Compliance Assistance Tool for Clean Air Act Regulations: Subpart GGG of40 CFR NESHAPS for Source Category Pharmaceutical Production

August 2002

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Office of Enforcement
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Chapter 7
Requirements for Wastewater

7.1 Overview - Suppression and Control

The wastewater provisions of the MACT differ from the provisions for tanks and process vents in that they are concerned with both suppressing air emissions within the wastewater treatment chain (i.e. individual drain systems, treatment tanks, etc) as well as reducing HAP in the wastewater itself through performance standards. Additionally, any air emissions vented during the treatment process must be controlled via traditional air pollution control devices and equipment leak provisions apply to vapor collection systems, closed vent systems, roofs, covers or other enclosures used to comply with the rule. Residuals created from treatment processes must either be recycled, returned to the treatment process or destroyed. Although not considered wastewater, this chapter also describes requirements for heat exchangers and equipment in open systems. The suppression and control requirements are summarized below:

Chapter 7 at a Glance

TYPE OF STANDARD	MEDIA	PURPOSE
Vapor Suppression (VS)	air	Use equipment specs and operating practices to minimize HAP losses to the air from tanks, surface impoundments, containers, and individual drain systems (i.e., cover equipment to limit emissions)
Performance Standards (PS) **1. Wastewater Treatment** (WWT)	water	! Use wastewater treatment processes to reduce the HAP content in the wastewater (i.e. removal, destruction, treatment in bio units, etc)
2. Air Emissions Control (EC)	air	! Use control device specs or performance standards for air pollution control devices (APCDs) to reduce HAP emissions (i.e., use APCDs) vented from treatment processes

These two types of standards - VS and PS (with EC and WWT subsets) - will appear throughout this chapter, since they establish the structure of the regulations for wastewater.

The rule contains many of the same requirements found in the wastewater section of Subpart G of the HON (§63.131-.149). This includes vapor suppression requirements, air pollution control device (APCD) requirements, compliance demonstration procedures, inspection and monitoring requirements, and requirements for certain liquid streams in open systems. Please be aware that the HON regulations are not exactly the same as the pharmaceutical MACT regulations, and the HON regulations should not be used to interpret specific requirements of the pharmaceutical MACT.

7.2 Structure of the Regulation

The pharmaceutical MACT addresses wastewater requirements in several sections. General applicability provisions are contained in §63.1250 and definitions are provided in §63.1251. More specifically, §63.1256 covers wastewater standards and §63.1257(e) covers initial compliance demonstration procedures for wastewater. Wastewater also is addressed in §63.1252 (Standards: General) and §63.1258-1260 (Monitoring, Record Keeping and Reporting). The primary components of the wastewater provisions are shown in Figure 7-1.

What Wastewaters are Subject to the Pharmaceutical MACT ?

7.3 Applicability

A wastewater stream is subject to this regulation if it meets the definition of a wastewater stream, per §63.1251.

Wastewater Stream Definition

The definition of a wastewater stream is:

1. Water that is discarded from a PMPU through a single ***Point of Determination (POD),***
2. Has a concentration of Partially Soluble HAP (PSHAP) and /or Soluble HAP (SHAP) compounds of at least 5 parts per million by weight (ppmw), and
3. Has a Total HAP load of at least 0.05 kg/yr.

> ***Point of Determination*** *- Point where a wastewater stream exits the process, storage tank, or last recovery device. If the soluble or partially soluble HAPs are not recovered for re-use before discharge, then the discharge point from the process equipment or storage tank is the POD. There can be more than one POD per process or PMPU.*

The regulated wastewater compounds identified above as Partially Soluble HAP (PSHAP) and Soluble HAP (SHAP) are listed in Tables 2 and 3 of the regulation. The sum of PSHAP and SHAP compounds is referred to as Total HAP.

Exemptions

The following are not considered regulated wastewaters per the definition of wastewater stream:

- Stormwater from segregated sewers,
- Water from firefighting & deluge systems (including testing of such systems),
- Spills,
- Water from safety showers,
- Samples of a reasonable size for analysis,
- Equipment leaks,
- Wastewater drips from procedures such as disconnecting hoses after clearing lines, and
- Noncontact cooling water.

Scrubber Effluent

If a scrubber is being used to control vent streams containing partially soluble HAP (PSHAP), in order to meet the process vent standards in §63.1254, the effluent from the scrubber is considered an affected wastewater stream and is therefore subject to the wastewater provisions in the MACT.

Multiphase Wastewater Streams

The regulations at §63.1256(a)(3) provide that a separate phase that can be isolated through gravity separation cannot be discharged to a waste management or treatment unit, unless it is discharged to a RCRA unit.

Table 2 to Subpart GGG. Partially Soluble HAP

1,1,1-Trichloroethane (methyl chloroform)
1,1,2,2-Tetrachloroethane
1,1,2-Trichloroethane
1,1-Dichloroethylene (vinylidene chloride)
1,2-Dibromoethane
1,2-Dichloroethane (ethylene dichloride)
1,2-Dichloropropane
1,3-Dichloropropene
2,4,5-Trichlorophenol
2-Butanone (mek)
1,4-Dichlorobenzene
2-Nitropropane
4-Methyl-2-pentanone (mibk)
Acetaldehyde
Acrolein
Acrylonitrile
Allyl chloride
Benzene
Benzyl chloride
Biphenyl
Bromoform (tribromomethane)
Bromomethane
Butadiene
Carbon disulfide
Chlorobenzene
Chloroethane (ethyl chloride)
Chloroform
Chloromethane
Chloroprene
Cumene
Dichloroethyl ether
Dinitrophenol
Epichlorohydrin
Ethyl acrylate
Ethylbenzene
Ethylene oxide
Hexachlorobenzene
Hexachlorobutadiene
Hexachloroethane
Methyl methacrylate
Methyl-t-butyl ether
Methylene chloride

Table 2 to Subpart GGG. Partially Soluble HAP (cont.)

N,N-dimethylaniline
Propionaldehyde
Propylene oxide
Styrene
Tetrachloroethene (perchloroethylene)
Tetrachloromethane (carbon tetrachloride
Toluene
Trichlorobenzene (1,2,4-)
Trichloroethylene
Trimethylpentane
Vinyl acetate
Vinyl chloride
Xylene (m)
Xylene (o)
Xylene (p)
N-hexane

Table 3 to Subpart GGG. Soluble HAP

1,1-Dimethylhydrazine
1,4-Dioxane
Acetonitrile
Acetophenone
Diethyl sulfate
Dimethyl sulfate
Dinitrotoluene
Ethylene glycol dimethyl ether
Ethylene glycol monobutyl ether acetate
Ethylene glycol monomethyl ether acetate
Isophorone
Methanol (methyl alcohol)
Nitrobenzene
Toluidene

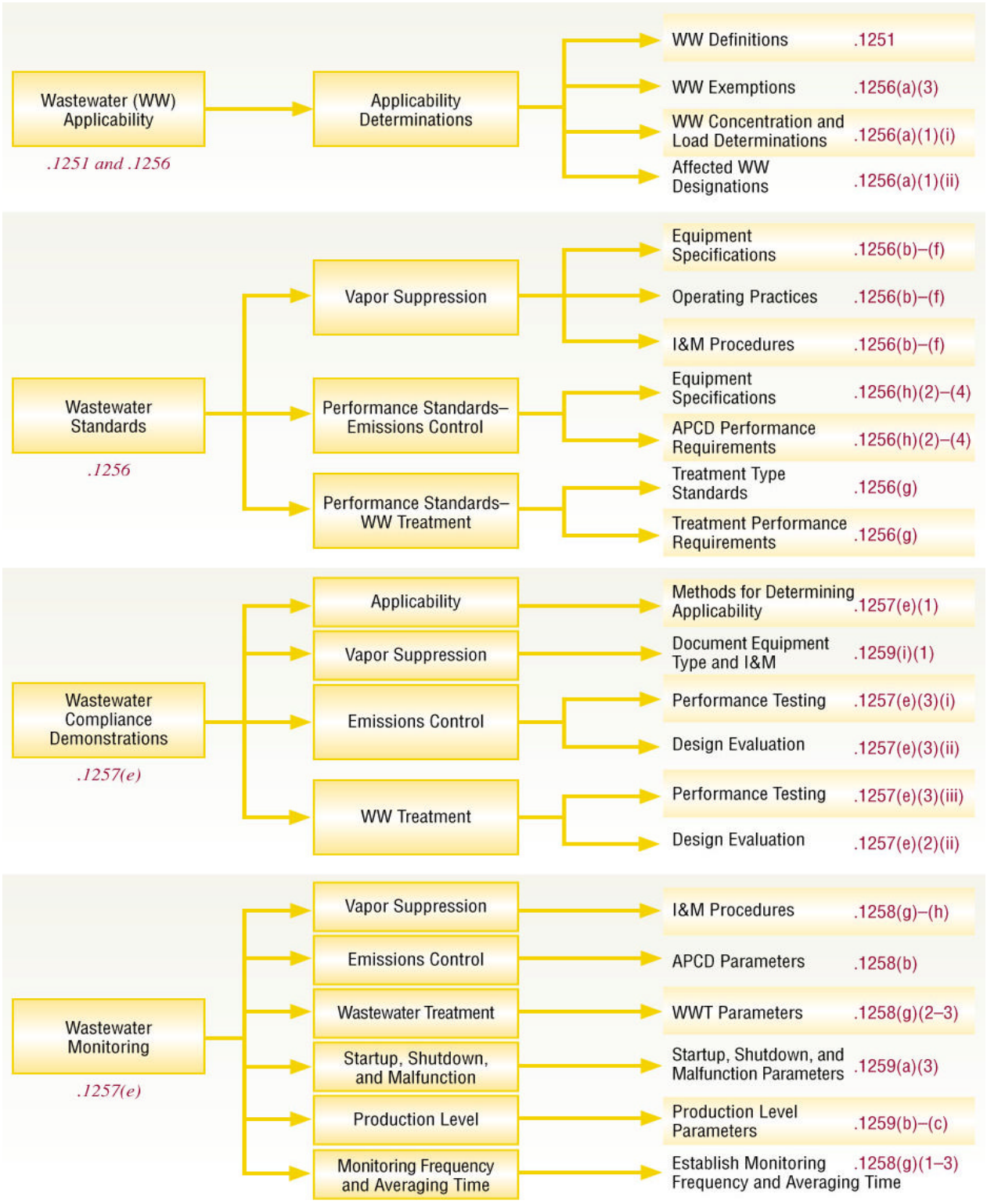


Figure 7-1. Primary Components of Wastewater Provisions (not including Recordkeeping or Reporting)

Maintenance Wastewater

Wastewater generated during maintenance activities is not subject to the full extent of the MACT standards. There are, however, substantive requirements for **maintenance wastewater**. Primarily, the regulations require that the owner/operator follow a written plan to control emissions to the atmosphere.

