 265.1035 for all of the air emission standards for process vents, closed-vent systems, and control devices.

Subpart BB establishes air emission controls for equipment leaks. Subpart BB applies to equipment that contains or contacts hazardous wastes with organic concentrations of at least 10% by weight. If the equipment contacts hazardous waste or hazardous waste residues less than 300 hours per year or if the equipment is in vacuum service, it is excluded from the subpart BB standards. Types of equipment regulated by subpart BB include pumps, compressors, pressure-relief devices, sampling connection systems, valves, open-ended valves or lines, and flanges. (The allowance for an implementation schedule does not apply to the leak detection and repair [LDAR] program for pumps and valves. LDAR must be in place by December 6, 1996.)

Each piece of equipment that is subject to the subpart BB standards must be marked in such a manner that it can be readily distinguished from other pieces of equipment. The equipment must be monitored and inspected regularly. Specific inspection requirements are contained in 40 CFR



264.1052 through 264.1060 or 40 CFR 265.1052 through 265.1060. Most equipment leaks must be repaired within 15 calendar days, although a leaking pressure-relief device must be repaired within 5 calendar days.

Recordkeeping requirements include equipment identification, equipment description and location, methods of compliance monitoring, and equipment LDAR records. See the *Code of Federal Regulations* for more specific recordkeeping requirements.

## Waste Minimization

The hazardous waste generated by a company can cut into that company's profit margin. Not only are there costs to manage, transport, and dispose of waste, valuable resources could be discarded inadvertently and potential liabilities incurred. More and more companies are taking steps to minimize hazardous waste generation in their facilities to reduce the financial burden of the RCRA regulations. EPA may be able to help.

For more information on minimizing hazardous waste, contact the RCRA Hotline at 800-424-9346 or TDD-800-553-7672 or visit the web site at: <http://www.epa.gov/osw/minimize>

## Definitions

**Average volatile organic concentration** – The mass-weighted average volatile organic concentration of a hazardous waste as determined in accordance with the requirements of §265.1084(a).

**Closed-vent system** – A system that is not open to the atmosphere and that is composed of piping, connections, and, if necessary, flow-inducing devices that transport gas or vapor from a piece or pieces of equipment to a control device.

**Control device** – An enclosed combustion device, vapor recovery system, or flare. Any device the primary function of which is the recovery or capture of solvents or other organics for use, reuse, or sale is not a control device.

**Enclosure** – A structure that surrounds a tank or container, captures organic vapors emitted from the tank or container, and vents the captured vapors through a closed-vent system to a control device.

**In light material service** – A container that is used to manage a material for which both of the following conditions apply: the vapor pressure of one or more of the organic constituents in the material is greater than 0.3 kilopascals (kPa) at 20 °C and the total concentration of the pure organic constituents having a vapor pressure greater than 0.3 kPa at 20 °C is equal to or greater than 20% by weight.

**Maximum organic vapor pressure** – The sum of the individual organic constituent partial pressures exerted by the material contained in a tank, at the maximum vapor-pressure-causing conditions (e.g., temperature, agitation, pH effects of combining wastes) reasonably expected to occur in the tank. Maximum organic vapor pressure is determined using the procedures specified in §265.1084(c).

**No detectable organic emissions** – No escape of organics to the atmosphere as determined using procedures described in §265.1084(d).

Subpart BB establishes air emission controls for equipment leaks.

Equipment that is leaking and subject to subpart BB must be identified with a tag that contains the equipment ID No. and the date of leak detection.

**Point of waste origination** – (1) When the facility owner or operator is the generator of the hazardous waste, the point of waste origination means the point where a solid waste produced by a system, process, or waste management unit is determined to be a hazardous waste as defined in 40 CFR part 261. (2) When the facility owner or operator is not the generator of the hazardous waste, point of waste origination means the point where the owner or operator accepts delivery or takes possession of the hazardous waste.

**Point of waste treatment** – The point where a hazardous waste to be treated in accordance with §265.1083(c)(2) exits the treatment process. Any waste determination must be made before the waste is conveyed, handled, or otherwise managed in a manner that allows the waste to volatilize to the atmosphere.

**Volatile organic concentration** – The fraction by weight of the volatile organic compounds with a Henry's law constant value of at least 0.1 y/x contained in a hazardous waste expressed in terms of ppmw as determined by direct measurement or by knowledge of the waste in accordance with the requirements of §265.1084.

**Waste determination** – Performing all applicable procedures in accordance with the requirements of §265.1084 to determine whether a hazardous waste meets standards specified in subpart CC. For example, determining the volatile organic concentration of a hazardous waste stream.

**Waste stabilization process** – Any physical or chemical process used to either reduce the mobility of hazardous constituents in a hazardous waste or eliminate free liquids as determined by Test Method 9095 (Paint Filter Liquids Test) in Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publication No. SW-846, Third Edition, September 1986, as amended by Update I, November 15, 1992. A waste stabilization process involves mixing the hazardous waste with binders or other materials and curing the resulting hazardous waste and binder mixture. Other synonymous terms used to refer to this process are "waste fixation" or "waste solidification." This does not include the adding of absorbent materials to the surface of a waste, without mixing, agitation, or subsequent curing, to absorb free liquid.

Please contact the RCRA Hotline at (800) 424-9346 or TDD (800) 553-7672 (in the Washington, DC, area call (703) 412-9810) to find out your EPA Regional Permitting and Enforcement contacts.



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