> ***Maintenance Wastewater*** *- Wastewater generated by the draining of process fluid from components in the pharmaceutical manufacturing process unit into an individual drain system prior to or during maintenance activities. Maintenance wastewater can be generated during planned and unplanned shutdowns and during periods not associated with a shutdown. Examples of activities that can generate maintenance wastewaters include descaling of heat exchanger tubing bundles, cleaning of distillation column traps, draining of pumps into an individual drain system, and draining of portions of the pharmaceutical manufacturing process unit for repair. Wastewater from cleaning operations is not considered maintenance wastewater.*

Owners/operators with maintenance wastewater containing HAPs must comply with the following four requirements:

1. Prepare a description of management for wastewater generated from the emptying and purging of equipment during temporary shutdowns for inspections, maintenance, and repair AND during periods that are not shutdowns (i.e. routine maintenance). In the description:
   - Identify process equipment or maintenance tasks that are anticipated to create wastewater during maintenance activities,
   - Describe the procedures that will be followed to manage the wastewater and control HAP emissions to the air, and
   - Describe the procedures that will be followed when clearing materials from process equipment.
2. Modify the information provided in 1. as needed after each maintenance procedure, based on actual procedures followed and wastewater generated.
3. Follow these plans as part of the startup, shutdown and malfunction (SSM) plan required under §63.6(e)(3).
4. Maintain a record of the information needed to prepare the description under 1.) and the adjustments under 2.). The recorded information must be maintained.

Heat Exchange Systems

Heat exchange systems that cool process equipment or materials used in a pharmaceutical manufacturing operation must be checked for releases of HAPs if the process equipment contains materials that are greater than 5% HAPs. The specific requirements are provided at §63.104 and 63.1252(c)(2). For equipment that meets current good manufacturing practice (CGMP) requirements in 21 CFR Part 211, the owner/operator may elect to use the physical integrity of the reactor as the surrogate indicator of heat exchanger system

leaks around the reactor. If a leak is detected, the system must be repaired no later than 45 days.

If CGMP is not used to identify leaks in heat exchange systems, then one of the following methods from §63.104 must be used. Cooling water in heat exchanger systems may be monitored quarterly using HAP, TOC, or an alternative constituent that will identify the presence of leaks. If the cooling water in a heat exchange system is subject to NPDES permit limits on HAP, TOC, or a related compound, and such limits are 1 ppmw or less, then the NPDES permit compliance monitoring can be used to detect cooling system leaks.

If the heat exchange system is operated with a minimum pressure on the cooling water side at least 35 kPa greater than the maximum pressure on the process side, cooling water monitoring is not required.

If a leak is detected by any of the above methods, the system must be repaired no later than 45 days following detection.

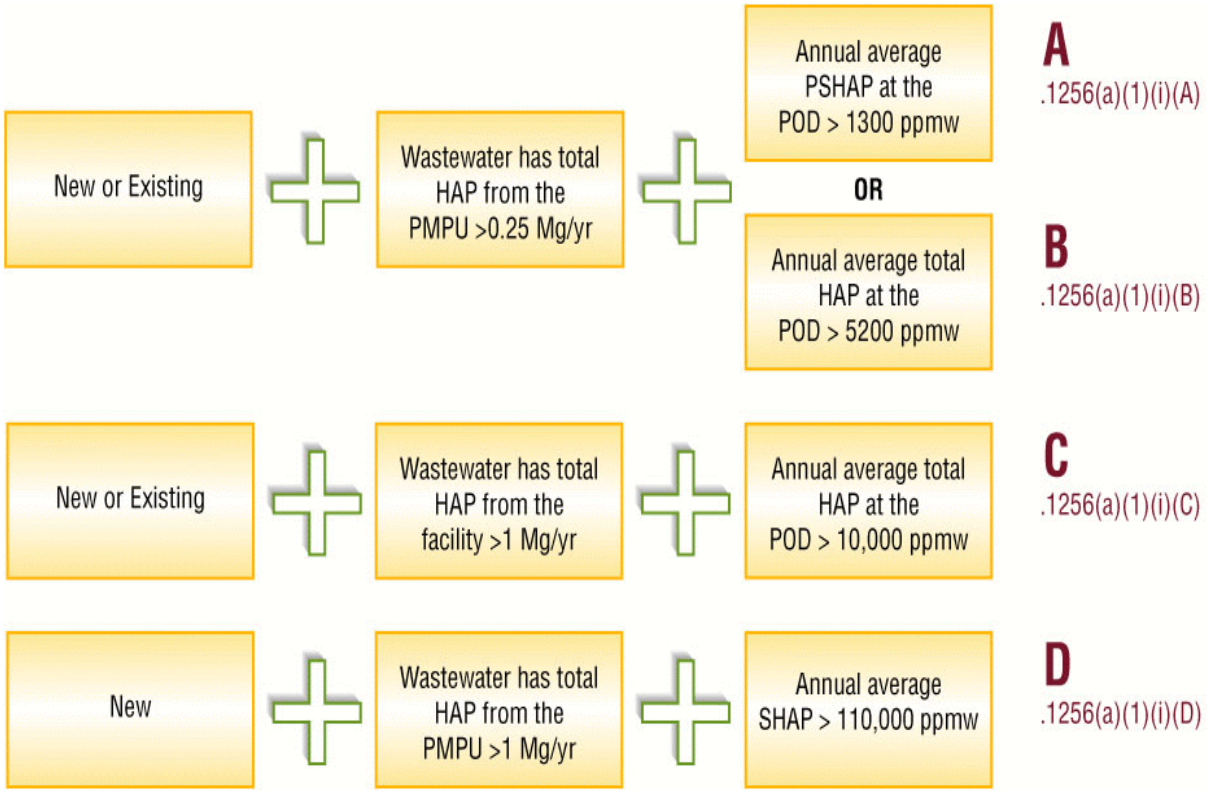
Equipment in Open Systems - Drains, Manholes, Lift Stations, Trenches, Pipes, Oil/Water Separators, Tanks

Section 63.1252(f) of the MACT regulations requires that steps be taken to prevent releases in systems upstream of the point of determination (POD). Drains or drain hubs, manholes, lift stations, trenches, pipes, oil/water separators, and tanks that handle affected liquid streams are subject to these requirements. The specific requirements are listed in Table 5 of the regulations. They essentially require tightly-fitting solid covers; emissions can be vented to process or to a control device that meets the wastewater control device standards at §63.1256(h)(2). The intent of this section is to require the closure of systems such as in-process recycle/recovery systems. It is not intended to be applied to process and storage tanks with vents that are in compliance with the process vent standards.

7.3.1 Affected Wastewater Criteria

If a wastewater meets the definition of a "wastewater stream" and the HAP concentration and load threshold levels described below, it must meet the requirements of this regulation. This document describes the 4 affected wastewater categories as shown below in Figure 7-2.

NOTE *- PMOs opting to comply with the wastewater standards by using the 95% mass reduction option for biological treatment processes are subject to more stringent suppression standards. In this circumstance any wastewater stream (i.e. any stream containing at least 5 ppmw PSHAP or SHAP) is subject to the vapor suppression standards and all wastewater streams must be included in the percent reduction demonstration. Under the other compliance options only "affected" wastewater streams are subject to the vapor suppression standards.*



*Note - Regardless of annual loading or concentration, wastewater from a scrubber used to control PSHAP containing vent streams in order to comply with the process vent standards is considered to be an affected wastewater stream.

Figure 7-2. Four Affected Wastewater Categories A-D

Note on Wastewater HAP Concentrations: Wastewater HAP concentration is used in two ways throughout this rule. One is what can be called the wastewater HAP emission potential concentration and the other is just the wastewater HAP concentration. The emission potential concentration is the portion of a wastewater HAP compound that theoretically volatilizes into air. Emission potential values are determined by dividing true HAP wastewater concentration by the compound specific fraction measured (Fm) factors listed in Table 8 of the regulation. The rule does not specifically use the term "emission potential concentration," but whenever Method 305* is mentioned, this means emission potentials. (i.e., Method 305 is used to determine wastewater HAP emission potential concentration).

If method 305 is used to determine PSHAP and SHAP concentrations in wastewater, the measured concentrations must be adjusted by the F_m value to determine if a wastewater is affected. If any of the other analytical methods listed in 63.1257(a)(10) are used for the determination, the measured PSHAP and SHAP concentrations are not adjusted.

*Method 305 = Measurement of Emissions Potential of Individual Volatile Organic Compounds in Waste

Where is a Wastewater Stream Characterized for Determining Applicability ?

7.3.2 Characterizing or Designating Wastewater as Affected

For determining whether a wastewater is affected, an owner/operator (O/O) can either:

1) **Characterize** a wastewater stream at each Point of Determination (POD), OR
2) **Designate** a wastewater stream as affected.

If the owner/ operator....	Then....
Characterizes the wastestream	Owner/operator must determine annual average concentration and load (see 4 categories A-D on previous page)
Designates the wastestream	Owner/operator not required to determine annual average concentration and load. Must meet same standards as those applicable to characterized streams. The wastewater handling equipment upstream of point of determination must meet vapor suppression and emissions control standards (discussed in section 7.1). Downstream of the point of determination, wastewater must meet treatment standards as well as vapor suppression and control requirements. Wastewater treatment options for designated streams do not include treating streams to 50 ppmw PSHAP, 520 ppmw SHAP or using enhanced biological treatment.

The O/O may use a combination of characterization or designation for different affected wastewaters generated at the source. The designation procedure allows an O/O to choose a location further downstream of multiple potential affected wastewater streams without having to determine applicability for each one. There are no restrictions on where a wastewater stream is designated, other than that it must be at or downstream from the point of determination (POD).

> ***Recovery device*** *- an individual unit of equipment used for recovering chemicals for fuel value, use, reuse, or for sale for fuel value, use, or reuse. Examples include decanters, strippers, and thin-film evaporation units.*

7.3.3 POD

If a wastewater stream is to be **characterized** for determining applicability, the **characterization must be at a POD**. A POD means the point where the stream exits the process, storage tank, or last ***recovery device***. If HAPs are not recovered for reuse from the water before discharge, the discharge point at the process equipmjent or storage tank is the POD, as shown in the example below for Site #2. If streams are routed to a recovery device, the discharge from the recovery device is the POD, as shown below for Site #1.

There can be more than 1 POD per process or PMPU.

Figure 7-3 presents sample process wastewater flow layouts showing example PODs and PMPUs.

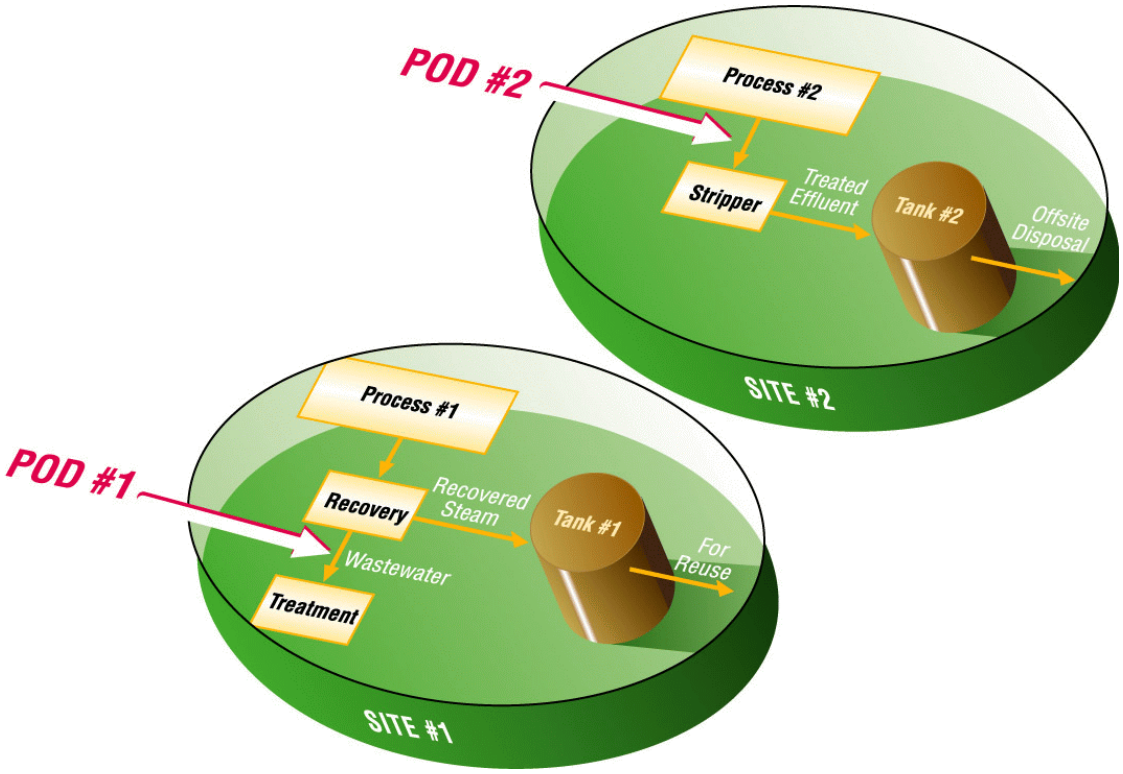


Figure 7-3. Example Wastewater Flow Scheme Showing POD Locations.

7.4 Standards

If a wastewater stream (including scrubber blowdown from units that treat PSHAPs) falls into one of the four criteria categories (referred to as A-D in Figure 7-2) and is not excluded as listed above, the facility is subject to Subpart GGG wastewater standards. The requirements can be separated into:

- C vapor suppression standards (cover and operate equipment to avoid losses to the air),
- C performance standards
- wastewater treatment standards (treat wastewater to remove HAPs) and
- air emissions control standard (use APCDs to control emissions of PSHAPs and SHAPs vented during wastewater treatment)

7.4.1 Vapor Suppression Standards Summary

Vapor Suppression (VS) requirements are provided for five kinds of waste management units:

- wastewater tanks
- surface impoundments
- containers
- individual drain systems
- oil water separators

Vapor suppression standards, summarized in Table 7-1 below, include:

- equipment specifications
- operating practices, and
- equipment inspection and monitoring (I and M) procedures.

Table 7-1. SUMMARY OF WASTEWATER VAPOR SUPPRESSION STANDARDS

Standard	Specification
Equipment Specifications	specified equipment types designed to minimize loss of airborne HAPs to the atmosphere (e.g., tank roofs, surface impoundment covers, container vent systems, sewer drain water seals)
Operating Practices	specified procedures to follow to minimize loss of HAP vapors (e.g. wastewater container filling guidelines)
Inspection and Monitoring Procedures	periodic inspections conducted to minimize HAP losses from worn equipment or improper operating practices (e.g., visually inspect for cracks, gaps, or holes in wastewater junction box covers)

In characterizing a wastestream to determine applicability of MACT wastewater provisions, is the owner or operator required to determine the annual average concentration of Partially Soluble HAPs and Soluble HAPs ? The O/O may choose to designate a wastewater stream as affected. If this is done, then the annual average PSHAP and SHAP wastewater concentrations need not be determined. However, if the O/O chooses to determine concentrations for assessing (i.e., **characterize**), then it must be done in such a way that concentration values represent the annual average. The annual average is defined as the total mass of HAP (PSHAP or SHAP) occurring in the wastewater during a calendar year divided by the total mass of the wastewater. Determinations can be made using either **test methods, knowledge of the wastewater stream, or bench-scale or pilot scale test data.** If the determination is made:

1) downstream of the POD where two or more streams have joined,
2) after the stream has been treated, or
3) after losses to the atmosphere have occurred,

then adjustments must be made to the data so that it represents conditions at the POD. Values derived from testing or from applying knowledge of the wastewater must be reported in the Notification of Compliance Status report. Values derived from bench-scale or pilot scale test data must be documented in the Precompliance report. Additionally, if a site conducts wastewater sampling to characterize the wastewater, then the site must develop and maintain, on-site, a Sampling Plan to document measures taken to ensure that volatization losses are minimized during sampling.

VS: Wastewater Storage Tanks

The first of the vapor suppression standards is for ***wastewater tanks***, which are provided in §63.1256(b). These requirements are summarized in Table 7-2.

> ***Wastewater Tank*** *- a stationary waste management unit that is designed to contain an accumulation of wastewater or residuals and is constructed primarily of nonearthen materials (e.g., wood, concrete, steel, plastic) which provide structural support. Flow equalization tanks are included in the definition.*

If the tank meets certain size and maximum true vapor pressure criteria, the O/O must comply with Tank Roof requirements (Fixed, Floating, etc) and associated Closed Vent System and APCD requirements (if applicable). The definition of ***maximum true vapor pressure*** provides guidance on how to calculate it.

Note on using open or closed biological treatment processes: Waste management units specifically used for biological treatment are **not subject to wastewater storage tank or surface impoundment vapor suppression requirements**. The processes must be designed to meet the definition of either an open biological treatment process or a closed biological treatment process in order for the exemption to apply.

> ***Maximum True Vapor Pressure*** *- the equilibrium partial pressure exerted by the total organic HAP in the stored or transferred liquid at the temperature equal to the highest calendar-month average of the liquid storage or transfer temperature for liquids stored or transferred above or below the ambient temperature or at the local maximum monthly average temperature as reported by the National Weather Service for liquids stored or transferred at the ambient temperature, as determined:*
>
> - *In accordance with methods described in Chapter 19.2 of the American Petroleum Institute's Manual of Petroleum Measurement Standards, Evaporative Loss From Floating-Roof Tanks (incorporated by reference as specified in §63.14); or*
> - *As obtained from standard reference texts; or*
> - *As determined by the American Society for Testing and Materials Method D2879-97, Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope (incorporated by reference as specified in §63.14); or*
> - *Any other method approved by the Administrator.*

Table 7-2. WASTEWATER STORAGE TANK VAPOR SUPPRESSION STANDARDS

Criteria		Vapor Suppression Standards	
Tank Capacity, T (m^3)	**Maximum True Vapor Pressure (kPa)**	**Required Standard**	**Description & Section No. {63.1256___)}**
T < 75		63.1256(b) (1)	- **(b)(1)** = Control w/ Fixed Roof (If tank is used for heating, exothermic treatment, or sparging, resulting in an increase in HAP emissions of 5% over that which would occur if no heating, exothermic treatment, or sparging activities occurred, then standard is (b)(2)) - **(b)(2)** = Comply w/ Inspection & Maintenance procedures {(b)(3-9)}[1] and control emissions using one of the following: C Fixed Roof/Closed Vent System to APCD, C Fixed Roof/Internal Floating Roof C External Floating Roof C Equivalent means of control
75 # T < 151	< 13.1	63.1256(b) (1)	
	$ 13.1	63.1256(b) (2)	
T $151	< 5.2	63.1256(b) (1)	
	$ 5.2	63.1256(b) (2)	

[1] A complete list of I & M procedures is given in the Monitoring chapter.

VS: Wastewater Surface Impoundments

Wastewater Surface Impoundments standards are listed in §63.1256(c) and summarized in Table 7-3. The regulation addresses any surface impoundment that receives, manages or treats affected wastewater. Vapors from surface impoundments are suppressed using either (1) a Cover (i.e, rigid) and Closed Vent System routed to a control device or (2) a Floating Membrane system.

Table 7-3. WASTEWATER SURFACE IMPOUNDMENT VAPOR SUPPRESSION STANDARDS {§63.1256(c)}

Vapor Suppression Method (Choice)	Standard
Cover/Closed Vent System to a Control Device, or	**A**. Unless system is maintained under vacuum, a Cover/Closed Vent System must be maintained according to 63.1258(h) {Leak inspection provisions for Vapor Suppression Equipment}, **B**. Openings maintained in closed position, and **C**. Cover used at all times
Floating Membranes	**A**. Designed to float and form continuous barrier **B**. Constructed from synthetic that is either **1**. HDPE >100 mils **2**. A material or composite of materials having the equivalent organic permeability and physical and chemical properties of 100 mils HDPE and that maintains material integrity for service life of material. **C**. No visible cracks, holes, gaps or open spaces between cover section seams or between the interface of the cover edge and its foundation mountings **D**. Each opening equipped w/ closure device that when closed shows no visible cracks, holes, gaps, or other open spaces in the closure device or between the perimeter of the cover opening and the closure device. **E**. Equipped w/ one or more emergency storm water drains (optional) **F**. Closure devices shall be made of suitable material **G**. When wastewater is present, openings shall be closed and cover on except during inspection, maintenance, etc. Shall be maintained (inspected) according to 63.1258(h).

VS: Wastewater Containers

Wastewater Containers standards contained in §63.1256(d) are summarized in Table 7-4. The regulation addresses any container with a capacity greater than or equal to 0.1 m^3 (25 gallons) that receives, manages or treats affected wastewater. For containers with capacity greater than 0.42 m^3 (110 gal), the standards call for using a cover and openings to be maintained according to §63.1258(h), Leak Inspection Provisions for Vapor Suppression Equipment. For those less than 0.42 m^3 (but greater than 0.1 m^3), the O/O can choose between meeting existing DOT regulations (49 CFR part 178) or maintaining w/o leaks according to 63.1258(h).

> ***Container*** *- as used in the wastewater provisions, means any portable waste management unit that has a capacity greater than or equal to 0.1 m^3 in which a material is stored, transported, treated, or otherwise handled. Examples of containers are drums, barrels, tank trucks, barges, dumpsters, tank cars, dump trucks, and ships.*

Table 7-4. WASTEWATER CONTAINERS VAPOR SUPPRESSION STANDARDS {§63.1256(d)}

Size	Standard Description (with Section Numbers)
> 0.42 m^3 (110 gal)	**1.** Maintain cover as follows; - Maintain cover and openings according to §63.1258(h), - Keep cover and openings closed unless for filling, removal, inspection, sampling, pressure relief or safety related reasons. **2.** When filling; - Either use submerged pipe when filling, with end of fill pipe no more than 15 cm or 2 pipe diameters from the bottom of the container, OR locate container within enclosure that has closed vent system that routes organic HAP vapors vented from the container to a control device, OR use a closed vent system to vent displaced vapors from the container either to a control device or back to the equipment from which the wastewater is transferred. - Keep cover and openings closed unless needed for filling **3.** When it is necessary for container to be open, locate it w/in an enclosure w/ Closed Vent System that routes vapors to APCD and: - Maintain enclosure according to §63.1258(h) - see Monitoring chapter for I and M requirements, - Maintain APCD according to §63.1256(h), - Inspect Closed Vent System according to §63.1258(h), - If under vacuum, not required to maintain according to §63.1258(h).
# 0.42 m^3 (110 gal)	**1.** Maintain cover as follows; - Comply with either: **A.** Meet DOT 49 CFR 178, or **B.** Maintain without leaks according to §63.1258(h). See Monitoring chapter for I and M requirements. - Keep cover and openings closed unless for filling, removal, inspection, sampling, pressure relief or safety related reasons. **2.** When it is necessary for container to be open, locate it w/in an enclosure w/ Closed Vent System that routes vapors to APCD and: - Maintain enclosure according to §63.1258(h). See Monitoring chapter for I and M requirements. - Maintain APCD according to §63.1256(h), - Inspect Closed Vent System according to §63.1258(h), - If under vacuum, not required to maintain according to §63.1258(h).

VS: Individual Drain System

Wastewater Individual Drain Systems standards contained in §63.1256(e) are summarized in Table 7-5. The standard addresses any individual drain system that receives or manages affected wastewater or residual removed from affected wastewater.

The standards present 2 options for suppressing emissions from individual drain systems (IDS). The first option is using a closed IDS with a Closed Vent System that is vented to an APCD. The second option is to minimize emissions using water seals and/or tightly fitting caps or plugs on all entrances to the drain systems and for junction boxes.

Junction boxes may be vented to the atmosphere if they have minimal water depth fluctuations, have vapor blocks at either their entrance(s) or exit(s), and have a vent pipe that meets specified design criteria. Building sewers may be vented through roof vents and outside sewers may be vented at locations other than at junction boxes, provided that the vent pipe height (at least 90 cm) and diameter (no greater than 10.2 cm in inside diameter) are the same as those for junction box vents AND the sewer has a water seal at the first downstream junction box.

Table 7-5. WASTEWATER INDIVIDUAL DRAIN SYSTEM VAPOR SUPPRESSION REQUIREMENTS {§63.1256(e)}

Standard (choice of either)	Description
1256(e) (1-3), **OR**	**1**. Maintain cover on each opening. If vented route through Closed Vent System to APCD and: - For cover and openings: **A.** Maintain according to 63.1258(h) - see Monitoring chapter for I and M requirements **B.** Keep in closed position when wastewater is in drain except for sampling, removal, inspection, maintenance or repair. - APCD designed/operated/inspected according to 63.1256(h) - Closed Vent System inspected according to 63.1258(h), - If under vacuum, not required to maintain by 63.1258(h), and - Design individual drain system to segregate vapors from drain systems that do not manage affected wastewaters and prevent releases to atmosphere. **2 & 3.** Inspection and Maintenance procedures - in Monitoring chapter
1256(e)(4-6)	**4**. Comply w/ following - Equip drain system openings w/ water seal, tightly fitting caps or plugs and - For water seal, maintain system to verify flow of water in trap, and - If water seal on drain receiving wastewater, discharge pipe must be submerged or flexible shield installed (except on water seals used on hubs receiving wastewater not subject to this provision) - Each junction box must have tightly fitting solid cover. If vented, comply w/ either **A.** Vent to process or to Closed Vent System vented to APCD. Closed Vent System maintained according to 63.1258(h) and APCD according to 63.1256(h), or **B.** If box uses gravity flow or there is only slight variation in liquid level then **1.** Vent pipe ≥ 90 cm length and ≤ 10.2 cm inside diameter, and **2.** Water seals installed to restrict ventilation on either the box influent or effluent. - Each sewer line carrying affected wastewater must not be vented to atmosphere unless the sewer line entrance to the first downstream junction box is water sealed and the sewer line vent pipe is ≥ 90 cm long and ≤ 10.2 cm inside diameter. **5 & 6.** Inspection and Maintenance procedures - in Monitoring chapter

VS: Oil-Water Separators

Wastewater Oil-Water separators standards contained in §63.1256(f) are summarized in Table 7-6. The regulation addresses any oil-water separator that receives, manages, or treats affected wastewater or residuals removed from wastewater. Vapors are to be suppressed using either a Fixed Roof (with a closed vent system and control device), Floating Roof, or Equivalent Means. An Equivalent Means of vapor suppression must be demonstrated by performance testing or engineering evaluation.

Table 7-6. WASTEWATER OIL WATER SEPARATORS VAPOR SUPPRESSION STANDARDS {§63.1256(f)}

Equip with...	Description (with Section Numbers)
Fixed Roof with CVS and Control Device, **OR**	**1.** Maintain Roof and openings according to §63.1258(h) (see Monitoring chapter for I and M requirements), and **2.** Keep in closed position when wastewater is in oil/water separator except for sampling, removal, inspection, maintenance or repair, and **3.** Design, operate, inspect APCD according to §63.1256(h) (See Table 7-2), and **4.** Inspect Closed Vent System according to §63.1258(h) **5.** Negative pressure not required to comply with §63.1258(h)
Floating Roof	**1.** Design floating roof per §60.693-2(a)(1)(i) and (ii), (a)(2), (a)(3), and (a)(4). - Primary seal - liquid-mounted or mechanical shoe - Secondary seal above the primary seal; cover the annular space between the floating roof and the wall of the separator - Equip each opening in the roof with gasketed cover, seal, or lid. Keep closed except during inspection and maintenance. - Roof must float on liquid (i.e., off the roof supports) except during abnormal conditions. - Roof may be equipped with emergency roof drains for removal of stormwater; use slotted membrane fabric cover that covers at least 90% of the drain opening area or a flexible fabric sleeve seal. **2.** Perform seal gap measurements according to 40 CFR 60 Subpart QQQ 60.696(d)(1) and scheduled as follows: - Primary seals: w/in 60 days after installation/wastewater introduction and once every 5 yrs thereafter, and - Secondary Seals: w/in 60 days after installation/wastewater introduction and annually thereafter.

Q and A

Q. ***What are CEFs and IWPs ?***

A. *Listed with each vapor suppression standard are inspection procedures for Control Equipment Failures (CEF) and/or Improper Work Practices (IWP) for each equipment type. For example, one of the CEFs listed for wastewater tanks is when a "gasket, joint, lid or cover has a crack, gap or is broken." An example of an IWP for fixed roof tanks is leaving open any access doors or any other opening when such door or opening is not in use.*

What are the Performance Standards for Wastewater Treatment?

7.4.2 Wastewater Treatment Standards

The wastewater treatment standards are found in §63.1256(g). Basically, there are six treatment standards in (g)(8 -13). A summary of how they apply to the four affected wastewater categories, A - D (Figure 7-2), is discussed below and shown in Table 7-7.

Wastewater from New and Existing Sources

For new or existing sources, the owner must:

- Treat an affected PSHAP wastewater stream (**category A**)
  - to remove 99% PSHAP, or
  - to less than 50 ppmw PSHAP,* or
  - remove 95% total HAP (from all wastewaters whether affected or unaffected) in a biological treatment unit, or
  - use a RCRA-permitted (or interim status) treatment device, such as an incinerator, boiler, or underground injection.
- Treat an affected Total HAP wastewater (**categories B & C)**
  - to remove 99% PSHAP and 90% SHAP, or
  - to less than 50 ppmw PSHAP and less than 520 ppmw SHAP,* or
  - use enhanced biotreatment (allowed only if PSHAP is less than 50 ppmw or if the wastewater has been treated upstream in compliance with (g)(8) (50 ppmw PSHAP or 99% reduction of PSHAP) and the wastewater is not designated), or
  - remove 99% PSHAP and treat to 520 ppmw SHAP, or
  - treat to 50 ppmw PSHAP and remove 90% SHAP, or
  - to remove 95% Total HAP (from all wastewaters whether affected or unaffected) in a biological treatment unit, or
  - use a RCRA-permitted (or interim status) treatment device, such as an incinerator, boiler, or underground injection.

NOTE(*): Concentration standards cannot be used (1) when biological treatment is used or (2) when the wastewater streams are designated.

For an existing source that has been **designated** as affected (per §63.1256(a)(1)(ii)), the wastewater treatment requirements are:

- PSHAP reduced by 99% and SHAP reduced by 90%, or
- Total HAP reduced by 95% in a biotreatment unit, or
- Treatment in a RCRA-permitted treatment device.

Wastewater from New Sources

For new sources, the owner/operator must:

- Treat an affected SHAP wastewater stream with greater than 110,000 ppmw SHAP (**category D)**

- to remove 99% SHAP, or
- use a RCRA-permitted (or interim status) treatment device, such as an incinerator, boiler, or underground injection.

Management of Residuals from Wastewater Treatment

Wastewater residuals are defined as HAP-containing liquids or solid materials removed from a wastewater stream by a waste management unit or treatment process that does not destroy organics. Examples of residuals include:

- the organic layer and bottom residue removed by a decanter or organic-water separator, and
- overheads from a steam stripper or air stripper.

Materials not classified as residuals include:

- silt, mud, or leaves,
- bottoms from a steam stripper or air stripper, and
- sludges, ash, or other materials from destructive treatment devices such as biological treatment units and incinerators.

There are several options for managing residuals taken from the treatment of affected wastewater:

- recycle the residual back into the production process or sell it to another firm for recycling. Once the residual is returned to a production process, it is no longer subject to regulation. OR
- return the residual to the treatment process. OR
- treat the residual to reduce the total combined mass flow rate of SHAP and/or PSHAP by 99 percent or more. (Use the performance tests in 63.1257(e)(2)(iii)(C) - noncombustion, nonbiological treatment process - or (D) - combustion treatment process - to demonstrate compliance.) OR
- treat the residual in a RCRA-regulated unit (hazardous waste incinerator or underground injection well.

In addition, tanks, surface impoundments, containers, individual drain systems, and oil/water separators used for the storage or management of residuals must meet the same design and operating requirements that apply to these units when used for treatment of affected wastewater (63.1256(b) - (f)).

What are the Standards for Air Emissions Control?

7.4.3 Emissions Control Standards

Standards for control of air emissions vented during the treatment process and from other waste management units with covers and closed vent systems are specified for air pollution control devices (APCD) as either:

1) equipment specifications - for combustion devices in terms of residence time and temperature specifications.

or

2) APCD performance levels - in the form of

Removal Efficiencies (RE) or APCD outlet HAP concentrations.

A summary of the standards is shown in Figure 7-4. Basically, there is a choice of 5 control standards as follows:

- Combustion device achieving 95% RE HAP, 20 ppmv outlet TOC @3% O_2, or provide 0.5 sec residence time at 760 deg C,
- Vapor recovery system achieving 95% RE HAP or 20 ppmv outlet TOC,
- Flare meeting requirements of §63.11(b),
- Scrubber or other APCD achieving 95% RE HAP or 20 ppmv TOC.

NOTE: The APCD outlet standard of 20 ppmv TOC is not available for APCDs controlling vent streams from wastewater surface impoundments or containers.

With regard to repairs to air pollution control devices, if gaps, cracks, tears, or holes are observed in the ductwork, piping, or connection to covers and control devices during an inspection, the owner/operator must make an attempt within 5 calendar days to fix the problem. Repair can be delayed only if:

- the repair cannot be done without a shutdown or if the emissions resulting from immediate repair would be greater than those anticipated to result from delaying the repair. The equipment must be repaired by the end of the next shutdown, OR
- the equipment is emptied or is no longer being used to treat affected wastewater or residuals, OR
- if additional time is necessary due to the unavailability of parts, due to circumstances beyond the control of the owner/operator. Repair must be done as soon as practical, In this case, the reasons for delaying the repair must be documented.

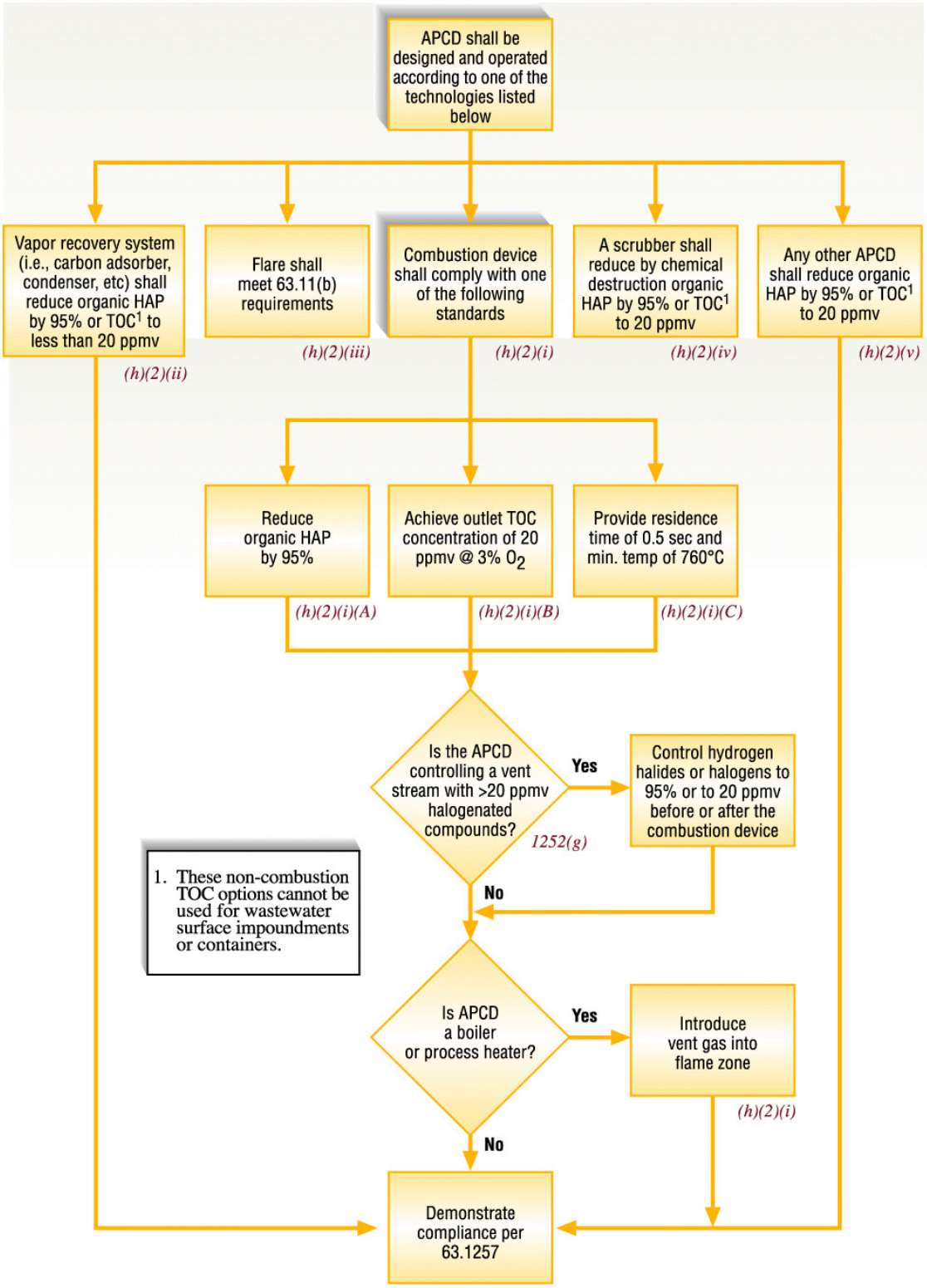


Figure 7-4. Wastewater APCD Requirements in §63.1256(h)

Table 7-7. WASTEWATER TREATMENT STANDARDS

Treatment Options	Used To Treat	Source Type	Limitations	Citations
treat to < 50 ppmw	PSHAP	new and existing (categories A, B, and C)	- no biotreatment or dilution - not available for designated streams	.1256(g)(8)(i) .1256(a)(1)(ii)
99% total mass removal/ destruction of HAP	PSHAP	new and existing (categories A, B, and C)		.1256(g)(8)(ii)
	SHAP	new (category D)	- only required when SHAP concentration is 110,000 ppmw and the total PSHAP and SHAP load in wastewater from the PMPU is > 1Mg/yr	.1256(g)(12)
treat to <520 ppmw	SHAP	new and existing (categories B and C)	- no biotreatment or dilution - not available for designated streams	.1256(g)(9)(i) .1256(a)(1)(ii)
90% total mass removal/ destruction of HAP	SHAP	new and existing (categories B and C)		.1256(g)(9)(ii)
enhanced biological treatment	SHAP	new and existing (categories A, B, and C)	- system must meet the definition of enhanced biological treatment - may only be used for affected wastewater with < 50 ppmw PSHAP, or wastewater that has been treated to less than 50 ppmw PSHAP or to 99% reduction of PSHAP - not available for designated streams	.1256(g)(10) .1256(a)(1)(ii)
95% mass removal/ destruction of total HAP with biological treatment unit	Total PSHAP and SHAP	new and existing (categories A, B, and C)	- biological treatment is required - all wastewater streams (as defined in 63.1252) entering the system must achieve 95% HAP removal, except wastewater already treated in compliance with another treatment option - all wastewater streams (as defined in 63.1252) entering the system must be managed in wastewater management units (sewers, etc.) in compliance with the MACT	.1256(g)(11)

Treatment Options	Used To Treat	Source Type	Limitations	Citations
RCRA permitted or interim status treatment device	PSHAP and/or SHAP	new and existing (categories A, B, C, and D)	- systems include heaters, incinerators, boilers, industrial furnaces, and underground injection	.1256(g)(13)

Offsite Treatment or Onsite Treatment by Someone Other Than Owner/Operator

The owner/operator may elect to transfer affected wastewater (or a residual removed from such wastewater) to an offsite treatment operation or to an on-site treatment operation being run by someone else.

Owner/ Operator:	Responsibilities include...
of the Affected Source	C ensuring that all waste management units on-site handling affected streams are in compliance with wastewater management requirements (e.g., all drain systems and tanks containing affected streams must comply with §63.1256(b)-(f)). C submitting a notice with each shipment stating that the wastewater or residual from the wastewater contains PSHAP and/or SHAP that must be treated in compliance with the regulations. If the transfer is continuous or ongoing, submit the notice with the first shipment and whenever there is a change in the treatment required. Keep a record of the notice in accordance with §63.1259(g).

Owner/ Operator:	Responsibilities include...
of a Treatment System Receiving the Wastewater	C Submitting to EPA, prior to receiving any affected wastewater, a written certification stating that any affected wastewater or affected wastewater residual will be treated in compliance with: S §63.1256(b)-(i) (requirements for tanks, surface impoundments, containers, individual drain systems, oil water separators, plus other performance standards for treatment), or S Subpart D (if alternative emissions limitations have been approved), or S §63.6(g) (use of an alternative nonopacity emission standard), or S If the affected wastewater streams or residuals contain less than 50 ppmw partially soluble HAP, then the person receiving them for treatment can: i. comply with (g)(10) (enhanced biotreatment for SHAP) and cover the waste management units up to the activated sludge unit, or ii. comply with (g)(11)(i) and (ii) (95 percent reduction in a biological treatment unit), and (h) (emissions control device standards) and cover the waste management units up to the activated sludge unit, or iii. comply with (g)(10) (enhanced biotreatment for SHAP) provided that the affected source owner/operator demonstrates that less than 5 percent of the total SHAP is emitted from waste management units up to the activated sludge unit, or iv. comply with (g)(11)(i) and (ii), (95 percent reduction in a biological treatment unit), and (h) (emissions control device standards), provided that the affected source owner/operator demonstrates that less than 5 percent of the total SHAP is emitted from waste management units up to the activated sludge unit. C Securing the signature of the responsible official on the certification, and providing the name and address of the certifying entity to the EPA Regional office. **NOTE ON REVOKING CERTIFICATION:** A written statement must be sent to both EPA and the owner/operator of the affected wastewater stating that the transferee is no longer accepting responsibility for treatment of the affected wastewater. The transferee must give at least 90 days notice. When the 90-day period is up, the owner/operator may not transfer affected wastewater or residuals to the treatment operation.

Q and A

Q. ***What are the standards for wastewater treatment using multiple treatment processes in series ?***

A. *The mass removal/destruction efficiency requirements are the same. However, efficiency calculation techniques differ for different treatment configurations. If wastewater is conveyed by hard piping then mass removal / destruction efficiency is determined across the combination of treatment processes. If wastewater is not conveyed by hard piping then efficiency is determined across each treatment process with total efficiency equal to the sum of efficiencies from each component process.*

What is the Pollution Prevention Option?

In lieu of the wastewater standards discussed above, an owner or operator (O/O) can choose to meet pollution prevention (P2) standards. The P2 requirements are either:

- reduce the production-indexed HAP consumption factor (kg HAP consumed/kg product produced) by 75% from a specified baseline average established no earlier than 1987, or
- reduce the production-indexed HAP consumption factor by at least 50% from a specified baseline average established no earlier than 1987 AND reduce total PMPU HAP emissions divided by the annual production rate (kg HAP emitted per year/kg produced per year) to a value greater than 25% of the average production-indexed consumption factor (i.e., achieve 50% reduction by using pollution prevention and achieve additional 25% by using standard control devices). For more information on the pollution prevention option, see **° Chapter 10- Pollution Prevention Alternative.**

7.5 Compliance Demonstration

Compliance demonstration procedures for wastewater standards are listed in §63.1257(e) - Test Methods and Compliance Procedures - Compliance with Wastewater Provisions. This section lists requirements for demonstrating initial compliance. Procedures for demonstrating on-going or continual compliance are listed in §63.1258 (Monitoring Requirements). A complete description of the required monitoring procedures can be found in **° Chapter 9 - Monitoring**. The following paragraph presents a brief introduction to the initial compliance demonstration requirements for wastewater. A more complete description of the requirements can be found in **° Chapter 8 - Compliance Demonstration and Testing Procedures.**

Q and A

Q. ***How do I demonstrate compliance for:***
1) wastewater with multiple phases
2) treatment residuals ?

A. *Wastestreams with free phase HAP cannot be sent to individual drain systems, stored in wastewater tanks or surface impoundments, or sent to treatment units. The free phase HAP can only be discharged to a RCRA treatment unit, per 63.1256(a)(3). For wastewater treatment residuals, the O/O must either:*

1. *recycle the residual back to the production process, or sell the material for the purpose of recycling*
2. *return the residual back to the treatment process,*
3. *destroy combined PSHAP/SHAP by at least 99%, or*
4. *treat the residual in a RCRA unit per §63.1256(g)(13).*

To demonstrate compliance with option 1 or 2, the O/O must document process configuration. To demonstrate compliance with option 3, the O/O should use compliance demonstration technique C or D as discussed in Appendix WWT.

The initial compliance demonstration procedures as listed in §63.1257(e) are basically separated into 3 parts:

- Determination of wastewater HAP concentration and load as it pertains to wastewater **applicability** criteria (i.e. annual concentration and annual load),
- Design Evaluation and Performance Test procedures for demonstrating compliance with **air emissions control (i.e., APCD**) requirements, and
- Design Evaluation and Performance Test procedures for demonstrating compliance with **wastewater treatment** standards.

Compliance with the **vapor suppression standards** is done primarily through the reporting provisions of the rule, which require that the owner or operator document the results of Inspection and Monitoring procedures that are followed for wastewater management units.

The reader is referred to Chapters 8 and 9 for more complete details on compliance demonstrations and monitoring requirements.

Table 7-4. WASTEWATER CONTAINERS VAPOR SUPPRESSION STANDARDS {§63.1256(d)}

Size	Standard Description (with Section Numbers)
> 0.42 m^3 (110 gal)	**1.** Maintain cover as follows; - Maintain cover and openings according to §63.1258(h), - Keep cover and openings closed unless for filling, removal, inspection, sampling, pressure relief or safety related reasons. **2.** When filling; - Either use submerged pipe when filling, with end of fill pipe no more than 15 cm or 2 pipe diameters from the bottom of the container, OR locate container within enclosure that has closed vent system that routes organic HAP vapors vented from the container to a control device, OR use a closed vent system to vent displaced vapors from the container either to a control device or back to the equipment from which the wastewater is transferred. - Keep cover and openings closed unless needed for filling **3.** When it is necessary for container to be open, locate it w/in an enclosure w/ Closed Vent System that routes vapors to APCD and: - Maintain enclosure according to §63.1258(h) - see Monitoring chapter for I and M requirements, - Maintain APCD according to §63.1256(h), - Inspect Closed Vent System according to §63.1258(h), - If under vacuum, not required to maintain according to §63.1258(h).
# 0.42 m^3 (110 gal)	**1.** Maintain cover as follows; - Comply with either: **A.** Meet DOT 49 CFR 178, or **B.** Maintain without leaks according to §63.1258(h). See Monitoring chapter for I and M requirements. - Keep cover and openings closed unless for filling, removal, inspection, sampling, pressure relief or safety related reasons. **2.** When it is necessary for container to be open, locate it w/in an enclosure w/ Closed Vent System that routes vapors to APCD and: - Maintain enclosure according to §63.1258(h). See Monitoring chapter for I and M requirements. - Maintain APCD according to §63.1256(h), - Inspect Closed Vent System according to §63.1258(h), - If under vacuum, not required to maintain according to §63.1258(h).

VS: Individual Drain System

Wastewater Individual Drain Systems standards contained in §63.1256(e) are summarized in Table 7-5. The standard addresses any individual drain system that receives or manages affected wastewater or residual removed from affected wastewater.

The standards present 2 options for suppressing emissions from individual drain systems (IDS). The first option is using a closed IDS with a Closed Vent System that is vented to an APCD. The second option is to minimize emissions using water seals and/or tightly fitting caps or plugs on all entrances to the drain systems and for junction boxes.

Junction boxes may be vented to the atmosphere if they have minimal water depth fluctuations, have vapor blocks at either their entrance(s) or exit(s), and have a vent pipe that meets specified design criteria. Building sewers may be vented through roof vents and outside sewers may be vented at locations other than at junction boxes, provided that the vent pipe height (at least 90 cm) and diameter (no greater than 10.2 cm in inside diameter) are the same as those for junction box vents AND the sewer has a water seal at the first downstream junction box.

Table 7-5. WASTEWATER INDIVIDUAL DRAIN SYSTEM VAPOR SUPPRESSION REQUIREMENTS {§63.1256(e)}

Standard (choice of either)	Description
1256(e) (1-3), **OR**	**1**. Maintain cover on each opening. If vented route through Closed Vent System to APCD and: - For cover and openings: **A.** Maintain according to 63.1258(h) - see Monitoring chapter for I and M requirements **B.** Keep in closed position when wastewater is in drain except for sampling, removal, inspection, maintenance or repair. - APCD designed/operated/inspected according to 63.1256(h) - Closed Vent System inspected according to 63.1258(h), - If under vacuum, not required to maintain by 63.1258(h), and - Design individual drain system to segregate vapors from drain systems that do not manage affected wastewaters and prevent releases to atmosphere. **2 & 3.** Inspection and Maintenance procedures - in Monitoring chapter
1256(e)(4-6)	**4**. Comply w/ following - Equip drain system openings w/ water seal, tightly fitting caps or plugs and - For water seal, maintain system to verify flow of water in trap, and - If water seal on drain receiving wastewater, discharge pipe must be submerged or flexible shield installed (except on water seals used on hubs receiving wastewater not subject to this provision) - Each junction box must have tightly fitting solid cover. If vented, comply w/ either **A.** Vent to process or to Closed Vent System vented to APCD. Closed Vent System maintained according to 63.1258(h) and APCD according to 63.1256(h), or **B.** If box uses gravity flow or there is only slight variation in liquid level then **1.** Vent pipe ≥ 90 cm length and ≤ 10.2 cm inside diameter, and **2.** Water seals installed to restrict ventilation on either the box influent or effluent. - Each sewer line carrying affected wastewater must not be vented to atmosphere unless the sewer line entrance to the first downstream junction box is water sealed and the sewer line vent pipe is ≥ 90 cm long and ≤ 10.2 cm inside diameter. **5 & 6.** Inspection and Maintenance procedures - in Monitoring chapter

VS: Oil-Water Separators

Wastewater Oil-Water separators standards contained in §63.1256(f) are summarized in Table 7-6. The regulation addresses any oil-water separator that receives, manages, or treats affected wastewater or residuals removed from wastewater. Vapors are to be suppressed using either a Fixed Roof (with a closed vent system and control device), Floating Roof, or Equivalent Means. An Equivalent Means of vapor suppression must be demonstrated by performance testing or engineering evaluation.

Table 7-6. WASTEWATER OIL WATER SEPARATORS VAPOR SUPPRESSION STANDARDS {§63.1256(f)}

Equip with...	Description (with Section Numbers)
Fixed Roof with CVS and Control Device, **OR**	**1.** Maintain Roof and openings according to §63.1258(h) (see Monitoring chapter for I and M requirements), and **2.** Keep in closed position when wastewater is in oil/water separator except for sampling, removal, inspection, maintenance or repair, and **3.** Design, operate, inspect APCD according to §63.1256(h) (See Table 7-2), and **4.** Inspect Closed Vent System according to §63.1258(h) **5.** Negative pressure not required to comply with §63.1258(h)
Floating Roof	**1.** Design floating roof per §60.693-2(a)(1)(i) and (ii), (a)(2), (a)(3), and (a)(4). - Primary seal - liquid-mounted or mechanical shoe - Secondary seal above the primary seal; cover the annular space between the floating roof and the wall of the separator - Equip each opening in the roof with gasketed cover, seal, or lid. Keep closed except during inspection and maintenance. - Roof must float on liquid (i.e., off the roof supports) except during abnormal conditions. - Roof may be equipped with emergency roof drains for removal of stormwater; use slotted membrane fabric cover that covers at least 90% of the drain opening area or a flexible fabric sleeve seal. **2.** Perform seal gap measurements according to 40 CFR 60 Subpart QQQ 60.696(d)(1) and scheduled as follows: - Primary seals: w/in 60 days after installation/wastewater introduction and once every 5 yrs thereafter, and - Secondary Seals: w/in 60 days after installation/wastewater introduction and annually thereafter.

Q and A

Q. ***What are CEFs and IWPs ?***

A. *Listed with each vapor suppression standard are inspection procedures for Control Equipment Failures (CEF) and/or Improper Work Practices (IWP) for each equipment type. For example, one of the CEFs listed for wastewater tanks is when a "gasket, joint, lid or cover has a crack, gap or is broken." An example of an IWP for fixed roof tanks is leaving open any access doors or any other opening when such door or opening is not in use.*

What are the Performance Standards for Wastewater Treatment?

7.4.2 Wastewater Treatment Standards

The wastewater treatment standards are found in §63.1256(g). Basically, there are six treatment standards in (g)(8 -13). A summary of how they apply to the four affected wastewater categories, A - D (Figure 7-2), is discussed below and shown in Table 7-7.

Wastewater from New and Existing Sources

For new or existing sources, the owner must:

- Treat an affected PSHAP wastewater stream (**category A**)
  - to remove 99% PSHAP, or
  - to less than 50 ppmw PSHAP,* or
  - remove 95% total HAP (from all wastewaters whether affected or unaffected) in a biological treatment unit, or
  - use a RCRA-permitted (or interim status) treatment device, such as an incinerator, boiler, or underground injection.
- Treat an affected Total HAP wastewater (**categories B & C)**
  - to remove 99% PSHAP and 90% SHAP, or
  - to less than 50 ppmw PSHAP and less than 520 ppmw SHAP,* or
  - use enhanced biotreatment (allowed only if PSHAP is less than 50 ppmw or if the wastewater has been treated upstream in compliance with (g)(8) (50 ppmw PSHAP or 99% reduction of PSHAP) and the wastewater is not designated), or
  - remove 99% PSHAP and treat to 520 ppmw SHAP, or
  - treat to 50 ppmw PSHAP and remove 90% SHAP, or
  - to remove 95% Total HAP (from all wastewaters whether affected or unaffected) in a biological treatment unit, or
  - use a RCRA-permitted (or interim status) treatment device, such as an incinerator, boiler, or underground injection.

NOTE(*): Concentration standards cannot be used (1) when biological treatment is used or (2) when the wastewater streams are designated.

For an existing source that has been **designated** as affected (per §63.1256(a)(1)(ii)), the wastewater treatment requirements are:

- PSHAP reduced by 99% and SHAP reduced by 90%, or
- Total HAP reduced by 95% in a biotreatment unit, or
- Treatment in a RCRA-permitted treatment device.

Wastewater from New Sources

For new sources, the owner/operator must:

- Treat an affected SHAP wastewater stream with greater than 110,000 ppmw SHAP (**category D)**

- to remove 99% SHAP, or
- use a RCRA-permitted (or interim status) treatment device, such as an incinerator, boiler, or underground injection.

Management of Residuals from Wastewater Treatment

Wastewater residuals are defined as HAP-containing liquids or solid materials removed from a wastewater stream by a waste management unit or treatment process that does not destroy organics. Examples of residuals include:

- the organic layer and bottom residue removed by a decanter or organic-water separator, and
- overheads from a steam stripper or air stripper.

Materials not classified as residuals include:

- silt, mud, or leaves,
- bottoms from a steam stripper or air stripper, and
- sludges, ash, or other materials from destructive treatment devices such as biological treatment units and incinerators.

There are several options for managing residuals taken from the treatment of affected wastewater:

- recycle the residual back into the production process or sell it to another firm for recycling. Once the residual is returned to a production process, it is no longer subject to regulation. OR
- return the residual to the treatment process. OR
- treat the residual to reduce the total combined mass flow rate of SHAP and/or PSHAP by 99 percent or more. (Use the performance tests in 63.1257(e)(2)(iii)(C) - noncombustion, nonbiological treatment process - or (D) - combustion treatment process - to demonstrate compliance.) OR
- treat the residual in a RCRA-regulated unit (hazardous waste incinerator or underground injection well.

In addition, tanks, surface impoundments, containers, individual drain systems, and oil/water separators used for the storage or management of residuals must meet the same design and operating requirements that apply to these units when used for treatment of affected wastewater (63.1256(b) - (f)).

What are the Standards for Air Emissions Control?

7.4.3 Emissions Control Standards

Standards for control of air emissions vented during the treatment process and from other waste management units with covers and closed vent systems are specified for air pollution control devices (APCD) as either:

1) equipment specifications - for combustion devices in terms of residence time and temperature specifications.

or

2) APCD performance levels - in the form of

Removal Efficiencies (RE) or APCD outlet HAP concentrations.

A summary of the standards is shown in Figure 7-4. Basically, there is a choice of 5 control standards as follows:

- Combustion device achieving 95% RE HAP, 20 ppmv outlet TOC @3% O_2, or provide 0.5 sec residence time at 760 deg C,
- Vapor recovery system achieving 95% RE HAP or 20 ppmv outlet TOC,
- Flare meeting requirements of §63.11(b),
- Scrubber or other APCD achieving 95% RE HAP or 20 ppmv TOC.

NOTE: The APCD outlet standard of 20 ppmv TOC is not available for APCDs controlling vent streams from wastewater surface impoundments or containers.

With regard to repairs to air pollution control devices, if gaps, cracks, tears, or holes are observed in the ductwork, piping, or connection to covers and control devices during an inspection, the owner/operator must make an attempt within 5 calendar days to fix the problem. Repair can be delayed only if:

- the repair cannot be done without a shutdown or if the emissions resulting from immediate repair would be greater than those anticipated to result from delaying the repair. The equipment must be repaired by the end of the next shutdown, OR
- the equipment is emptied or is no longer being used to treat affected wastewater or residuals, OR
- if additional time is necessary due to the unavailability of parts, due to circumstances beyond the control of the owner/operator. Repair must be done as soon as practical, In this case, the reasons for delaying the repair must be documented.

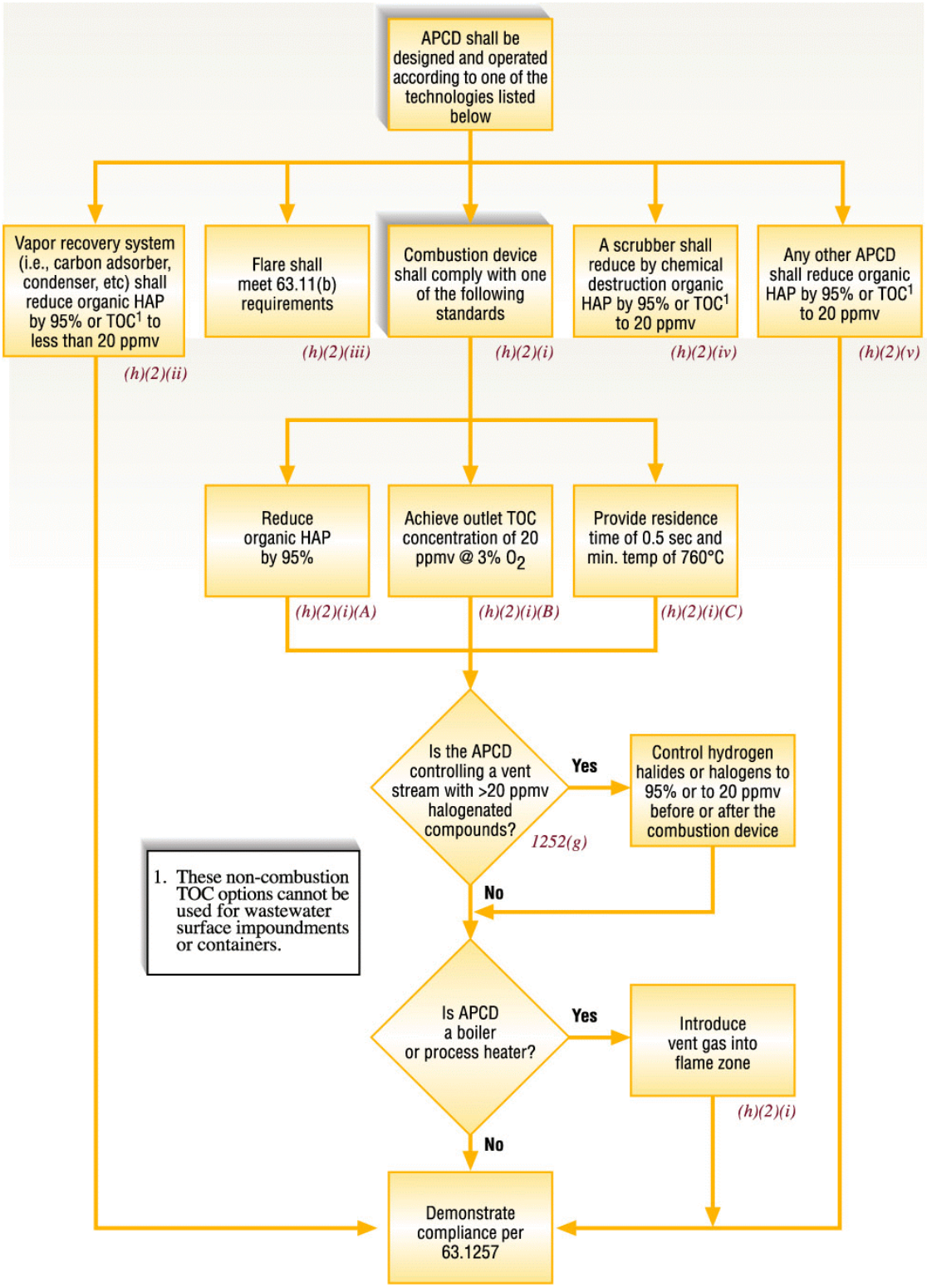


Figure 7-4. Wastewater APCD Requirements in §63.1256(h)

Table 7-7. WASTEWATER TREATMENT STANDARDS

Treatment Options	Used To Treat	Source Type	Limitations	Citations
treat to < 50 ppmw	PSHAP	new and existing (categories A, B, and C)	- no biotreatment or dilution - not available for designated streams	.1256(g)(8)(i) .1256(a)(1)(ii)
99% total mass removal/ destruction of HAP	PSHAP	new and existing (categories A, B, and C)		.1256(g)(8)(ii)
	SHAP	new (category D)	- only required when SHAP concentration is 110,000 ppmw and the total PSHAP and SHAP load in wastewater from the PMPU is > 1Mg/yr	.1256(g)(12)
treat to <520 ppmw	SHAP	new and existing (categories B and C)	- no biotreatment or dilution - not available for designated streams	.1256(g)(9)(i) .1256(a)(1)(ii)
90% total mass removal/ destruction of HAP	SHAP	new and existing (categories B and C)		.1256(g)(9)(ii)
enhanced biological treatment	SHAP	new and existing (categories A, B, and C)	- system must meet the definition of enhanced biological treatment - may only be used for affected wastewater with < 50 ppmw PSHAP, or wastewater that has been treated to less than 50 ppmw PSHAP or to 99% reduction of PSHAP - not available for designated streams	.1256(g)(10) .1256(a)(1)(ii)
95% mass removal/ destruction of total HAP with biological treatment unit	Total PSHAP and SHAP	new and existing (categories A, B, and C)	- biological treatment is required - all wastewater streams (as defined in 63.1252) entering the system must achieve 95% HAP removal, except wastewater already treated in compliance with another treatment option - all wastewater streams (as defined in 63.1252) entering the system must be managed in wastewater management units (sewers, etc.) in compliance with the MACT	.1256(g)(11)

Treatment Options	Used To Treat	Source Type	Limitations	Citations
RCRA permitted or interim status treatment device	PSHAP and/or SHAP	new and existing (categories A, B, C, and D)	- systems include heaters, incinerators, boilers, industrial furnaces, and underground injection	.1256(g)(13)

Offsite Treatment or Onsite Treatment by Someone Other Than Owner/Operator

The owner/operator may elect to transfer affected wastewater (or a residual removed from such wastewater) to an offsite treatment operation or to an on-site treatment operation being run by someone else.

Owner/ Operator:	Responsibilities include...
of the Affected Source	C ensuring that all waste management units on-site handling affected streams are in compliance with wastewater management requirements (e.g., all drain systems and tanks containing affected streams must comply with §63.1256(b)-(f)). C submitting a notice with each shipment stating that the wastewater or residual from the wastewater contains PSHAP and/or SHAP that must be treated in compliance with the regulations. If the transfer is continuous or ongoing, submit the notice with the first shipment and whenever there is a change in the treatment required. Keep a record of the notice in accordance with §63.1259(g).

Owner/ Operator:	Responsibilities include...
of a Treatment System Receiving the Wastewater	C Submitting to EPA, prior to receiving any affected wastewater, a written certification stating that any affected wastewater or affected wastewater residual will be treated in compliance with: S §63.1256(b)-(i) (requirements for tanks, surface impoundments, containers, individual drain systems, oil water separators, plus other performance standards for treatment), or S Subpart D (if alternative emissions limitations have been approved), or S §63.6(g) (use of an alternative nonopacity emission standard), or S If the affected wastewater streams or residuals contain less than 50 ppmw partially soluble HAP, then the person receiving them for treatment can: i. comply with (g)(10) (enhanced biotreatment for SHAP) and cover the waste management units up to the activated sludge unit, or ii. comply with (g)(11)(i) and (ii) (95 percent reduction in a biological treatment unit), and (h) (emissions control device standards) and cover the waste management units up to the activated sludge unit, or iii. comply with (g)(10) (enhanced biotreatment for SHAP) provided that the affected source owner/operator demonstrates that less than 5 percent of the total SHAP is emitted from waste management units up to the activated sludge unit, or iv. comply with (g)(11)(i) and (ii), (95 percent reduction in a biological treatment unit), and (h) (emissions control device standards), provided that the affected source owner/operator demonstrates that less than 5 percent of the total SHAP is emitted from waste management units up to the activated sludge unit. C Securing the signature of the responsible official on the certification, and providing the name and address of the certifying entity to the EPA Regional office. **NOTE ON REVOKING CERTIFICATION:** A written statement must be sent to both EPA and the owner/operator of the affected wastewater stating that the transferee is no longer accepting responsibility for treatment of the affected wastewater. The transferee must give at least 90 days notice. When the 90-day period is up, the owner/operator may not transfer affected wastewater or residuals to the treatment operation.

Q and A

Q. ***What are the standards for wastewater treatment using multiple treatment processes in series ?***

A. *The mass removal/destruction efficiency requirements are the same. However, efficiency calculation techniques differ for different treatment configurations. If wastewater is conveyed by hard piping then mass removal / destruction efficiency is determined across the combination of treatment processes. If wastewater is not conveyed by hard piping then efficiency is determined across each treatment process with total efficiency equal to the sum of efficiencies from each component process.*

What is the Pollution Prevention Option?

In lieu of the wastewater standards discussed above, an owner or operator (O/O) can choose to meet pollution prevention (P2) standards. The P2 requirements are either:

- reduce the production-indexed HAP consumption factor (kg HAP consumed/kg product produced) by 75% from a specified baseline average established no earlier than 1987, or
- reduce the production-indexed HAP consumption factor by at least 50% from a specified baseline average established no earlier than 1987 AND reduce total PMPU HAP emissions divided by the annual production rate (kg HAP emitted per year/kg produced per year) to a value greater than 25% of the average production-indexed consumption factor (i.e., achieve 50% reduction by using pollution prevention and achieve additional 25% by using standard control devices). For more information on the pollution prevention option, see **° Chapter 10- Pollution Prevention Alternative.**

7.5 Compliance Demonstration

Compliance demonstration procedures for wastewater standards are listed in §63.1257(e) - Test Methods and Compliance Procedures - Compliance with Wastewater Provisions. This section lists requirements for demonstrating initial compliance. Procedures for demonstrating on-going or continual compliance are listed in §63.1258 (Monitoring Requirements). A complete description of the required monitoring procedures can be found in **° Chapter 9 - Monitoring**. The following paragraph presents a brief introduction to the initial compliance demonstration requirements for wastewater. A more complete description of the requirements can be found in **° Chapter 8 - Compliance Demonstration and Testing Procedures.**

Q and A

Q. ***How do I demonstrate compliance for:***
1) wastewater with multiple phases
2) treatment residuals ?

A. *Wastestreams with free phase HAP cannot be sent to individual drain systems, stored in wastewater tanks or surface impoundments, or sent to treatment units. The free phase HAP can only be discharged to a RCRA treatment unit, per 63.1256(a)(3). For wastewater treatment residuals, the O/O must either:*

1. *recycle the residual back to the production process, or sell the material for the purpose of recycling*
2. *return the residual back to the treatment process,*
3. *destroy combined PSHAP/SHAP by at least 99%, or*
4. *treat the residual in a RCRA unit per §63.1256(g)(13).*

To demonstrate compliance with option 1 or 2, the O/O must document process configuration. To demonstrate compliance with option 3, the O/O should use compliance demonstration technique C or D as discussed in Appendix WWT.

The initial compliance demonstration procedures as listed in §63.1257(e) are basically separated into 3 parts:

- Determination of wastewater HAP concentration and load as it pertains to wastewater **applicability** criteria (i.e. annual concentration and annual load),
- Design Evaluation and Performance Test procedures for demonstrating compliance with **air emissions control (i.e., APCD**) requirements, and
- Design Evaluation and Performance Test procedures for demonstrating compliance with **wastewater treatment** standards.

Compliance with the **vapor suppression standards** is done primarily through the reporting provisions of the rule, which require that the owner or operator document the results of Inspection and Monitoring procedures that are followed for wastewater management units.

The reader is referred to Chapters 8 and 9 for more complete details on compliance demonstrations and monitoring requirements.